



GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY

Electrical and Electronics Engineering

RESEARCH METHODOLOGY AND IPR

Course Code: GR22D5011

L/T/P/C: 2/0/0/2

Course objectives:

- To familiarise students with the different aspects of research.
- To provide an idea of good scientific writing and proper presentation skills.
- To provide an understanding of philosophical questions behind scientific research.
- To provide a brief background on the historical legacy of science.
- To provide an insight of nature of Intellectual Property and new developments in IPR.

Course Outcomes:

At the end of this course, students will be able to

1. Understand research problem formulation. Analyse research related information and follow research ethics.
2. Understand that today 's world is controlled by Computer, Information Technology, but tomorrow world will be ruled by ideas, concept, and creativity.
3. Understanding that when IPR would take such important place in growth of individuals & nation, it is needless to emphasise the need of information about Intellectual Property Right to be promoted among students in general & engineering.
4. Understand the nature of Intellectual Property and IPR in International scenario.
5. Understand that IPR protection provides an incentive to inventors for further and design the administration of patent system and new Developments in IPR.

Unit I

Research problem, Sources of research problem, Criteria Characteristics of a good research problem, Errors in selecting a research problem, Scope and objectives of research problem. Approaches of investigation of solutions for research problem, data collection, analysis, interpretation, Necessary instrumentations

Unit II

Effective literature studies approaches, analysis Plagiarism, Research ethics, Citation

Unit III

Effective technical writing, how to write report, Paper Developing a Research Proposal, Format of research proposal, a presentation and assessment by a review committee

Unit IV

Nature of Intellectual Property: Patents, Designs, Trade and Copyright. Process of Patenting and Development: technological research, innovation, patenting, development. International Scenario: International cooperation on Intellectual Property. Procedure for grants of patents, Patenting under PCT.

Unit V

New Developments in IPR: Administration of Patent System. New developments in IPR; IPR of Biological Systems, Computer Software etc. Traditional knowledge Case Studies, IPR and IITs.

Reference Books:

1. Stuart Melville and Wayne Goddard, —Research methodology: an introduction for science & engineering students ‘I
2. Wayne Goddard and Stuart Melville, —Research Methodology: An IntroductionI
3. RanjitKumar, 2 ndEdition , —Research Methodology: A Step by Step Guide for beginnersI
4. Halbert, —Resisting Intellectual PropertyI, Taylor & Francis Ltd ,2007.
5. Mayall , —Industrial DesignI, McGraw Hill,1992.
6. Niebel , —Product DesignI, McGraw Hill,1974.
7. Asimov , —Introduction to DesignI, Prentice Hall,1962.
8. Robert P. Merges, Peter S. Menell, Mark A. Lemley, — Intellectual Property in New Technological AgeI,2016. T. Ramappa, —Intellectual Property Rights Under WTOI, S. Chand,2008



Gokaraju Rangaraju Institute of Engineering and Technology(Autonomous)
Bachupally, Kukatpally, Hyderabad – 500 090, T.S., India. (040) 6686 4440

TIME TABLE

Academic Year: 2022-2023

Year : I

Semester: I

Name of the Program: M.Tech

Course/Subject: RM&IPR

Course Code: GR22D5011

Name of the Faculty: Dr Pakkiraiah B

Dept.: Electrical & Electronics Engineering

Designation: Associate Professor

	9:00 AM To 9:55 AM	9:55 AM To 10:50 AM	10:50AM To 11:45 PM	11:45 PM To 12:25 PM	12:25 PM To 1:15 PM	1:15 PM To 2:05 PM	2:05 PM To 2:55 PM
MON				L U N C H			
TUE							
WED							
THU					RM&IPR		
FRI							
SAT	RM&IPR						



Gokaraju Rangaraju Institute of Engineering and Technology

Department of Electrical and Electronics Engineering

GRIET/PRIN/06/G/01/22-23

Wef : 26 Oct 2022

M.Tech - PE

I Year - I Semester

DAY/ HOUR	9:00 - 9:55	9:55- 10:50	10:50 - 11:45	11:45 -12:25	12:25-1:15	1:15 - 2:05	2:05 -2:55	ROOM NO	
MONDAY	MAEM	MAEM	Mentoring	BREAK	PQ Lab		Library	Theory/Tutorial	4506
TUESDAY	PQ	MSPEC	MSPEC		PE Lab		Library	Lab	PE Lab-4405 PQ Lab-4407
WEDNESDAY	MSPEC	ERPW	Mentoring		MAEM	EHV	Library		
THURSDAY	PQ Lab		Mentoring		IPR	ERPW	Library	Class Incharge	Dr. D. Raveendra
FRIDAY	PE Lab		Mentoring		EHV	EHV	Library		
SATURDAY	IPR	PQ	PQ		-	-	-		
Subject Code	Subject Name (Short Code)				Faculty Code	Faculty Name		Almanac	
GR22D5025	Modeling and Analysis of Electrical Machines (MAEM)			Dr DR	Dr D Raveendra		I Spell of Instructions		26-10-2022 to 22-12-2022
GR22D5026	Modelling and Simulation of Power Electronic Converters (MSPEC)			Dr TSK	Dr T Suresh Kumar		I Mid-term Examinations		23-12-2022 to 29-12-2022
GR22D5027	Power Quality & FACTS (PQ & FACTS)			AVK	A Vinay Kumar		II Spell Instructions		30-12-2022 to 28-02-2023
GR22D5032	Electric and Hybrid Vehicles (EHV)			Dr DGP	Dr D. G. Padhan		II Mid Term Examinations		01-03-2023 to 07-03-2023
GR22D5033	Power Quality Lab (PQ Lab)			Dr DR	Dr D Raveendra		Preparation/Break		08-03-2023 to 14-03-2023
GR22D5034	Power Electronics Lab (PE Lab)			Dr TSK	Dr T Suresh Kumar		End Semester Examinations		15-03-2023 to 01-04-2023
GR22D5011	Research Methodology & Intellectual Property Rights (RM & IPR)			Dr PB	Dr B. Pakkiraiah		Commencement of First Year Second Semester, A.Y 2021-22		03-04-2023
GR22D5153	English for Research Paper Writing (ERPW)			Dr RLK	Dr R. Lakshmi Kanthi				



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Designation: Associate Professor

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO 1:

Graduates of the program will equip with a detailed knowledge of the theories, process, methods and techniques of building high-quality software system in a cost-effective manner.

PEO 2:

Graduates of the program will apply proper theoretical and practical knowledge of software requirements engineering, software systems design for feasibility analysis, emerging computing technologies and quality practices of international standards.

PEO 3:

Graduates of the program will be effective as both an individual contributor and a member of a development team with professional, ethical and social responsibilities.

PEO 4:

Graduates of the program will grow professionally through continuing education, training, or research, and adapting to the rapidly changing technological trends globally in software engineering.



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PROGRAM OUTCOMES (POS):

PO1:

Able to design experiments and think critically in evaluating the design choices made and trade-offs considered when developing software based systems.

PO2:

Able to write and present the key facts, concepts, principles, and theories of software engineering.

PO3:

Able to demonstrate the technical trends, skills, modern tools used in the software engineering practice.

PO4:

Able to develop and appreciation of the cost, quality, and management issues involved in software construction.

PO5:

Able to conduct, evaluate and synthesize research to understand how technological advances impact society and the social, legal, ethical and cultural ramifications of software engineering practices.

PO6:

Able to engage in lifelong learning which enables them to be a successful software professional throughout their career.



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COURSE OBJECTIVES

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S.NO	COURSE OBJECTIVES
1	Understand research problem formulation.
2	Analyze research related information and follow research ethics
3	Understand that today's world is controlled by Computer, Information Technology, but tomorrow's world will be ruled by ideas, concepts, and creativity.
4	Understand that when IPR would take such an important place in the growth of individuals & nations, it is needless to emphasise the need for information about Intellectual Property Rights to be promoted among students in general & engineering.
5	Understand the nature of Intellectual Property and IPR in International scenarios.

Signature of faculty
Date:

Signature of HOD
Date:

Note: Please refer to Bloom's Taxonomy, to know the illustrative verbs that can be used to state the objectives.



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1	To familiarize students with the different aspects of research.
2	To provide an idea of good scientific writing and proper presentation skills.
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**Gokaraju Rangaraju Institute of Engineering and
Technology, (Autonomous)**

**I M.Tech-(RM & IPR-GR22D5011) I Sem I-Mid Marks (2022-
23) of SECTION A**

Department of Electrical and Electronics Engineering

S. N O	Roll NO	Names
1	22241D4301	ADDANKI NAGASAI
2	22241D4302	CHILAGANI NAVEEN
3	22241D4303	PURAM JOSHANA
4	22241D4304	SATHUNURI SANDEEP
5	22241D4305	CHINTHALA DEVIKA

Faculty Sign



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The Schedule for the whole Course / Subject is:

S. No.	Description	Duration (Date)		Total No. Of Periods
		From	To	
1.	Unit-I	27/10/22	12/11/22	8
2.	Unit-II	17/11/22	8/12/22	8
3.	Unit-III	9/12/22	24/12/22	8
4.	Unit-IV	29/12/22	19/01/23	8
5.	Unit-V	21/01/23	10/02/23	8

Total No. of Instructional periods available for the course: 40 Hours / Periods



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**SCHEDULE OF INSTRUCTIONS
UNIT PLAN**

Academic Year: 2022-2023

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Semester: I

Name of the Program: M.Tech

Course/Subject: RM&IPR

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Name of the Faculty: Dr Pakkiraiah B

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References:

1. Stuart Melville and Wayne Goddard, "Research methodology: an introduction for science & engineering students"

S. No.	Date	No. of Periods	Topics / Sub – Topics	Objectives & Outcomes	References (Text Book, Journal...)
1.	27/10/22-28/10/22	2	Meaning of research problem	1&1	R1
2.	29/10/22-3/11/22	2	Sources of research problem	1&1	R1
3.	5/11/22-10/11/22	2	Criteria & Characteristics of a good research problem	1&1	R1
4.	11/11/22	1	Errors in selecting a research problem	1&1	R1
5.	12/11/22	1	Scope and objectives of research problem	1&1	R1

Signature of HOD

Date:

Signature of faculty

Date:

- Note:
1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.
 2. ADDITIONAL TOPICS COVERED, IF ANY, MAY ALSO BE SPECIFIED IN BOLD
 3. MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.



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S. No.	Date	No. of Periods	Topics / Sub – Topics	Objectives & Outcomes	References (Text Book, Journal...)
1.	17/11/22	1	Approaches of investigation of solutions for research problem	2&2	R1
2.	19/11/22-24/11/22	2	Data collection, analysis, Data interpretation	2&2	R1
3.	25/11/22	1	Necessary instrumentations, Scope and objectives of research problem	2&2	R1
4.	26/11/22-1/12/22	2	Effective literature studies approaches.	2&2	R1
5.	3/12/22-8/12/22	2	Analysis Plagiarism, Research ethics, Citation.	2&2	R1

Signature of HOD

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S. No.	Date	No. of Periods	Topics / Sub – Topics	Objectives & Outcomes	References (Text Book, Journal...)
1.	9/12/22-10/12/22	2	Effective technical writing	3&3	R1
2.	15/12/22-16/12/22	2	How to write report	3&3	R1
3.	17/12/22-22/12/22	2	Developing a Research Proposal	3&3	R1
4.	23/12/22-24/12/22	2	Format of research proposal, Presentation and assessment by a review committee	3&3	R1

Signature of HOD
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Signature of faculty
Date:

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SCHEDULE OF INSTRUCTIONS
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References:

1. Stuart Melville and Wayne Goddard, "Research methodology: an introduction for science & engineering students"

S. No.	Date	No. of Periods	Topics / Sub – Topics	Objectives & Outcomes	References (Text Book, Journal...)
1.	29/12/22-30/12/22	2	Nature of Intellectual Property: Patents, Designs	4&4	R1
2.	31/12/22-5/1/23	2	Trade and Copyright, Process of Patenting and Development, Innovation	4&4	R1
3.	7/12/22-12/1/23	2	Patenting, International Scenario	4&4	R1
4.	13/1/23-19/1/23	2	International cooperation on Intellectual Property, Procedure for grants of patents, Patenting under PCT	4&4	R1

Signature of HOD
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S. No.	Date	No. of Periods	Topics / Sub – Topics	Objectives & Outcomes	References (Text Book, Journal...)
1.	21/01/23-27/1/23	2	Patent Rights: Scope of Patent Rights, Licensing and transfer of technology	5&5	R1
2.	28/01/23-2/2/23	2	Patent information and databases, Geographical Indications, New Developments in IPR	5&5	R1
3.	3/02/23-4/2/23	2	Administration of Patent System	5&5	R1
4.	9/02/23-10/2/23	2	IPR of Biological Systems, Computer Software etc., Traditional knowledge Case Studies, IPR and IITs	5&5	R1

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1

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TEXT BOOKS

1. Stuart Melville and Wayne Goddard, —Research methodology: an introduction for science & engineering students ‘ll
2. Wayne Goddard and Stuart Melville, —Research Methodology: An Introductionll
3. RanjitKumar, 2nd Edition , —Research Methodology: A Step by Step Guide for beginnersll

REFERENCE BOOKS

1. Halbert, —Resisting Intellectual Propertyll, Taylor & Francis Ltd ,2007.
2. Mayall , —Industrial Designll, McGraw Hill,1992.
3. Niebel , —Product Designll, McGraw Hill,1974.
4. Asimov , —Introduction to Designll, Prentice Hall,1962.
5. Robert P. Merges, Peter S. Menell, Mark A. Lemley, — Intellectual Property in New Technological Agel,2016. T. Ramappa, —Intellectual Property Rights Under WTOll, S. Chand,2008.

Unit No.	S. No.	Date	No. of Periods	Topics / Sub-Topics	Objectives & Outcomes Nos.	References (Text Book, Journal...) Page Nos.: to
I	1	27/10/22-29/10/22	3	Research problem, Sources of research problem	Obj: 1 Out: 1	T1, T2, R1
	2	3/11/22-	3	Criteria Characteristics of a good research	Obj: 1	T1, T2, R1

		10/11/22		problem.	Out: 1	
	3	11/11/22-12/11/22	2	Errors in selecting a research problem, Scope and objectives of research problem.	Obj: 1 Out: 1	T1, T2, R1
II	4	17/11/22-24/11/22	3	Approaches of investigation of solutions for research problem, data collection, analysis, interpretation, Necessary instrumentations		
	5	25/11/22-26/11/22	2	Effective literature studies approaches.	Obj: 2 Out: 2	T1, T2, R1
	6	1/12/22-8/12/22	3	Analysis Plagiarism, Research ethics, Citation.	Obj: 2 Out: 2	T1, T2, R1
III	7	9/12/22-15/12/22	3	Effective technical writing, how to write report, Paper Developing a Research Proposal.	Obj: 3 Out: 3	T1, T2, R1
	8	16/12/22-17/12/22	2	Format of research proposal.	Obj: 3 Out: 3	T1, T2, R1
	9	22/12/22-24/12/22	3	A presentation and assessment by a review committee.	Obj: 3 Out: 3	T1, T2, R1
IV	10	29/12/22-30/12/22	2	Nature of Intellectual Property: Patents, Designs, Trade and Copyright.	Obj: 4 Out: 4	T1, T2, R1
	11	31/12/22-5/1/23	2	Process of Patenting and Development: technological research.	Obj: 4 Out: 4	T1, T2, R1
	12	7/1/23-12/1/23	2	Innovation, patenting, development. International Scenario: International cooperation on Intellectual Property.	Obj: 4 Out: 4	T1, T2, R1
	13	13/1/23-19/1/23	2	Procedure for grants of patents, Patenting under PCT	Obj: 4 Out: 4	T1, T2, R1
V	14	21/1/23-27/1/23	2	New Developments in IPR: Administration of Patent System.	Obj: 5 Out: 5	T1, T2, R1
	15	28/1/23-3/2/23	3	New developments in IPR; IPR of Biological Systems, Computer Software etc.	Obj: 5 Out: 5	T1, T2, R1
	16	4/2/23-10/2/23	3	Traditional knowledge Case Studies, IPR and IITs.	Obj: 5 Out: 5	T1, T2, R1

S.No	Unit No.	Date	No. of Periods	Topics
1	I	27/10/22-28/10/22	2	Research problem, Sources of research problem
2		29/10/22-3/11/22	2	Criteria Characteristics of a good research problem
3		5/11/22-10/11/22	2	Errors in selecting a research problem
4		11/11/22-12/11/22	2	Scope and objectives of research problem
5	II	17/11/22-24/11/22	3	Approaches of investigation of solutions for research problem, data collection, analysis, interpretation, Necessary instrumentations
6		25/11/22-26/11/22	2	Effective literature studies approaches.
7		1/12/22-8/12/22	3	Analysis Plagiarism, Research ethics, Citation.
8	III	9/12/22-16/12/22	4	Effective technical writing, how to write report, Paper Developing a Research Proposal. Format of research proposal.
9		17/12/22-24/12/22	4	A presentation and assessment by a review committee.
10	IV	29/12/22-30/12/22	2	Nature of Intellectual Property: Patents, Designs, Trade and Copyright.
11		31/12/22-7/1/23	3	Process of Patenting and Development: technological research. Innovation, patenting, development. International Scenario: International cooperation on Intellectual Property.
12		12/1/23-19/1/23	3	Procedure for grants of patents, Patenting under PCT
13	V	21/1/23-2/2/23	4	New Developments in IPR: Administration of Patent System. IPR of Biological Systems, Computer Software etc.
14		3/2/23-10/2/23	2	Traditional knowledge Case Studies, IPR and IITs.



EVALUATION STRATEGY

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1. TARGET:

A) Percentage for pass: 100%

b) Percentage of class: 100%

2. COURSE PLAN & CONTENT DELIVERY

All the topics of this course covered by delivering lectures through PPTs and class room lectures and given exercises , assignments to the students.

3. METHOD OF EVALUATION

3.1 Continuous Assessment Examinations (CAE-I, CAE-II)

Assessment (CAE-I,CAE-II)	Descriptive questions	Objective questions
Topic relevance	50%	---
Diagrams with labels	20%	---
Accuracy	30%	100%

3.2 Assessment plan for Assignments:

Content	Weight age
Problem description	20%
Implementation	70%
Diagrams/Scripts	10%

3.3 Semester/End Examination

Content	Weight age
Topic description	20%
Writing	70%
Diagrams/Scripts	10%

3.4 Assessment plan for Slip Tests:

Content	Weight age
Analysis	10%
Writing	80%
Diagrams/Scripts	10%

3.5 Quiz

Sample questions:

- Research Problem begins with []
 - Identification of Research Problem
 - Research Design
 - Collection of Data
 - Report writing
- If the Researcher is not familiar with Research Problem, then which study is conducted to acquire knowledge of the subject []
 - Pre-testing
 - Pilot-study
 - Detailed-study
 - Analytical-study
- What is the name of the conceptual framework in which the research is carried out?[]
 - Research Hypothesis
 - Synopsis of Research
 - Research Paradigm
 - Research design

Signature of HOD
Date:

Signature of faculty
Date:



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TUTORIAL SHEET-I

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S.NO	TUTORIAL QUESTIONS
1	Explain the sources of research problem and errors in selecting a research problem?
2	Define Research? Explain the criteria and characteristics of a good research problem?
3	Scope Of RM
4	Objectives of RM
5	Analyze on different types of plagiarism

Please write the Questions / Problems / Exercises which you would like to give to the students and also mention the Objectives/Outcomes to which these Questions / Problems / Exercises are related.

Objective Nos.:1,2,3

Outcome Nos.: 1,2,3

Signature of faculty
Date:

Signature of HOD
Date:



**Gokaraju Rangaraju Institute of Engineering and
Technology(Autonomous)**
Bachupally, Kukatpally, Hyderabad – 500 090, TS., India. (040) 6686 4440

TUTORIAL SHEET-II

Academic Year: 2022-2023

Year : I

Semester: I

Name of the Program: M.Tech

Course/Subject: RM&IPR

Course Code: GR22D5011

Name of the Faculty: Dr Pakkiraiah B

Dept.: Electrical & Electronics Engineering

Designation: Associate Professor

S.NO	TUTORIAL QUESTIONS
1	Elaborate the Format of writing a technical report with suitable examples
2	Brief out the contents to be presented to the assessment committee with suitable examples.
3	Compare Patents, Designs, Trade and Copyright with suitable examples.
4	Illustrate with a case study on IPR Development in biological systems with suitable examples.
5	State the importance of intellectual property rights and explain various types of intellectual property rights

Please write the Questions / Problems / Exercises which you would like to give to the students and also mention the Objectives/Outcomes to which these Questions / Problems / Exercises are related.

Objective Nos.: 4,5

Outcome Nos.: 4,5

Signature of faculty
Date:

Signature of HOD
Date:



Research Methodology and Intellectual Property Rights

M TECH I Year I Sem ASSIGNMENT -I

A.Y: 2022-23

(Answer these questions from the prescribed e-text books available: Research Methodology: A step by step Guide for Beginners by Ranjit Kumar & Research Methodology: Methods and Techniques by C.R. Kothari and Gaurav Garg & Notes kept in Newton)

UNIT -I

1. A prospective student is asked to formulate a research problem as a part of project work. Explain the various steps of Research Process the student has to follow?
2. Explain the sources of research problem and errors in selecting a research problem?
3. Define Research? Explain the criteria and characteristics of a good research problem?
4. Explain the scope and objectives of research problem?

UNIT -II

1. How do you conduct Literature Survey? Explain some sources of journals and digital libraries in structural engineering?
2. Describe the approaches of investigation of solutions for research problem?
3. Explain the data collection, analysis, interpretation and necessary instrumentation in Research?
4. What is plagiarism? Explain various types of plagiarism and Research Ethics?

UNIT -III

1. Explain the criteria to be considered in writing an effective technical research report?
2. Explain the steps of writing a research report?



Research Methodology and Intellectual Property Rights

M TECH I Year I Sem ASSIGNMENT -II

A.Y: 2022-23

(Answer these questions from the prescribed e-text books available: Research Methodology: A step by step Guide for Beginners by Ranjit Kumar & Research Methodology: Methods and Techniques by C.R. Kothari and Gaurav Garg & Unit Wise Notes kept in Newton& eGyankosh which is the Study material of Indira Gandhi National Open University & NPTEL Web Notes & Videos)

Unit III (Half portion)

- (a) Discuss about the format of Research Proposal
- (b) How will Research be assessed by Review Committee?
- (c) Explain various sections of a Research Paper in detail?
- (d) What are the necessary guidelines to be followed in writing a Research Proposal?

Unit IV

- (a) State the importance of intellectual property rights and explain various types of intellectual property rights
- (b) Explain the process of patenting
- (c) Describe how can technical designs be protected?
- (d) Discuss the issues of copyright ownership? List the items which can be copyright protected?
- (e) Explain the procedure for grant of patents?
- (f) Explain the patenting under PCT (Patent Cooperation Treaty) in detail? (g) Describe the role of World Intellectual Property Organization (WIPO) in granting patents at international level & Indian Patent Office of Intellectual Property of India at national level
- (h) What is the role of Rajiv Gandhi National Institute of Intellectual Property Management at Nagpur?

UNIT V

- (a) Explain the scope of patent rights?
- (b) Explain Licensing and Transfer of Technology in IITs, IISc, MIT, Florida State University and Utah State University
- (c) Describe the information and databases in WIPO, USPTO, CIPO, EPO and Indian Patent Advanced Search System
- (d) Explain Geographical Indications?
- (e) Explain the Emerging issues in IPR?
- (f) Describe the administration of Patent system?
- (g) Explain IPR of Biological systems, Computer software etc.



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GR22D5011 – Research Methodology & IPR

CO - PO Mapping tables

Code	Subject	Course Outcomes	Programme Outcomes					
			PO1	PO2	PO3	PO4	PO5	PO6
		Analyze research related information.	H	H		H		
		Follow research ethics.	H			H	M	H
		Understanding that when IPR would take such important place in growth of individuals & nation, it is needless to emphasis the need of information about Intellectual Property Right to be promoted among students in general & engineering in particular.		H	H		H	
		To implement innovative research work and patent it.	H		M		H	H



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GR22D5011 – Research Methodology & IPR

MAPPING

GR22D5011 – Research Methodology & IPR		Course Outcomes				
Course Objectives		1	2	3	4	5
1		X	X		X	
2			X	X		X
3		X	X	X		
4			X	X	X	
5						X
GR22D5011 – Research Methodology & IPR		Course Outcomes				
Assessments		1	2	3	4	5
1		X	X			
2		X		X		X
3			X	X	X	
4		X			X	
5			X			X

GR22D5011 – Research Methodology & IPR	Course Objectives				
Assessments	1	2	3	4	5
1		X		X	
2			X		X
3	X			X	
4	X		X		X
5		X		X	X

Signature of faculty

Date:

Subject: RESEARCH METHODOLOGY AND IPR-GR22D5011

Course Outcomes:

1. Understand research problem formulation.
2. Analyze research related information and follow research ethics
3. Understand that today's world is controlled by Computer, Information Technology, but tomorrow's world will be ruled by ideas, concepts, and creativity.
4. Understand that when IPR would take such an important place in the growth of individuals & nations, it is needless to emphasise the need for information about Intellectual Property Rights to be promoted among students in general & engineering.
5. Understand the nature of Intellectual Property and IPR in International scenarios.

	CO1	CO2	CO3	CO4	CO5
a) Q1	✓				
b)	✓				
c)		✓			
d)		✓			
e)			✓		
f)			✓		
g)				✓	
h)				✓	
i)					✓
j)					✓
Q11	✓				
Q12	✓				
Q13		✓			
Q14		✓			
Q15			✓		
Q16			✓		
Q17				✓	
Q18				✓	
Q19					✓
Q20					✓



Gokaraju Rangaraju Institute of Engineering and Technology (Autonomous)

Bachupally, Kukatpally, Hyderabad – 500 090, Telangana, India.

MAPPINGS/MATRIX

a) Course Objectives-Course Outcomes Relationship Matrix (Indicate the relationships by mark “X”)

Course Objectives \ Course Outcomes	1	2	3	4	5
1	X				X
2	X	X	X	X	
3		X	X	X	
4			X	X	
5	X	X		X	X

b) Course Objectives-Program Outcomes (Pos) Relationship Matrix (Indicate the relationships by mark “X”)

Course Objectives \ Program Outcomes	a	b	c	d	e	f
1	X	X		X	X	X
2		X		X	X	X
3	X		X		X	
4					X	
5	X			X		X

c) Course Outcomes-Program Outcomes (Pos) Relationship Matrix (Indicate the relationships by mark “X”)

Course Outcomes \ Program Outcomes	a	b	c	d	e	f
1	X			X		
2	X			X	X	X
3	X				X	X
4			X			X

d) Courses (with title & code)-Program Outcomes (Pos) Relationship Matrix (Indicate the relationships by mark “X”)

Courses (RM&IPR) \ Program Outcomes	a	b	c	d	e	f
1	X	X	X	X	X	X

e) Program Educational Objectives (PEOs)-Course Outcomes Relationship Matrix (Indicate the relationships by mark “X”)

Course Outcomes \ Program Outcomes	1	2	3	4	5	6
1	X	X	X	X	X	X
2			X	X		
3	X	X		X	X	X
4		X	X		X	

Signature of HOD

Signature of faculty

Date:

Date:

M.Tech I Year I Semester Regular Examinations, March 2023

RESEARCH METHODOLOGY AND IPR
(Electrical and Electronics Engineering)

Time: 3 hours

Max Marks: 60

PART – A (BL1 to BL4)
(Answer ALL Questions)
(10X1 = 10 Marks)

1	Give the objective of Research Problem.	BL2 CO1 1 M
2	State the importance of data collection in research work?	BL2 CO1 1 M
3	Give the importance of plagiarism in research process.	BL3 CO2 1 M
4	Give a short note on research ethics to be followed by researchers?	BL4 CO2 1 M
5	Give the criteria's to be considered in writing a technical report.	BL3 CO3 1 M
6	What is the need of assessment in a research work?	BL2 CO3 1 M
7	Define creativity in research work.	BL2 CO4 1 M
8	How to get grants for a research work?	BL4 CO4 1 M
9	What are the further scopes of patent rights?	BL3 CO5 1 M
10	Give a short note on administration of patent system.	BL4 CO5 1 M

PART – B (BL1 to BL4)
(Answer ALL Questions)
(5X10 = 50 Marks)
Each Question Carries 10 marks and may have a, b. as sub Questions

11	Analyze the steps in research process in detail with suitable examples.	BL4 CO1 Marks-10
[OR]		
12	Articulate how data's are analysed in research process? Also Explain in detail on data interpretation.	BL4 CO1 Marks-10
13	Elaborate on, how to gather literature survey? Explain in detail.	BL3 CO2 Marks-10
[OR]		
14	Describe the plagiarism types in detail with suitable examples.	BL4 CO2 Marks-10
15	Clearly analyze, how research papers are written? Illustrate with suitable examples in detail.	BL4 CO3 Marks-10
[OR]		
16	Describe research works are proposed? With a neat format explain in detail with suitable examples.	BL3 CO3 Marks-10
17	Compare patents, design, trade and copyrights in detail with suitable examples	BL3 CO4 Marks-10
[OR]		
18	Analyze the patenting under PCT in detail with a neat block diagram.	BL4 CO4 Marks-10

19	Articulate the IPR in biological system with a case study with suitable examples	BL4 CO5 Marks-10
[OR]		
20	Give the detailed analysis on new developments in IPR with a suitable case study	BL4 CO5 Marks-10



GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY
(Autonomous)
Department of EEE

I M. Tech I-Sem (Power Electronics) AY:2022-23

I-Mid

Marks: 10M

Time: 20 Minutes

Date of Exam: 28-12-2022

Subject:

RESEARCH METHODOLOGY AND IPR (GR22D5011)

Name:

Roll Number:

(Answer All Questions)

(10 X 1 = 10 Marks)

1.	Research is				CO1	BL2	2.1.1	[]
	A. Searching again and again	B. Finding solution to any problem	C. Working in a scientific way to search for truth of any problem	D. None of the above				
2.	A statement of the quantitative research question should				CO1	BL4	3.1.6	[]
	A. Extend the statement of purpose by specifying exactly the question (s the researcher will address	B. Help the research in selecting appropriate participants, research methods, measures, and materials	C. Specify the variables of interest	D. All the above				
3.	Which of the following is not the method of Research				CO1	BL3	3.1.1	[]
	A. Survey	B. Historical	C. Observation	D. Philosophical				
4.	Concepts are of Research				CO1	BL4	3.1.4	[]
	A. Guide	B. Tools	C. Methods	D. Variables				
5.	Why do you need to review the existing literature				CO2	BL3	3.1.1	[]
	A. To make sure you have a long list of references	B. Because without it, you could never reach the required word-count	C. To find out what is already known about your area of interest	D. To help in your general studying				
6.	What do you mean by Unit of Analysis				CO2	BL3	3.1.1	[]
	A. Main parameter	B. Variables	C. Sample	D. Constructs				
7.	The first purpose of a survey is to				CO2	BL4	3.1.6	[]
	A. Description	B. Evaluation	C. Pration	D. Provide Information				
8.	Second step in problem formulation is				CO2	BL4	3.1.4	[]
	A. Statement of the problem	B. Understanding the nature of the problem	C. Survey	C. Survey				
9.	A comprehensive full Report of the research process is called				CO3	BL4	3.1.1	[]
	A. Thesis	B. Summary Report	C. Abstract	D. Article				
10.	Final stage in the Research Process is				CO3	BL4	3.1.4	[]
	A. Problem formulation	B. Data collection	C. Data Analysis	D. Report Writing				



GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY
(An Autonomous Institute under JNTUH)

Department of EEE

I M. Tech I-Sem (Power Electronics) AY:2022-23

I-Mid

Marks: 20M

Time: 100 Minutes

Date of Exam: 28-12-2022

Subject:

RESEARCH METHODOLOGY AND IPR (GR22D5011)

(Answer Any FOUR Questions)

(4 X 5 = 20 Marks)

Q.No.		CO	BL	PI	Marks
1.	Give the clear analysis on different types of research problems	CO1	BL4	3.1.4	5 M
2.	Elaborate on scope and objectives of a research problem	CO1	BL4	3.1.1	5 M
3.	Describe the different approaches of investigation of solutions for research problem	CO2	BL4	3.1.6	5 M
4.	Analyze on different types of plagiarism	CO2	BL4	3.1.1	5 M
5.	Give the clear analysis on effective technical writing	CO3	BL4	3.1.6	5 M
6.	Analyze on the basic criteria of a good research	CO1	BL4	3.1.4	5 M



GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY
(Autonomous)
Department of EEE

I M. Tech I-Sem (Power Electronics) AY:2022-23

I-Mid

Marks: 10M

Time: 20 Minutes

Date of Exam: 06-03-2023

Subject: RESEARCH METHODOLOGY AND IPR (GR22D5011)

Name:

Roll Number:

(Answer All Questions)

(10 X 1 = 10 Marks)

1.	-----protects the intellectual property created by artists?				CO3	BL4	2.1.1	[]
	A. copyright	B. geographical indications	C. patents	D. registered designs				
2.	-----protects the intellectual property created by designers?				CO3	BL4	3.1.6	[]
	A. copyright	B. geographical indications	C. patents	D. registered designs				
3.	-----protects the intellectual property created by inventors?				CO4	BL4	3.1.1	[]
	A. copyright	B. geographical indications	C. patents	D. registered designs				
4.	Which of these is a geographical indication?				CO4	BL3	3.1.4	[]
	A. BMW	B. Champagne	C. Hogwarts	D. Playstation				
5.	What does a trademark protect?				CO4	BL2	3.1.1	[]
	A. an invention	B. work of art	C. Logos, names and brands	D. The look, shape and feel of a product				
6.	The term W.I.P.O. stands for				CO4	BL2	3.1.1	[]
	A. World Investment Policy Organization	B. World Intellectual Property Organization	C. Wild life Investigatin and Policing Organisation	D. World Institute for Prevention of Organized Crime				
7.	How long do patents usually last for?				CO5	BL2	2.1.1	[]
	A. 10 years	B. 20 years	C. 40 years	D. 60 years				
8.	A patent comes into existence				CO5	BL4	3.1.4	[]
	A. On the evolution of an idea	B. On the first publication in an article	C. On the acceptance of an application by the Patent Office	C. After the first successful use of the article				
9.	Which of these a Geographical Indication?				CO5	BL3	3.1.1	[]
	A. BMW	B. Hotel Taj	C. Play station	D. Assam Tea				
10.	Which country possesses maximum number of Patents in the world?				CO5	BL2	3.1.4	[]
	A. USA	B. Japan	C. South Korea	D. China				



GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY
(An Autonomous Institute under JNTUH)

Department of EEE

I M. Tech I-Sem (Power Electronics) AY:2022-23

II-Mid

Marks: 20M

Time: 100 Minutes

Date of Exam: 06-03-2023

Subject: RESEARCH METHODOLOGY AND IPR (GR22D5011)

(Answer Any FOUR Questions)

(4 X 5 = 20 Marks)

Q.No.		CO	BL	PI	Marks
1.	Elaborate on the format of Research Proposal and also discuss the necessary guidelines to be followed in writing a Research Proposal ?	CO3	BL5	3.1.4	5 M
2.	Discuss how the research be assessed by Review Committee and describe the various sections of a Research Paper in detail ?	CO3	BL5	3.1.1	5 M
3.	Clearly analyze the importance of intellectual property rights and explain various types of intellectual property rights ? Elaborate the process of patenting?	CO4	BL4	3.1.6	5 M
4.	Articulate the role of World Intellectual Property Organization (WIPO) in granting patents at international level & Indian Patent Office of Intellectual Property of India at national level	CO4	BL5	3.1.1	5 M
5.	Elaborate on the Licencing and Transfer of Technology in IITs, IISc , MIT and Utah State University	CO5	BL4	3.1.6	5 M
6.	Analyze about the information and patent databases in WIPO, USPTO, CIPO, EPO and Indian Patent Advanced Search System	CO5	BL4	3.1.4	5 M



**Gokaraju Rangaraju Institute of Engineering and
Technology, (Autonomous)**

**I M.Tech-(RM & IPR-GR22D5011) I Sem I-Mid Marks (2022-
23) of SECTION A**

Department of Electrical and Electronics Engineering

S. N O	Roll NO	1 (CO1)	2 (CO1)	3 (CO2)	4 (CO2)	5 (CO3)	6 (CO1)	Descriptive Marks	QUIZ Marks	Total Marks
1	22241D4301	4	4		5		5	18	10	28
2	22241D4302	5	5		5		5	20	10	30
3	22241D4303	5	4		5		5	19	10	29
4	22241D4304	5	5		5		5	20	10	30
5	22241D4305	5			5	5	5	20	10	30
Total		24	18	0	25	5	25			
No of students attempted(NSA)		5	4	0	5	1	5			
Attempt %=(NSA/Total no of students)*100		6.85	5.48	0.00	6.85	1.37	6.85			
Average (attainment)= Total/NSA		4.80	4.50	#DIV/0!	5.00	5.00	5.00			
Attainment % = (Total/no.of max marks*no.of students attempted)*100		96.00	90.00	#DIV/0!	100.00	100.00	100.00			
		1 (CO1)	1 (CO1)	3 (CO2)	4 (CO2)	5 (CO3)	6 (CO1)			

A

CO1		95.33	
CO2		100.00	
CO3		100.00	

Final Average values of A	CO1		95.33
	CO2		100.00
	CO3		100.00

Faculty Sign



**Gokaraju Rangaraju Institute of Engineering and
Technology, (Autonomous)**

**I M.Tech-(RM & IPR-GR22D5011) I Sem II-Mid Marks (2022-
23) of SECTION A**

Department of Electrical and Electronics Engineering

S. N O	Roll NO	1 (CO3)	2 (CO3)	3 (CO4)	4 (CO4)	5 (CO5)	6 (CO5)	Descriptive Marks	QUIZ Marks	Total Marks
1	22241D4301	5	4		4		3	16	10	26
2	22241D4302				5	5		10	10	20
3	22241D4303	5			2	2	5	14	10	24
4	22241D4304	5		5		5	5	20	10	30
5	22241D4305	5			5	5	5	20	10	30
	Total	20	4	5	16	17	18			
	No of students attempted(NS A)	4	1	1	4	4	4			
	Attempt %=(NSA/Total no of students)*100	5.48	1.37	1.37	5.48	5.48	5.48			
	Average (attainment)= Total/NSA	5.00	4.00	5.00	4.00	4.25	4.50			
	Attainment % = (Total/no.of max marks*no.of students attempted)*100	100.00	80.00	100.00	80.00	85.00	90.00			
		1 (CO3)	2 (CO3)	3 (CO4)	4 (CO4)	5 (CO5)	6 (CO5)			

A

CO3		90.00	
CO4		90.00	
CO5		87.50	

Final Average values of A	CO1		95.33
	CO2		100.00
	CO3		95.00
	CO4		90.00
	CO5		87.50

Faculty Sign

RUBRIC TEMPLATE: 1**Objective:**

To understand the basic concepts in probability, conditional probability, random variable, mathematical expectation, and different types of distributions.

Student Outcome:

Apply key concepts of probability, including discrete and continuous random variables, probability distributions, conditioning, independence, expectations, and variances.

G. No	Student Name	Performance Criteria	Unsatisfactory	Developing	Satisfactory	Exemplary	Score
			1	2	3	4	
G01.	22241D4304 SATHUNURI SANDEEP	Understand the basic notions of distribution functions, discrete and continuous probability.				4	
		Use of different statistical distributions (e.g., Normal, Binomial, Poisson) and the typical phenomena that each distribution often describes.				4	
		To design a statistical hypothesis about the real world problem.				4	
			Average Score				4

RUBRIC TEMPLATE: 2

Objective: To understand and apply common qualitative and quantitative research methods and is able to apply these in the field of business studies.

Student Outcome: An ability to solve problems from different industries such as manufacturing, service, retail, software, banking and finance, sports, pharmaceutical, aerospace etc.

G. No	Student Name	Performance Criteria	Unsatisfactory	Developing	Satisfactory	Exemplary	Score
			1	2	3	4	
G01.	22241D4301 ADDANKI NAGASAI	Students should have ability to deal with numerical and quantitative issues in business.				4	
		Understand and critically discuss the issues surrounding sampling, significance and evaluate the underlying assumptions of analysis tools.				4	

G. No	Student Name	Performance Criteria	Unsatisfactory	Developing	Satisfactory	Exemplary	Score
			1	2	3	4	
		Students should solve a range of problems using the techniques covered.				4	
			Average Score				4

RUBRIC TEMPLATE: 3

Objective: To understand the role of data analytics within an organization and to analyze data using statistical and data mining techniques and understand relationships between the underlying business processes of an organization.

Student Outcome: Use technical skills in predicative and prescriptive modeling to support business decision-making.

G. No	Student Name	Performance Criteria	Unsatisfactory	Developing	Satisfactory	Exemplary	Score
			1	2	3	4	
G01.	22241D4302 CHILAGANI NAVEEN	To gain the knowledge of how managers use business analytics to formulate and solve business problems and to support managerial decision making and to become familiar with processes needed to develop, report, and analyze business data.				4	
		An ability to view the various applications of Data Science to real world.				4	
		Apply knowledge of data science and analyzes it.				4	
			Average Score				4

UNIT – I

INTRODUCTION

Meaning of research:

Research in simple terms refers to search for knowledge. It is a scientific and systematic search for information on a particular topic or issue. It is also known as the art of scientific investigation. Several social scientists have defined research in different ways.

In the *Encyclopedia of Social Sciences*, D. Slesinger and M. Stephenson (1930) defined research as “the manipulation of things, concepts or symbols for the purpose of generalizing to extend, correct or verify knowledge, whether that knowledge aids in the construction of theory or in the practice of an art”. **Research** is a careful and detailed study into a specific problem, concern, or issue using the scientific method.

According to Redman and Mory (1923), research is a “systematized effort to gain new knowledge”. It is an academic activity and therefore the term should be used in a technical sense. According to Clifford Woody (Kothari, 1988), research comprises “defining and redefining problems, formulating hypotheses or suggested solutions; collecting, organizing and evaluating data; making deductions and reaching conclusions; and finally, carefully testing the conclusions to determine whether they fit the formulated hypotheses”.

Thus, research is an original addition to the available knowledge, which contributes to its further advancement. It is an attempt to pursue truth through the methods of study, observation, comparison and experiment. In sum, research is the search for knowledge, using objective and systematic methods to find solution to a problem.

Objectives of research:

The objective of research is to find answers to the questions by applying scientific procedures. In other words, the main aim of research is to find out the truth which is hidden and has not yet been discovered. Although every research study has its own specific objectives, the research objectives may be broadly grouped as follows:

1. To gain familiarity with new insights into a phenomenon (i.e., formulative research studies);
2. To accurately portray the characteristics of a particular individual, group, or a situation (i.e., descriptive research studies);
3. To analyse the frequency with which something occurs (i.e., diagnostic research studies)
4. To examine the hypothesis of a causal relationship between two variables (i.e., hypothesis-testing research studies).

Research Methods versus methodology:

Research methods include all those techniques/methods that are adopted for conducting research. Thus, research techniques or methods are the methods that the researchers adopt for conducting the research studies. On the other hand, research methodology is the way in which research problems are resolved systematically. It is a science of studying how research is conducted scientifically. Under it, the researcher acquaints himself/herself with the various steps generally adopted to study a research problem, along with the underlying logic behind them. Hence, it is not only important for the researcher to know the research techniques/methods, but also the scientific approach called methodology.

Research approaches:

Research approach is a plan and procedure that consists of the steps of broad assumptions to detailed method of data collection, analysis and interpretation. It is therefore, based on the nature of the research problem being addressed.

There are two main approaches to research, namely quantitative approach and qualitative approach. The quantitative approach involves the collection of quantitative data, which are put to rigorous quantitative analysis in a formal and rigid manner. This approach further includes experimental, inferential, and simulation approaches to research. Meanwhile, the qualitative approach uses the method of subjective assessment of opinions, behavior and attitudes. Research in such a situation is a function of the researcher's impressions and insights. The results generated by this type of research are either in non-quantitative form or in the form which cannot be put to rigorous quantitative analysis. Usually, this approach uses techniques like in-depth interviews, focus group interviews, and projective techniques.

Types of research:

There are different types of research. The basic ones are as follows.

1. Descriptive versus analytical:

Descriptive research consists of surveys and fact-finding enquiries of different types. The main objective of descriptive research is describing the state of affairs as it prevails at the time of study. The term 'ex post facto research' is quite often used for descriptive research studies in social sciences and business research. The most distinguishing feature of this method is that the researcher has no control over the variables here. He/she has to only report what is happening or what has happened. Majority of the ex post facto research projects are used for descriptive studies in which the researcher attempts to examine phenomena, such as the consumers' preferences, frequency of purchases, shopping, etc. Despite the inability of the researchers to control the variables, ex post facto studies may also comprise attempts by them

to discover the causes of the selected problem. The methods of research adopted in conducting descriptive research are survey methods of all kinds, including correlational and comparative methods. Meanwhile in the Analytical research, the researcher has to use the already available facts or information, and analyze them to make a critical evaluation of the subject.

2. Applied versus fundamental:

Research can also be applied or fundamental in nature. An attempt to find a solution to an immediate problem encountered by a firm, an industry, a business organization, or the society is known as applied research. Researchers engaged in such researches aim at drawing certain conclusions confronting a concrete social or business problem.

On the other hand, fundamental research mainly concerns generalizations and formulation of a theory. In other words, “Gathering knowledge for knowledge’s sake is termed ‘pure’ or ‘basic’ research” (Young in Kothari, 1988). Researches relating to pure mathematics or concerning some natural phenomenon are instances of Fundamental Research. Likewise, studies focusing on human behaviour also fall under the category of fundamental research.

Thus, while the principal objective of applied research is to find a solution to some pressing practical problem, the objective of basic research is to find information with a broad base of application and add to the already existing organized body of scientific knowledge.

3. Quantitative versus qualitative:

Quantitative research relates to aspects that can be quantified or can be expressed in terms of quantity. It involves the measurement of quantity or amount. Various available statistical and econometric methods are adopted for analysis in such research. Which includes correlation, regressions and time series analysis etc.,

On the other hand, Qualitative research is concerned with qualitative phenomena, or more specifically, the aspects related to or involving quality or kind. For example, an important type of qualitative research is ‘Motivation Research’, which investigates into the reasons for certain human behavior. The main aim of this type of research is discovering the underlying motives and desires of in-depth interviews. The other techniques employed in such research are story completion tests, sentence completion tests, word association tests, and other similar projective methods. Qualitative research is particularly significant in the context of behavioral sciences, which aim at discovering the underlying motives of human behaviour. Such research helps to analyze the various factors that motivate human beings to behave in a certain manner, besides contributing to an understanding of what makes individuals like or dislike a particular thing. However, it is worth noting that

conducting qualitative research in practice is considerably a difficult task. Hence, while undertaking such research, seeking guidance from experienced expert researchers is important.

4. Conceptual versus empirical:

The research related to some abstract idea or theory is known as Conceptual Research. Generally, philosophers and thinkers use it for developing new concepts or for reinterpreting the existing ones. Empirical Research, on the other hand, exclusively relies on the observation or experience with hardly any regard for theory and system. Such research is data based, which often comes up with conclusions that can be verified through experiments or observation. Empirical research is also known as experimental type of research, in which it is important to first collect the facts and their sources, and actively take steps to stimulate the production of desired information. In this type of research, the researcher first formulates a working hypothesis, and then gathers sufficient facts to prove or disprove the stated hypothesis. He/she formulates the experimental design, which according to him/her would manipulate the variables, so as to obtain the desired information. This type of research is thus characterized by the researcher's control over the variables under study. In simple term, empirical research is most appropriate when an attempt is made to prove that certain variables influence the other variables in some way. Therefore, the results obtained by using the experimental or empirical studies are considered to be the most powerful evidences for a given hypothesis.

5. Other types of research:

The remaining types of research are variations of one or more of the afore-mentioned type of research. They vary in terms of the purpose of research, or the time required to complete it, or may be based on some other similar factor. On the basis of time, research may either be in the nature of one-time or longitudinal time series research. While the research is restricted to a single time-period in the former case, it is conducted over several time-periods in the latter case. Depending upon the environment in which the research is to be conducted, it can also be laboratory research or field-setting research, or simulation research, besides being diagnostic or clinical in nature. Under such research, in-depth approaches or case study method may be employed to analyse the basic causal relations. These studies usually undertake a detailed in-depth analysis of the causes of certain events of interest, and use very small samples and sharp data collection methods. The research may also be explanatory in nature. Formalized research studies consist of substantial structure and specific hypotheses to be verified. As regards to historical research, sources like historical documents, remains, etc. are utilized to study past events or ideas. It also includes philosophy of persons and groups of the past or any remote point of time.

Research has also been classified into decision-oriented and conclusion-oriented categories. The decision-oriented research is always carried out as per the need of a decision maker and hence, the researcher has no freedom to conduct the research according to his/her own desires. On the other hand, in the case of Conclusion-oriented research, the researcher is free to choose the problem, redesign the enquiry as it progresses and even change conceptualization as he/she wishes. An operation research is a kind of decision-oriented research, where in scientific method is used in providing the departments, a quantitative basis for decision-making with respect to the activities under their purview.

Importance of knowing how to conduct research:

The importance of knowing how to conduct research are listed below:

- i. The knowledge of research methodology provides training to new researchers and enables them to do research properly. It helps them to develop disciplined thinking or a 'bent of mind' to objectively observe the field;
- ii. The knowledge of doing research inculcates the ability to evaluate and utilize the research findings with confidence;
- iii. The knowledge of research methodology equips the researcher with the tools that help him/her to make the observations objectively; and
- iv. The knowledge of methodology helps the research consumers to evaluate research and make rational decisions.

Qualities of a researcher:

It is important for a researcher to possess certain qualities to conduct research. First and foremost, he being a scientist should be firmly committed to the 'articles of faith' of the scientific methods of research. This implies that a researcher should be a social science person in the truest sense. Sir Michael Foster cited by (Wilkinson and Bhandarkar, 1979) identified a few distinct qualities of a scientist. According to him, a true research scientist should possess the following qualities:

(1) First of all, the nature of a researcher must be of the temperament that vibrates in unison with the theme which he is searching. Hence, the seeker of knowledge must be truthful with truthfulness of nature, which is much more important, much more exacting than what is sometimes known as truthfulness. The truthfulness relates to the desire for accuracy of observation and precision of statement. Ensuring facts is the principle rule of science, which is not an easy matter. The difficulty may arise due to untrained eye, which fails to see anything beyond what it has the power of seeing and sometimes even less than that. This may also be due to the lack of discipline in the method of science. An unscientific individual

often remains satisfied with the expressions like approximately, almost, or nearly, which is never what nature is. A real research cannot see two things which differ, however minutely, as the same.

(2) A researcher must possess an alert mind. Nature is constantly changing and revealing itself through various ways. A scientific researcher must be keen and watchful to notice such changes, no matter how small or insignificant they may appear. Such receptivity has to be cultivated slowly and patiently over time by the researcher through practice. An individual who is ignorant or not alert and receptive during his research will not make a good researcher. He will fail as a good researcher if he has no keen eyes or mind to observe the unusual changes behind the routine. Research demands a systematic immersion into the subject matter by the researcher grasp even the slightest hint that may culminate into significant research problems. In this context, Cohen and Negal cited by (Selltiz et al, 1965; Wilkinson and Bhandarkar, 1979) state that “the ability to perceive in some brute experience the occasion of a problem is not a common talent among men... it is a mark of scientific genius to be sensitive to difficulties where less gifted people pass by untroubled by doubt”.

(3) Scientific enquiry is pre-eminently an intellectual effort. It requires the moral quality of courage, which reflects the courage of a steadfast endurance. The process of conducting research is not an easy task. There are occasions when a research scientist might feel defeated or completely lost. This is the stage when a researcher would need immense courage and the sense of conviction. The researcher must learn the art of enduring intellectual hardships. In the words of Darwin, “It’s dogged that does it”.

In order to cultivate the afore-mentioned three qualities of a researcher, a fourth one may be added. This is the quality of making statements cautiously. According to Huxley, the assertion that outstrips the evidence is not only a blunder but a crime (Thompson, 1975). A researcher should cultivate the habit of reserving judgment when the required data are insufficient.

Significance of research:

According to a famous Hudson Maxim, “All progress is born of inquiry. Doubt is often better than overconfidence, for it leads to inquiry, and inquiry leads to invention”. It brings out the significance of research, increased amount of which makes the progress possible. Research encourages scientific and inductive thinking, besides promoting the development of logical habits of thinking and organisation. The role of research in applied economics in the context of an economy or business is greatly increasing in modern times. The increasingly complex nature of government and business has raised the use of research in solving

operational problems. Research assumes significant role in the formulation of economic policy for both, the government and business. It provides the basis for almost all government policies of an economic system. Government budget formulation, for example, depends particularly on the

Analysis of needs and desires of people, and the availability of revenues, which requires research. Research helps to formulate alternative policies, in addition to examining the consequences of these alternatives. Thus, research also facilitates the decision-making of policy-makers, although in itself is not a part of research. In the process, research also helps in the proper allocation of a country's scarce resources.

Research is also necessary for collecting information on the social and economic structure of an economy to understand the process of change occurring in the country. Collection of statistical information, though not a routine task, involves various research problems. Therefore, large staff of research technicians or experts is engaged by the government these days to undertake this work. Thus, research as a tool of government economic policy formulation involves three distinct stages of operation:

(i) investigation of economic structure through continual compilation of facts; (ii) diagnosis of events that are taking place and analysis of the forces underlying them; and (iii) the prognosis i.e., the prediction of future developments (Wilkinson and Bhandarkar, 1979).

Research also assumes significance in solving various operational and planning problems associated with business and industry. In several ways, operations research, market research and motivational research are vital and their results assist in taking business decisions. Market research refers to the investigation of the structure and development of a market for the formulation of efficient policies relating to purchases, production and sales. Operational research relates to the application of logical, mathematical, and analytical techniques to find solution to business problems, such as cost minimization or profit maximization, or the optimization problems. Motivational research helps to determine why people behave in the manner they do with respect to market characteristics. More specifically, it is concerned with the analysis of the motivations underlying consumer behavior. All these researches are very useful for business and industry, and are responsible for business decision-making.

Research is equally important to social scientists for analyzing the social relationships and seeking explanations to various social problems. It gives intellectual satisfaction of knowing things for the sake of knowledge. It also possesses the practical utility for the social scientist to gain knowledge so as to be able to do something better or in a more efficient manner. The research in social sciences is concerned with both knowledge for its own sake, and knowledge for what it can contribute to solve practical problems.

Research process:

Research process consists of a series of steps or actions required for effectively conducting research. The following are the steps that provide useful procedural guidelines regarding the conduct of research:

- (1) Formulating the research problem;
- (2) Extensive literature survey;
- (3) Developing hypothesis;
- (4) Preparing the research design;
- (5) Determining sample design;
- (6) Collecting data;
- (7) Execution of the project;
- (8) Analysis of data;
- (9) Hypothesis testing;
- (10) Generalization and interpretation, and
- (11) Preparation of the report or presentation of the results.

In other words, it involves the formal write-up of conclusions.

Research problem:

The first and foremost stage in the research process is to select and properly define the research problem. A researcher should first identify a problem and formulate it, so as to make it amenable or susceptible to research. In general, a research problem refers to an unanswered question that a researcher might encounter in the context of either a theoretical or practical situation, which he/she would like to answer or find a solution to. A research problem is generally said to exist if the following conditions emerge (Kothari, 1988):

- i. There should be an individual or an organization, say X, to whom the Problem can be attributed. The individual or the organization is situated in an environment Y, which is governed by certain uncontrolled variables Z;
- ii. There should be at least two courses of action to be pursued, say A1 and A2. These courses of action are defined by one or more values of the controlled variables. For example, the number of items purchased at a specified time is said to be one course of action.
- iii. There should be at least two alternative possible outcomes of the said courses of action, say B1 and B2. Of them, one alternative should be preferable to the other. That is, at least one outcome should be what the researcher wants, which becomes an objective.
- iv. The courses of possible action available must offer a chance to the researcher to achieve the objective, but not the equal chance. Therefore, if $P(B_j / X, A, Y)$

represents the probability of the occurrence of an outcome B_j when X selects A_j in Y , then $P(B_1 / X, A_1, Y) \neq P(B_1 / X, A_2, Y)$. Putting it in simple words, it means that the choices must not have equal efficiencies for the desired outcome.

Above all these conditions, the individual or organization may be said to have arrived at the research problem only if X does not know what course of action to be taken is the best. In other words, X should have a doubt about the solution. Thus, an individual or a group of persons can be said to have a problem if they have more than one desired outcome. They should have two or more alternative courses of action, which have some but not equal efficiency. This is required for probing the desired objectives, such that they have doubts about the best course of action to be taken. Thus, the components of a research problem may be summarized as:

- a) There should be an individual or a group who have some difficulty or problem.
- b) There should be some objective(s) to be pursued. A person or an organization who wants nothing cannot have a problem.
- c) There should be alternative ways of pursuing the objective the researcher wants to pursue. This implies that there should be more than one alternative means available to the researcher. This is because if the researcher has no choice of alternative means, he/she would not have a problem.
- d) There should be some doubt in the mind of the researcher about the choice of alternative means. This implies that research should answer the question relating to the relative efficiency or suitability of the possible alternatives.

Elements of a research problem:

A **research problem** refers to some difficulty either of a theoretical or practical character which an individual or organization is experiencing and wants to obtain a solution for the same. There are a number of *elements (components)* which a problem must have before it becomes a research problem ready for study.

Elements of a Research Problem

1. **Objective or aim of the problem which is to be investigated.** This answers the question “Why?” Why is there a need for investigation, inquiry or study?
2. **The topic or theme which needs to be investigated.** This answers the question “What?” What is to be researched or studied?” For example: What would a rival company do if we decrease our prices by 25%? What would sales be if prices were Rs. 89? Rs. 99? How would a

rival firms action influence our sales and profits? The right question needs to be addressed if research is to help decision makers. The decision maker can't acquire all the information, but it is often feasible to identify the factors that are critical to the existing problem. These factors are then included in the problem definition.

3. The time dimension of a decision problem is always the future. The period or time of the study when the data are to be gathered. This answers the question "When?" When is the research to be performed?" Managers frequently run the risk of making the correct decision at incorrect time. It is essential that the decision maker as well as the researcher determine the right time reference for-the decision.

4. The area or location in which the study is to be conducted. This answers the question "Where?" Where we need to conduct the study? The space coordinates give you the geographic boundaries within which the action is to be taken. In the problem definition, these lines are hardly ever neat political divisions or subdivisions. The universe of interest should be defined either conceptually or by enumeration.

5. Population or universe from whom the data needs to be gathered. This answers the question "Who?" or "from whom?" Who are the respondents? From who are the data to be collected?" They may include persons, groups of persons, business establishments.

Criteria/ characteristics of a good research problem:

Criteria for selection of research problem depend on the following characteristics.

- Personal Inclination.
- Resources Availability.
- Relative Importance. .
- Researcher Knowledge.
- Practicality: Practicality is also responsible for the selection. ...
- Time-lines of the Problem. ...
- Urgency.

Personal Inclination: The chief motivation in the way of selecting research problem is the personal inclination of the researcher. If a researcher has personal interest in the topic, he would select that problem for his research work

Resources Availability: During the selection, a researcher will see to the resources available. If these resources like money, time, accommodation and transport are available to the selection place, then the selection of the problem is easy.

Data Availability: If the desired data is available to the researcher, then the problem would be selected.

Urgency: Urgency is a pinpoint in the way of the selection of research problem. Urgent problem must be given priority because the immediate solution can benefit the people.

Feasibility:Feasibility is also an important factor for the selection of the research problem. The researcher qualification, training and experience should match the problem.

Area Culture: The culture of the area for which a researcher conducts his research is also responsible for the selection of research problem.

Characteristic of Research Problem

Any research is a difficult task to achieve and research needs to do a great effort. Selection of research topic is the first step to success.

1. Research topic must be very clear and easy to understand. It should not distract people.
2. If a topic is well defined is the only way to successful research. The topic should not create doubt and double impression.
3. Easy language is a key to success. Use technical words if necessary otherwise focus of simplicity.
4. Research title should be according to the rules of titling. There are different rules of titling, a researcher must aware before writing a research title.
5. While selecting a research topic current importance of a researcher should also be considered. Topic should not be obsolete and it should have great importance in the current day.

Criteria of Good Research

Whatever may be the types of research works and studies, one thing that is important is that they all meet on the common ground of scientific method employed by them. One expects scientific research to satisfy the following criteria.

1. The purpose of the research should be clearly defined and common concepts be used.
2. The research procedure used should be described in sufficient detail to permit another researcher to repeat the research for further advancement, keeping the continuity of what has already been attained.
3. The procedural design of the research should be carefully planned to yield results that are as objective as possible.
4. The researcher should report with complete frankness, flaws in procedural design and estimate their effects upon the findings.
5. The analysis of data should be sufficiently adequate to reveal its significance and the methods of analysis used should be appropriate. The validity and reliability of the data should be checked carefully.

6. Conclusions should be confined to those justified by the data of the research and limited to those for which the data provide an adequate basis.

7. Greater confidence in research is warranted if the researcher is experienced, has a good reputation in research and is a person of integrity.

In other words, we can state the qualities of a good research¹² as under:

1. *Good research is systematic:* It means that research is structured with specified steps to be taken in a specified sequence in accordance with the well-defined set of rules. Systematic characteristic of the research does not rule out creative thinking but it certainly does reject the use of guessing and intuition in arriving at conclusions.

2. *Good research is logical:* This implies that research is guided by the rules of logical reasoning and the logical process of induction and deduction are of great value in carrying out research. Induction is the process of reasoning from a part to the whole whereas deduction is the process of reasoning from some premise to a conclusion which follows from that very premise. In fact, logical reasoning makes research more meaningful in the context of decision making.

3. *Good research is empirical:* It implies that research is related basically to one or more aspects of a real situation and deals with concrete data that provides a basis for external validity to research results.

4. *Good research is replicable:* This characteristic allows research results to be verified by replicating the study and thereby building a sound basis for decisions.

Problems Encountered by Researchers in India

Researchers in India, particularly those engaged in empirical research, are facing several problems.

Some of the important problems are as follows:

1. *The lack of a scientific training in the methodology of research* is a great impediment for researchers in our country. There is paucity of competent researchers. Many researchers take a leap in the dark without knowing research methods. Most of the work, which goes in the name of research is not methodologically sound. Research to many researchers and even to their guides, is mostly a scissor and paste job without any insight shed on the collated materials. The consequence is obvious, viz., the research results, quite often, do not reflect the reality or realities. Thus, a systematic study of research methodology is an urgent necessity. Before undertaking research projects, researchers should be well equipped with all the methodological aspects. As such, *efforts should be made to provide short duration intensive courses for meeting this requirement.*

2. There is *insufficient interaction* between the university research departments on one side and business establishments, government departments and research institutions on the other side. A great deal of primary data of non-confidential nature

remains untouched/untreated by the researchers for want of proper contacts. *Efforts should be made to develop satisfactory liaison among all concerned for better and realistic researches.* There is need for developing some mechanisms of a university—industry interaction programme so that academics can get ideas from practitioners on what needs to be researched and practitioners can apply the research done by the academics.

3. Most of the business units in our country do not have the confidence that the materials supplied by them to researchers will not be misused and as such they are often reluctant in supplying the needed information to researchers. The concept of secrecy seems to be sacrosanct to business organisations in the country so much so that it proves an impermeable barrier to researchers. Thus, *there is the need for generating the confidence that the information/data obtained from a business unit will not be misused.*

4. *Research studies overlapping one another are undertaken quite often for want of adequate information.* This results in duplication and fritters away resources. This problem can be solved by proper compilation and revision, at regular intervals, of a list of subjects on which and the places where the research is going on. Due attention should be given towards identification of research problems in various disciplines of applied science which are of immediate concern to the industries.

5. *There does not exist a code of conduct for researchers* and inter-university and interdepartmental rivalries are also quite common. Hence, there is need for developing a code of conduct for researchers which, if adhered sincerely, can win over this problem.

6. Many researchers in our country also face *the difficulty of adequate and timely secretarial assistance*, including computerial assistance. This causes unnecessary delays in the completion of research studies. All possible efforts be made in this direction so that efficient secretarial assistance is made available to researchers and that too well in time. University Grants Commission must play a dynamic role in solving this difficulty.

7. *Library management and functioning is not satisfactory at many places* and much of the time and energy of researchers are spent in tracing out the books, journals, reports, etc., rather than in tracing out relevant material from them.

8. *There is also the problem that many of our libraries are not able to get copies of old and new Acts/Rules, reports and other government publications in time.* This problem is felt more in libraries which are away in places from Delhi and/or the state capitals. Thus, efforts should be made for the regular and speedy supply of all governmental publications to reach our libraries.

9. *There is also the difficulty of timely availability of published data* from various government and other agencies doing this job in our country. Researcher also faces the problem on account of the fact that the published data vary quite significantly because of differences in coverage by the concerning agencies.

10. There may, at times, take place *the problem of conceptualization* and also

problems relating to the process of data collection and related things.

Errors in selecting a research problem:

Researcher in selecting a research problem should be aware of

1. Subject which is overdone should not be normally chosen, for it will be a difficult task to throw any new light in such a case.
2. Controversial subject should not become the choice of an average researcher.
3. Naming a broad field/area of the study instead of a specific problem.
4. Starting it in such a way that investigation is impossible.
5. Narrowing/localizing a topic
6. Including in it terms of an unscientific, emotional or biased nature.
7. Lack of precision in the instruments.
8. Quantitative errors such as
 - Population specification error
 - Sampling error.
 - Selection error
 - Non response error
 - Surrogate information error.
 - Measurement error
 - Experiment error.

Scope and objectives of research problem:

The **scope of the study** basically **means** all those things that will be covered in the research project. Objective of an activity, project or procedure represents the output or what you want to accomplish by doing it.

Scope: Scope of an activity, project or procedure represents their limitations or defines the boundaries of its application.

Research design:

The most important step after defining the research problem is preparing the design of the research project, which is popularly known as the 'research design'. A research design helps to decide upon issues like what, when, where, how much, by what means etc. With regard to an enquiry or a research study, a research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. In fact, research design is the conceptual structure within which research is conducted; it constitutes the blueprint for the collection, measurement and analysis of data (Selltiz et al., 1962). Thus, research design provides an outline of what the researcher is going to do in terms of framing the hypothesis, its operational implications and the final data analysis. Specifically, the research design

highlights decisions which include:

1. The nature of the study
2. The purpose of the study
3. The location where the study would be conducted
4. The nature of data required
5. From where the required data can be collected
6. What time period the study would cover
7. The type of sample design that would be used
8. The techniques of data collection that would be used
9. The methods of data analysis that would be adopted and
10. The manner in which the report would be prepared

In view of the stated research design decisions, the overall research design may be divided into the following (Kothari 1988):

- a) The sampling design that deals with the method of selecting items to be observed for the selected study;
- b) The observational design that relates to the conditions under which the observations are to be made;
- c) The statistical design that concerns with the question of how many items are to be observed, and how the information and data gathered are to be analyzed; and
- d) The operational design that deals with the techniques by which the procedures specified in the sampling, statistical and observational designs can be carried out.

Features of research design:

The important features of Research Design may be outlined as follows:

- i. It constitutes a plan that identifies the types and sources of information required for the Research problem;
- ii. It constitutes a strategy that specifies the methods of data collection and analysis which would be adopted; and
- iii. It also specifies the time period of research and monetary budget involved in conducting the study, which comprise the two major constraints of undertaking any research

CONCEPTS RELATING TO RESEARCH DESIGN:

Some of the important concepts relating to Research Design are discussed below:

1. Dependent and independent variables:

A magnitude that varies is known as a variable. The concept may assume different quantitative values like height, weight, income etc. Qualitative variables are not quantifiable

in the strictest sense of the term. However, the qualitative phenomenon may also be quantified in terms of the presence or absence of the attribute(s) considered. The phenomena that assume different values quantitatively even in decimal points are known as 'continuous variables. But all variables need not be continuous. Values that can be expressed only in integer values are called 'non-continuous variables. In statistical terms, they are also known as 'discrete variables. For example, age is a continuous variable, whereas the number of children is a non-continuous variable. When changes in one variable depend upon the changes in other variable or variables, it is known as a dependent or endogenous variable, and the variables that cause the changes in the dependent variable are known as the independent or explanatory or exogenous variables. For example, if demand depends upon price, then demand is a dependent variable, while price is the independent variable. And, if more variables determine demand, like income and price of the substitute commodity, then demand also depends upon them in addition to the price of original commodity. In other words, demand is a dependent variable which is determined by the independent variables like price of the original commodity, income and price of substitutes.

2. Extraneous variables:

The independent variables which are not directly related to the purpose of the study but affect the dependent variables, are known as extraneous variables. For instance, assume that a researcher wants to test the hypothesis that there is a relationship between children's school performance and their self-confidence, in which case the latter is an independent variable and the former, a dependent variable. In this context, intelligence may also influence the school performance. However, since it is not directly related to the purpose of the study undertaken by the researcher, it would be known as an extraneous variable. The influence caused by the extraneous variable(s) on the dependent variable is technically called the 'experimental error'. Therefore, a research study should always be framed in such a manner that the influence of extraneous variables on the dependent variable/s is completely controlled, and the influence of independent variable/s is clearly evident. Control, One of the most important features of a good research design is to minimize the effect of extraneous variable(s). Technically, the term 'control' is used when a researcher designs the study in such a manner that it minimizes the effects of extraneous variables. The term 'control' is used in experimental research to reflect the restraint in experimental conditions.

3. Confounded relationship:

The relationship between the dependent and independent variables is said to be confounded by an extraneous variable, when the dependent variable is not free from its effects.

4. Research hypothesis:

When a prediction or a hypothesized relationship is tested by adopting scientific methods, it is known as research hypothesis. The research hypothesis is a predictive statement which relates to a dependent variable and an independent variable. Generally, a research hypothesis must consist of at least one dependent variable and one independent variable. Whereas, the relationships that are assumed but not to be tested are predictive statements that are not to be objectively verified, thus are not classified as research hypotheses.

5. Experimental and non-experimental hypothesis testing research:

When the objective of a research is to test a research hypothesis, it is known as hypothesis-testing research. Such research may be in the nature of experimental design or non-experimental design. The research in which the independent variable is manipulated is known as 'experimental hypothesis-testing research', whereas the research in which the independent

Variable is not manipulated is termed as 'non-experimental hypothesis-testing research'. For example, assume that a researcher wants to examine whether family income influences the school attendance of a group of students, by calculating the coefficient of correlation between the two variables. Such an example is known as a non-experimental hypothesis-testing research, because the independent variable - family income is not manipulated here. Again assume that the researcher randomly selects 150 students from a group of students who pay their school fees regularly and then classifies them into two sub-groups by randomly including 75 in Group A, whose parents have regular earning, and 75 in Group B, whose parents do not have regular earning. Assume that at the end of the study, the researcher conducts a test on each group in order to examine the effects of regular earnings of the parents on the school attendance of the student. Such a study is an example of experimental hypothesis-testing research, because in this particular study the independent variable regular earnings of the parents have been manipulated.

6. Experimental and control groups:

When a group is exposed to usual conditions in an experimental hypothesis-testing research, it is known as 'control group'. On the other hand, when the group is exposed to certain new or special condition, it is known as an 'experimental group'. In the afore-mentioned example, Group A can be called as control group and Group B as experimental group. If both the groups, A and B are exposed to some special feature, then both the groups may be called as 'experimental groups'. A research design may include only the experimental group or both the experimental and control groups together.

7. Treatments:

Treatments refer to the different conditions to which the experimental and control groups are subject to. In the example considered, the two treatments are the parents with regular earnings and those with no regular earnings. Likewise, if a research study attempts to examine through an experiment the comparative effect of three different types of fertilizers on the yield of rice crop, then the three types of fertilizers would be treated as the three treatments.

8. Experiment:

Experiment refers to the process of verifying the truth of a statistical hypothesis relating to a given research problem. For instance, an experiment may be conducted to examine the yield of a certain new variety of rice crop developed. Further, Experiments may be categorized into two types, namely, 'absolute experiment' and 'comparative experiment'. If a researcher wishes to determine the impact of a chemical fertilizer on the yield of a particular variety of rice crop, then it is known as absolute experiment. Meanwhile, if the researcher wishes to determine the impact of chemical fertilizer as compared to the impact of bio-fertilizer, then the experiment is known as a comparative experiment.

9. Experimental unit(s):

Experimental units refer to the pre-determined plots, characteristics or the blocks, to which different treatments are applied. It is worth mentioning here that such experimental units must be selected with great caution.

Types of research design:

There are different types of research designs. They may be broadly categorized as:

- (1) Exploratory research design;
- (2) Descriptive and diagnostic research design; and
- (3) Hypothesis-testing research design.

1. Exploratory research design:

The Exploratory Research Design is known as formulative research design. The main objective of using such a research design is to formulate a research problem for an in-depth or more precise investigation, or for developing a working hypothesis from an operational aspect. The major purpose of such studies is the discovery of ideas and insights. Therefore, such a research design suitable for such a study should be flexible enough to provide opportunity for considering different dimensions of the problem under study. The built-in flexibility in research design is required as the initial research problem would be transformed

into a more precise one in the exploratory study, which in turn may necessitate changes in the research procedure for collecting relevant data. Usually, the following three methods are considered in the context of a research design for such studies. They are (a) a survey of related literature; (b) experience survey; and (c) analysis of 'insight-stimulating' instances.

2. Descriptive and diagnostic research design:

A Descriptive Research Design is concerned with describing the characteristics of a particular individual or a group. Meanwhile, a diagnostic research design determines the frequency with which a variable occurs or its relationship with another variable. In other words, the study analyzing whether a certain variable is associated with another comprises a diagnostic research study. On the other hand, a study that is concerned with specific predictions or with the narration of facts and characteristics related to an individual, group or situation, are instances of descriptive research studies. Generally, most of the social research design falls under this category. As a research design, both the descriptive and diagnostic studies share common requirements, hence they are grouped together. However, the procedure to be used and the research design need to be planned carefully. The research design must also make appropriate provision for protection against bias and thus maximize reliability, with due regard to the completion of the research study in an economical manner. The research design in such studies should be rigid and not flexible. Besides, it must also focus attention on the following:

- a) Formulation of the objectives of the study,
- b) Proper designing of the methods of data collection,
- c) Sample selection,
- d) Data collection,
- e) Processing and analysis of the collected data, and
- f) Reporting the findings.

3. Hypothesis-Testing research design:

Hypothesis-Testing Research Designs are those in which the researcher tests the hypothesis of causal relationship between two or more variables. These studies require procedures that would not only decrease bias and enhance reliability, but also facilitate deriving inferences about the causality. Generally, experiments satisfy such requirements. Hence, when research design is discussed in such studies, it often refers to the design of experiments.

Importance of Research design:

The need for a research design arises out of the fact that it facilitates the smooth conduct of the various stages of research. It contributes to making research as efficient as possible, thus

yielding the maximum information with minimum effort, time and expenditure. A research design helps to plan in advance, the methods to be employed for collecting the relevant data and the techniques to be adopted for their analysis. This would help in pursuing the objectives of the research in the best possible manner, provided the available staff, time and money are given. Hence, the research design should be prepared with utmost care, so as to avoid any error that may disturb the entire project. Thus, research design plays a crucial role in attaining the reliability of the results obtained, which forms the strong foundation of the entire process of the research work.

Despite its significance, the purpose of a well-planned design is not realized at times. This is because it is not given the importance that it deserves. As a consequence, many researchers are not able to achieve the purpose for which the research designs are formulated, due to which they end up arriving at misleading conclusions. Therefore, faulty designing of the research project tends to render the research exercise meaningless. This makes it imperative that an efficient and suitable research design must be planned before commencing the process of research. The research design helps the researcher to organize his/her ideas in a proper form, which in turn facilitates him/her to identify the inadequacies and faults in them. The research design is also discussed with other experts for their comments and critical evaluation, without which it would be difficult for any critic to provide a comprehensive review and comments on the proposed study.

Characteristics of a good research design:

A good research design often possesses the qualities of being *flexible, suitable, efficient, and economical* and soon. Generally, a research design which minimizes bias and maximizes the reliability of the data collected and analyzed is considered a good design (Kothari 1988). A research design which does not allow even the *smallest experimental error* is said to be the best design for investigation. Further, a research design that yields maximum information and provides an opportunity of viewing the various dimensions of a research problem is considered to be the most appropriate and efficient design. Thus, the question of a good design relates to the purpose or objective and nature of the research problem studied. While a research design may be good, it may not be equally suitable to all studies. In other words, it may be lacking in one aspect or the other in the case of some other research problems. Therefore, no single research design can be applied to all types of research problems.

A research design suitable for a specific research problem would usually involve the following considerations:

- i. The methods of gathering the information;
- ii. The skills and availability of the researcher and his/her staff, if any;

- iii. The objectives of the research problem being studied;
- iv. The nature of the research problem being studied; and
- v. The available monetary support and duration of time for the research work.

Case study research:

The method of exploring and analyzing the life or functioning of a social or economic unit, such as a person, a family, a community, an institution, a firm or an industry is called case study method. The objective of case study method is to examine the factors that cause the behavioral patterns of a given unit and its relationship with the environment. The data for a study are always gathered with the purpose of tracing the natural history of a social or economic unit, and its relationship with the social or economic factors, besides the forces involved in its environment. Thus, a researcher conducting a study using the case study method attempts to understand the complexity of factors that are operative within a social or economic unit as an integrated totality. Burgess (Kothari, 1988) described the special significance of the case study in understanding the complex behavior and situations in specific detail. In the context of social research, he called such data as social microscope.

Criteria for evaluating Adequacy of case study:

John Dollard (Dollard, 1935) specified seven criteria for evaluating the adequacy of a case or life history in the context of social research. They are:

- i. The subject being studied must be viewed as a specimen in a cultural setup. That is, the cases selected from its total context for the purpose of study should be considered a member of the particular cultural group or community. The scrutiny of the life history of the individual must be carried out with a view to identify the community values, standards and shared ways of life.
- ii. The organic motors of action should be socially relevant. This is to say that the action of the individual cases should be viewed as a series of reactions to social stimuli or situations. To put in simple words, the social meaning of behavior should be taken into consideration.
- iii. The crucial role of the family-group in transmitting the culture should be recognized. This means, as an individual is the member of a family, the role of the family in shaping his/her behavior should never be ignored.
- iv. The specific method of conversion of organic material into social behavior should be clearly demonstrated. For instance, case-histories that discuss in detail how basically a biological organism, that is man,

gradually transforms into a social person are particularly important.

- v. The constant transformation of character of experience from childhood to adulthood should be emphasized. That is, the life-history should portray the inter-relationship between the individual's various experiences during his/her life span. Such a study provides a comprehensive understanding of an individual's life as a continuum.
- vi. The 'social situation' that contributed to the individual's gradual transformation should carefully and continuously be specified as a factor. One of the crucial criteria for life-history is that an individual's life should be depicted as evolving itself in the context of a specific social situation and partially caused by it.
- vii. The life-history details themselves should be organized according to some conceptual framework, which in turn would facilitate their generalizations at higher levels.

These criteria discussed by Dollard emphasize the specific link of coordinated, related, continuous and configured experience in a cultural pattern that motivated the social and personal behavior. Although, the criteria indicated by Dollard are principally perfect, some of them are difficult to put to practice.

Dollard (1935) attempted to express the diverse events depicted in the life-histories of persons during the course of repeated interviews by utilizing psycho-analytical techniques in a given situational context. His criteria of life-history originated directly from this experience. While the life-histories possess independent significance as research documents, the interviews recorded by the investigators can afford, as Dollard observed, "rich insights into the nature of the social situations experienced by them".

It is a well-known fact that an individual's life is very complex. Till date there is hardly any technique that can establish some kind of uniformity, and as a result ensure the cumulative of case-history materials by isolating the complex totality of a human life. Nevertheless, although case history data are difficult to put to rigorous analysis, a skillful handling and interpretation of such data could help in developing insights into cultural conflicts and problems arising out of cultural-change.

Gordon Allport in (Kothari 1988) has recommended the following aspects so as to broaden the perspective of case-study data:

- i. If the life-history is written in first person, it should be as comprehensive and coherent as possible.
- ii. Life-histories must be written for knowledgeable persons. That is, if the enquiry of study is sociological in nature, the researchers should write it on the assumption

that it would be read largely by sociologists only.

- iii. It would be advisable to supplement case study data by observational, statistical and historical data, as they provide standards for assessing the reliability and consistency of the case study materials. Further, such data offer a basis for generalizations.
- iv. Efforts must be made to verify the reliability of life-history data by examining the internal consistency of the collected material, and by repeating the interviews with the concerned person. Besides this, personal interviews with the persons who are well-acquainted with him/her, belonging to his/her own group should be conducted.
- v. A judicious combination of different techniques for data-collection is crucial for collecting data that are culturally meaningful and scientifically significant.
- vi. Life-histories or case-histories may be considered as an adequate basis for generalization to the extent that they are typical or representative of a certain group.
- vii. The researcher engaged in the collection of case study data should never ignore the unique or typical cases. He/she should include them as exceptional cases.

Case histories are filled with valuable information of a personal or private nature. Such information not only helps the researcher to portray the personality of the individual, but also the social background that contributed to it. Besides, it also helps in the formulation of relevant hypotheses. In general, although Blumer (in Wilkinson and Bhandarkar, 1979) was critical of documentary material, he gave due credit to case histories by acknowledging the fact that the personal documents offer an opportunity to the researcher to develop his/her spirit of enquiry. The analysis of a particular subject would be more effective if the researcher acquires close acquaintance with it through personal documents. However, Blumer also acknowledges the limitations of the personal documents. According to him, such documents do not entirely fulfill the criteria of adequacy, reliability, and representativeness. Despite these shortcomings, avoiding their use in any scientific study of personal life would be wrong, as these documents become necessary and significant for both theory-building and practice.

In spite of these formidable limitations, case study data are used by anthropologists, sociologists, economists and industrial psychiatrists. Gordon Allport (Kothari, 1988) strongly recommends the use of case study data for in-depth analysis of a subject. For, it is one's acquaintance with an individual that instills a desire to know his/her nature and understand them. The first stage involves understanding the individual and all the complexity of his/her nature. Any haste in analyzing and classifying the individual would create the risk of reducing his/her emotional world into artificial bits. As a consequence, the important emotional organizations, anchorages and natural identifications characterizing the personal life of the individual might not yield adequate representation. Hence, the researcher should understand the life of the subject. Therefore, the totality of life-processes reflected in the well-ordered life-history documents

become invaluable source of stimulating insights. Such life-history documents provide the basis for comparisons that contribute to statistical generalizations and help to draw inferences regarding the uniformities in human behavior, which are of great value. Even if some personal documents do not provide ordered data about personal lives of people, which is the basis of psychological science, they should not be ignored. This is because the final aim of science is to understand, control and make predictions about human life. Once they are satisfied, the theoretical and practical importance of personal documents must be recognized as significant. Thus, a case study may be considered as the beginning and the final destination of abstract knowledge.

Characteristics of a good sample design:

The following are the characteristic features of a good sample design

- a. The sample design should yield a truly representative sample;
- b. The sample design should be such that it results in small sampling error;
- c. The sample design should be viable in the context of budgetary constraints of the research study;
- d. The sample design should be such that the systematic bias can be controlled; and
- e. The sample must be such that the results of the sample study would be applicable, in general, to the universe at a reasonable level of confidence.

Data Collection & Sources of Data

- 1) Primary data, secondary data
- 2) Investigation
- 3) Indirect oral methods of collecting primary data
- 4) Direct personal interviews
- 5) Information received through local agencies
- 6) Mailed Questionnaire method
- 7) Schedules Sent through enumerators

Introduction:

It is important for a researcher to know the sources of data which he requires for different purposes. Data are nothing but the information. There are two sources of information or data they are - Primary and Secondary data. The data are named after the source. Primary data refers to the data collected for the first time, whereas secondary data refers to the data that have already been collected and used earlier by somebody or some agency. For example, the statistics collected by the Government of India relating to the population is primary data for the Government of India since it has been collected for the first time. Later when the same

data are used by a researcher for his study of a particular problem, then the same data become the secondary data for the researcher. Both the sources of information have their merits and demerits. The selection of a particular source depends upon the

- a) Purpose and scope of enquiry,
- b) Availability of time,
- c) Availability of finance,
- d) Accuracy required,
- e) Statistical tools to be used,
- f) Sources of information (data)
- g) Method of data collection.

(a) Purpose and Scope of enquiry:

The purpose and scope of data collection or survey should be clearly set out at the very beginning. It requires the clear statement of the problem indicating the type of information which is needed and the use for which it is needed. If for example, the researcher is interested in knowing the nature of price change over a period of time, it would be necessary to collect data of commodity prices. It must be decided whether it would be helpful to study wholesale or retail prices and the possible uses to which such information could be put. The objective of an enquiry may be either to collect specific information relating to a problem or adequate data to test a hypothesis. Failure to set out clearly the purpose of enquiry is bound to lead to confusion and waste of resources.

After the purpose of enquiry has been clearly defined, the next step is to decide about the scope of the enquiry. Scope of the enquiry means the coverage with regard to the type of information, the subject-matter and geographical area. For instance, an enquiry may relate to India as a whole or a state or an industrial town wherein a particular problem related to a particular industry can be studied.

b) Availability of time:

The investigation should be carried out within a reasonable period of time, failing which the information collected may become outdated, and would have no meaning at all. For instance, if a producer wants to know the expected demand for a product newly launched by him and the result of the enquiry that the demand would be meager takes two years to reach him, and then the whole purpose of enquiry would become useless because by that time he would have already incurred a huge loss. Thus, in this respect the information is quickly required and hence the researcher has to choose the type of enquiry accordingly.

c) Availability of resources:

The investigation will greatly depend on the resources available like number of skilled personnel,

the financial position etc. If the number of skilled personnel who will carry out the enquiry is quite sufficient and the availability of funds is not a problem, then enquiry can be conducted over a big area covering a good number of samples, otherwise a small sample size will do.

d) The Degree of accuracy desired:

Deciding the degree of accuracy required is a must for the investigator, because absolute accuracy in statistical work is seldom achieved. This is so because (i) statistics are based on estimates, (ii) tools of measurement are not always perfect and (iii) there may be unintentional bias on the part of the investigator, enumerator or informant. Therefore, a desire of 100% accuracy is bound to remain unfulfilled. Degree of accuracy desired primarily depends upon the object of enquiry. For example, when we buy gold, even a difference of $1/10^{\text{th}}$ gram in its weight is significant, whereas the same will not be the case when we buy rice or wheat. However, the researcher must aim at attaining a higher degree of accuracy; otherwise the whole purpose of research would become meaningless.

e) Statistical tools to be used:

A well-defined and identifiable object or a group of objects with which the measurements or counts in any statistical investigation are associated is called a *statistical unit*. For example, in a socio-economic survey the unit may be an individual, a family, a household or a block of locality. A very important step before the collection of data begins is to define clearly the statistical units on which the data are to be collected. In number of situations the units are conventionally fixed like the physical units of measurement, such as meters, kilometers, quintals, hours, days, weeks etc., which are well defined and do not need any elaboration or explanation. However, in many statistical investigations, particularly relating to socio-economic studies, arbitrary units are used which must be clearly defined. This is a must because in the absence of a clear cut and precise definition of the statistical units, serious errors in the data collection may be committed in the sense that we may collect irrelevant data on the items, which should have, in fact, been excluded and omit data on certain items which should have been included. This will ultimately lead to fallacious conclusions.

f) Sources of information (Data):

After deciding about the unit, a researcher has to decide about the source from which the information can be obtained or collected. For any statistical inquiry, the investigator may collect the data first hand or he may use the data from other published sources, such as publications of the government/semi-government organizations or journals and magazines etc.

g) Method of data collection)

There is no problem if secondary data are used for research. However, if primary data are to be collected, a decision has to be taken whether (i) census method or (ii) sampling technique is to be used for data collection. In census method, we go for total enumeration i.e., all the units of a universe have to be investigated. But in sampling technique, we inspect or study only a selected representative and adequate fraction of the population and after analyzing the results of the sample data we draw conclusions about the characteristics of the population. Selection of a particular technique becomes difficult because where population or census method is more scientific and 100% accuracy can be attained through this method, choosing this becomes difficult because it is time taking, it requires more labor and it is very expensive. Therefore, for a single researcher or for a small institution it proves to be unsuitable. On the other hand, sample method is less time taking, less laborious and less expensive but a 100% accuracy cannot be attained through this method because of sampling and non-sampling errors attached to this method. Hence, a researcher has to be very cautious and careful while choosing a particular method.

Methods of Collecting Primary Data:

Primary data may be obtained by applying any of the following methods:

1. Direct Personal Interviews.
2. Indirect Oral Interviews.
3. Information from correspondents.
4. Mailed questionnaire methods.
5. Schedule Sent through enumerators.

1. Direct personal interviews:

A face to face contact is made with the informants (persons from whom the information is to be obtained) under this method of collecting data. The interviewer asks them questions pertaining to the survey and collects the desired information. Thus, if a person wants to collect data about the working conditions of the workers of the Tata Iron and Steel Company, Jamshedpur, he would go to the factory, contact the workers and obtain the desired information. The information collected in this manner is first hand and also original in character. There are many merits and demerits of this method, which are discussed as under:

Merits:

- Most often respondents are happy to pass on the information required from them when contacted personally and thus response is encouraging.

- The information collected through this method is normally more accurate because interviewer can clear doubts of the informants about certain questions and thus obtain correct information. In case the interviewer apprehends that the informant is not giving accurate information, he may cross-examine him and thereby try to obtain the information.
- This method also provides the scope for getting supplementary information from the informant, because while interviewing it is possible to ask some supplementary questions which may be of greater use later.
- There might be some questions which the interviewer would find difficult to ask directly but with some tactfulness, he can mingle such questions with others and get the desired information. He cannot twist the questions keeping in mind the informant's reaction. Precisely, a delicate situation can usually be handled more effectively by a personal interview than by other survey techniques.
- The interviewer can adjust the language according to the status and educational level of the person interviewed, and thereby can avoid inconvenience and misinterpretation on the part of the informant.

Demerits:

- This method can prove to be expensive if the number of informants is large and the area is widely spread.
- There is a greater chance of personal bias and prejudice under this method as compared to other methods.
- The interviewers have to be thoroughly trained and experienced; otherwise they may not be able to obtain the desired information. Untrained or poorly trained interviewers may spoil the entire work.
- This method is more time taking as compared to others. This is because interviews can be held only at the convenience of the informants. Thus, if information is to be obtained from the working members of households, interviews will have to be held in the evening or on week end. Even during evening only an hour or two can be used for interviews and hence, the work may have to be continued for a long time, or a large number of people may have to be employed which may involve huge expenses.

2. Indirect Oral Interviews:

Under this method of data collection, the investigator contacts third parties generally called 'witnesses' who are capable of supplying necessary information. This method is generally adopted when the information to be obtained is of a complex nature and informants are not inclined to respond if approached directly. For example, when the researcher is trying to obtain data on drug addiction or the habit of taking liquor, there is high probability that the addicted person

will not provide the desired data and hence will disturb the whole research process. In this situation taking the help of such persons or agencies or the neighbor's who know them well becomes necessary. Since these people know the person well, they can provide the desired data. Enquiry Committees and Commissions appointed by the Government generally adopt this method to get people's views and all possible details of the facts related to the enquiry.

Though this method is very popular, its correctness depends upon a number of factors such as

- i. The person or persons or agency whose help is solicited must be of proven integrity; otherwise any bias or prejudice on their part will not bring out the correct information and the whole process of research will become useless.
- ii. The ability of the interviewers to draw information from witnesses by means of appropriate questions and cross-examination.
- iii. It might happen that because of bribery, nepotism or certain other reasons those who are collecting the information give it such a twist that correct conclusions are not arrived at.

Therefore, for the success of this method it is necessary that the evidence of one person alone is not relied upon. Views from other persons and related agencies should also be ascertained to find the real position. Utmost care must be exercised in the selection of these persons because it is on their views that the final conclusions are reached.

3. Information from correspondents:

The investigator appoints local agents or correspondents in different places to collect information under this method. These correspondents collect and transmit the information to the central office where data are processed. This method is generally adopted by newspaper agencies. Correspondents who are posted at different places supply information relating to such events as accidents, riots, strikes, etc., to the head office. The correspondents are generally paid staff or sometimes they may be honorary correspondents also. This method is also adopted generally by the government departments in such cases where regular information is to be collected from a wide area. For example, in the construction of a wholesale price index numbers regular information is obtained from correspondents appointed in different areas. The biggest advantage of this method is that, it is cheap and appropriate for extensive investigation. But a word of caution is that it may not always ensure accurate results because of the personal prejudice and bias of the correspondents. As stated earlier, this method is suitable and adopted in those cases where the information is to be obtained at regular intervals from a wide area.

4. Mailed questionnaire Method:

Under this method, a list of questions pertaining to the survey which is known as 'Questionnaire' is prepared and sent to the various informants by post. Sometimes the researcher himself too contacts the respondents and gets the responses related to various questions in the questionnaire. The questionnaire contains questions and provides space for answers. A request is made to the informants through a covering letter to fill up the questionnaire and send it back within a specified time. The questionnaire studies can be classified on the basis of:

- i. The degree to which the questionnaire is formalized or structured.
- ii. The disguise or lack of disguise of the questionnaire and
- iii. The communication method used.

When no formal questionnaire is used, interviewers adapt their questioning to each interview as it progresses. They might even try to elicit responses by indirect methods, such as showing pictures on which the respondent comments. When a researcher follows a prescribed sequence of questions, it is referred to as *structured study*. On the other hand, when no prescribed sequence of questions exists, the study is *non-structured*.

When questionnaires are constructed in such a way that the objective is clear to the respondents then these questionnaires are known as *non-disguised*; on the other hand, when the objective is not clear, the questionnaire is a *disguised one*. On the basis of these two classifications, four types of studies can be distinguished:

1. Non-disguised structured,
2. Non-disguised non-structured,
3. Disguised structured and
4. Disguised non-structured.

There are certain merits and demerits of this method of data collection which are discussed below:

Merits:

- Questionnaire method of data collection can be easily adopted where the field of investigation is very vast and the informants are spread over a wide geographical area.
- This method is relatively cheap and expeditious provided the informants respond in time.
- This method has proved to be superior when compared to other methods like personal interviews or telephone method. This is because when questions pertaining to personal nature or the ones requiring reaction by the family are put forth to the informants, there is a chance for them to be embarrassed in answering them.

Demerits:

- This method can be adopted only where the informants are literates so that they can understand written questions and lend the answers in writing.
- It involves some uncertainty about the response. Co-operation on the part of informants may be difficult to resume.
- The information provided by the informants may not be correct and it may be difficult to verify the accuracy.

However, by following the guidelines given below, this method can be made more effective: The questionnaires should be made in such a manner that they do not become an undue burden on the respondents; otherwise the respondents may not return them back.

- i. Prepaid postage stamp should be affixed
- ii. The sample should be large
- iii. It should be adopted in such enquiries where it is expected that the respondents would return the questionnaire because of their own interest in the enquiry.
- iv. It should be preferred in such enquiries where there could be a legal compulsion to provide the information.

5. Schedules sent through enumerators:

Another method of data collection is sending schedules through the enumerators or interviewers. The enumerators contact the informants, get replies to the questions contained in a schedule and fill them in their own handwriting in the questionnaire form. There is difference between questionnaire and schedule. Questionnaire refers to a device for securing answers to questions by using a form which the respondent fills in himself, whereas schedule is the name usually applied to a set of questions which are asked in a face-to-face situation with another person. This method is free from most of the limitations of the mailed questionnaire method.

Merits:

The main merits or advantages of this method are listed below:

- It can be adopted in those cases where informants are illiterate.
- There is very little scope of non-response as the enumerators go personally to obtain the information.
- The information received is more reliable as the accuracy of statements can be checked by supplementary questions where ever necessary.

This method too like others is not free from defects or limitations. The main limitations are listed below:

Demerits:

- In comparison to other methods of collecting primary data, this method is quite costly as enumerators are generally paid persons.
- The success of the method depends largely upon the training imparted to the enumerators.
- Interviewing is a very skilled work and it requires experience and training. Many statisticians have the tendency to neglect this extremely important part of the data collecting process and this results in bad interviews. Without good interviewing most of the information collected may be of doubtful value.
- Interviewing is not only a skilled work but it also requires a great degree of politeness and thus the way the enumerators conduct the interview would affect the data collected. When questions are asked by a number of different interviewers, it is possible that variations in the personalities of the interviewers will cause variation in the answers obtained. This variation will not be obvious. Hence, every effort must be made to remove as much of variation as possible due to different interviewers.

Secondary Data:

As stated earlier, secondary data are those data which have already been collected and analyzed by some earlier agency for its own use, and later the same data are used by a different agency. According to W.A. Neiswanger, "A primary source is a publication in which the data are published by the same authority which gathered and analyzed them. A secondary source is a publication, reporting the data which was gathered by other authorities and for which others are responsible."

Sources of secondary data:

The various sources of secondary data can be divided into two broad categories:

1. Published sources, and
2. Unpublished sources.

1. Published sources:

The governmental, international and local agencies publish statistical data, and chief among them are explained below:

- (a) International publications:

There are some international institutions and bodies like I.M.F, I.B.R.D, I.C.A.F.E and

U.N.O who publish regular and occasional reports on economic and statistical matters.

(b) Official Publications of Central and State Governments:

Several departments of the Central and State Governments regularly publish reports on a number of subjects. They gather additional information. Some of the important publications are: The Reserve Bank of India Bulletin, Census of India, Statistical Abstracts of States, Agricultural Statistics of India, Indian Trade Journal, etc.

(c) Semi-official publications:

Semi-Government institutions like Municipal Corporations, District Boards Panchayats, etc. Publish reports relating to different matters of public concern.

(d) Publications of research institutions:

Indian Statistical Institute (I.S.I), Indian Council of Agricultural Research (I.C.A.R), Indian Agricultural Statistics Research Institute (I.A.S.R.I) etc. Publish the findings of their research programs.

(e) Publications of various commercial and financial Institutions

(f) Reports of various Committees and Commissions appointed by the Government as the Raj Committee's report on Agricultural Taxation, Wanchoo Committee's Report on Taxation and Black Money, etc. Are also important source of secondary data.

(g) Journals and Newspapers:

Journals and News Papers are very important and powerful source of secondary data. Current and important materials on statistics and socio- economic problems can be obtained from journals and newspapers like Economic Times, Commerce, Capital, Indian Finance, Monthly Statistics of trade etc.

2. Unpublished sources:

Unpublished data can be obtained from many unpublished sources like records maintained by various government and private offices, the theses of the numerous research scholars in the universities or institutions etc.

Precautions in the use of secondary data:

Since secondary data have already been obtained, it is highly desirable that a proper scrutiny of such data is made before they are used by the investigator. In fact, the user has to be extra-cautious while using secondary data. In this context Prof. Bowley rightly points out that "Secondary data should not be accepted at their face value." The reason being that data may

be erroneous in many respects due to bias, inadequate size of the sample, substitution, errors of definition, arithmetical errors etc. Even if there is no error such data may not be suitable and adequate for the purpose of the enquiry. Prof. Simon Kuznet's view in this regard is also of great importance. According to him, "the degree of reliability of secondary source is to be assessed from the source, the compiler and his capacity to produce correct statistics and the users also, for the most part, tend to accept a series particularly one issued by a government agency at its face value without enquiring its reliability".

Therefore, before using the secondary data the investigators should consider the following factors:

4. The Suitability of data:

The investigator must satisfy himself that the data available are suitable for the purpose of enquiry. It can be judged by the nature and scope of the present enquiry with the original enquiry. For example, if the object of the present enquiry is to study the trend in retail prices, and if the data provide only wholesale prices, such data are unsuitable.

a) Adequacy of data:

If the data are suitable for the purpose of investigation then we must consider whether the data are useful or adequate for the present analysis. It can be studied by the geographical area covered by the original enquiry. The time for which data are available is very important element. In the above example, if our object is to study the retail price trend of India, and if the available data cover only the retail price trend in the state of Bihar, then it would not serve the purpose.

b) Reliability of data:

The reliability of data is must. Without which there is no meaning in research. The reliability of data can be tested by finding out the agency that collected such data. If the agency has used proper methods in collection of data, statistics may be relied upon.

It is not enough to have a basket of data in hand. In fact, data in a raw form are nothing but a handful of raw material waiting for proper processing so that they can become useful. Once data have been obtained from primary or secondary source, the next step in a statistical investigation is to edit the data i.e. to scrutinize the same. The chief objective of editing is to detect possible errors and irregularities. The task of editing is a highly specialized one and requires great care and attention. Negligence in this respect may render useless the findings of an otherwise valuable study. Editing data collected from internal records and published sources is relatively simple but the data collected from a survey need excessive editing.

While editing primary data, the following considerations should be borne in mind:

1. The data should be complete in every respect
2. The data should be accurate
3. The data should be consistent, and
4. The data should be homogeneous.

Data to possess the above mentioned characteristics have to undergo the same type of editing which is discussed below:

5. Editing for completeness:

While editing, the editor should see that each schedule and questionnaire is complete in all respects. He should see to it that the answers to each and every question have been furnished. If some questions are not answered and if they are of vital importance, the informants should be contacted again either personally or through correspondence. Even after all the efforts it may happen that a few questions remain unanswered. In such questions, the editor should mark 'No answer' in the space provided for answers and if the questions are of vital importance then the schedule or questionnaire should be dropped.

(a) Editing for consistency:

At the time of editing the data for consistency, the editor should see that the answers to questions are not contradictory in nature. If they are mutually contradictory answers, he should try to obtain the correct answer either by referring back the questionnaire or by contacting, wherever possible, the informant in person. For example, if amongst others, two questions in questionnaire are (a) Are you a student? (b) Which class do you study and the reply to the first question is 'no' and to the latter 'tenth' then there is contradiction and it should be clarified.

(b) Editing for accuracy:

The reliability of conclusions depends basically on the correctness of information. If the information supplied is wrong, conclusions can never be valid. It is, therefore, necessary for the editor to see that the information is accurate in all respects. If the inaccuracy is due to arithmetical errors, it can be easily detected and corrected. But if the cause of inaccuracy is faulty information supplied, it may be difficult to verify it and an example of this kind is information relating to income, age etc.

(c) Editing for homogeneity:

Homogeneity means the condition in which all the questions have

been understood in the same sense. The editor must check all the questions for uniform interpretation. For example, as to the question of income, if some informants have given monthly income, others annual income and still others weekly income or even daily income, no comparison can be made. Therefore, it becomes an essential duty of the editor to check up that the information supplied by the various people is homogeneous and uniform.

Choice between Primary and Secondary Data:

As we have already seen, there are a lot of differences in the methods of collecting Primary and Secondary data. Primary data which is to be collected originally involves an entire scheme of plan starting with the definitions of various terms used, units to be employed, type of enquiry to be conducted, extent of accuracy aimed at etc. For the collection of secondary data, re-compilation of the existing data would be sufficient. A proper choice between the type of data needed for any particular statistical investigation is to be made after taking into consideration the nature, objective and scope of the enquiry; the time and the finances at the disposal of the agency; the degree of precision aimed at and the status of the agency (whether government- state or central- or private institution of an individual).

In using the secondary data, it is best to obtain the data from the primary source as far as possible. By doing so, we would at least save ourselves from the errors of transcription which might have inadvertently crept in the secondary source. Moreover, the primary source will also provide us with detailed discussion about the terminology used, statistical units employed, size of the sample and the technique of sampling (if sampling method was used), methods of data collection and analysis of results and we can ascertain ourselves if these would suit our purpose. Now-a-days in a large number of statistical enquiries, secondary data are generally used because fairly reliable published data on a large number of diverse fields are now available in the publications of governments, private organizations and research institutions, agencies, periodicals and magazines etc. In fact, primary data are collected only if there do not exist any secondary data suited to the investigation under study. In some of the investigations both primary as well as secondary data may be used.

Summary:

There are two types of data, primary and secondary. Data which are collected first hand are called Primary data and data which have already been collected and used by somebody are called Secondary data. There are two methods of collecting data: (a) Survey method or total enumeration method and (b) Sample method. When a researcher goes for investigating all the units of the subject, it is called as survey method. On the other hand, if he/she resorts to investigating only a few units of the subject and gives the result on the basis of that, it is known as sample survey method. There are different

sources of collecting Primary and Secondary data. Some of the important sources of Primary data are—Direct Personal Interviews, Indirect Oral Interviews, Information from Correspondents, mailed questionnaire method, Schedules sent through enumerators and so on. Though all these sources or methods of Primary data have their relative merits and demerits, a researcher should use a particular method with lot of care. There are basically two sources of collecting secondary data- (a) Published sources and (b) Unpublished sources. Published sources are like publications of different government and semi-government departments, research institutions and agencies etc. Whereas unpublished sources are like records maintained by different government departments and unpublished theses of different universities etc. Editing of secondary data is necessary for different purposes as editing for completeness, editing for consistency, editing for accuracy and editing for homogeneity.

It is always a tough task for the researcher to choose between primary and secondary data. Though primary data are more authentic and accurate, time, money and labor involved in obtaining these more often prompt the researcher to go for the secondary data. There are certain amount of doubt about its authenticity and suitability, but after the arrival of many government and semi government agencies and some private institutions in the field of data collection, most of the apprehensions in the mind of the researcher have been removed.

Questionnaire & Sampling

Nowadays questionnaire is widely used for data collection in social research. It is a reasonably fair tool for gathering data from large, diverse, varied and scattered social groups. The questionnaire is the media of communication between the investigator and the respondents. According to Bogardus, a questionnaire is a list of questions sent to a number of persons for their answers and which obtains standardized results that can be tabulated and treated statistically. The Dictionary of Statistical Terms defines it as a “group of or sequence of questions designed to elicit information upon a subject or sequence of subjects from information.” A questionnaire should be designed or drafted with utmost care and caution so that all the relevant and essential information for the enquiry may be collected without any difficulty, ambiguity and vagueness. Drafting of a good questionnaire is a highly specialized job and requires great care skill, wisdom, efficiency and experience. No hard and fast rule can be laid down for designing or framing a questionnaire. However, in this connection, the following general points may be borne in mind:

1. Size of the questionnaire should be small:

A researcher should try his best to keep the number of questions as small as possible, keeping in view the nature, objectives and scope of the enquiry. Respondent's time should not be wasted by asking irrelevant and unimportant questions. A large number of questions would

involve more work for the investigator and thus result in delay on his part in collecting and submitting the information. A large number of unnecessary questions may annoy the respondent and he may refuse to cooperate. A reasonable questionnaire should contain from 15 to 25 questions at large. If a still larger number of questions are a must in any enquiry, then the questionnaire should be divided into various sections or parts.

2. The questions should be clear:

The questions should be easy, brief, unambiguous, non-offending, and courteous in tone, corroborative in nature and to the point, so that much scope of guessing is left on the part of the respondents.

3. The questions should be arranged in a logical sequence:

Logical arrangement of questions reduces lot of unnecessary work on the part of the researcher because it not only facilitates the tabulation work but also does not leave any chance for omissions or commissions. For example, to find if a person owns a television, the logical order of questions would be: Do you own a television? When did you buy it? What is its make? How much did it cost you? Is its performance satisfactory? Have you ever got it serviced?

4. Questions should be simple to understand:

The vague words like good, bad, efficient, sufficient, prosperity, rarely, frequently, reasonable, poor, rich etc., should not be used since these may be interpreted differently by different persons and as such might give unreliable and misleading information. Similarly, the use of words having double meaning like price, assets, capital income etc., should also be avoided.

5. Questions should be comprehensive & easily answerable:

Questions should be designed in such a way that they are readily comprehensible and easy to answer for the respondents. They should not be tedious nor should they tax the respondents' memory. At the same time questions involving mathematical calculations like percentages, ratios etc., should not be asked.

6. Questions of personal & sensitive nature should not be asked:

There are some questions which disturb the respondents and he/she may be shy or irritated by hearing such questions. Therefore, every effort should be made to avoid such questions. For example, 'do you cook yourself or your wife cooks?' 'Or do you drink?' Such questions will certainly disturb the respondents and thus be avoided at any cost. If unavoidable then highest amount of politeness should be used.

7. Types of questions:

Under this head, the questions in the questionnaire may be classified as follows:

(a) Shut questions:

Shut questions are those where possible answers are suggested by the framers of the questionnaire and the respondent is required to tick one of them. Shut questions can further be subdivided into the following forms:

- **Simple alternate questions:**

In this type of questions the respondent has to choose from the two clear cut alternatives like 'Yes' or 'No', 'Right' or 'Wrong' etc. Such questions are also called as *dichotomous questions*. This technique can be applied with elegance to situations where two clear cut alternatives exist.

- **Multiple choice questions:**

Many a times it becomes difficult to define a clear cut alternative and accordingly in such a situation additional answers between Yes and No, like Do not know, No opinion, Occasionally, Casually, Seldom etc., are added. For example, in order to find if a person smokes or drinks, the following multiple choice answers may be used:

Do you smoke?

- | | | | |
|-------------------|--------------------------|--------------|--------------------------|
| (a) Yes regularly | <input type="checkbox"/> | (b) No never | <input type="checkbox"/> |
| (c) Occasionally | <input type="checkbox"/> | (d) Seldom | <input type="checkbox"/> |

Multiple choice questions are very easy and convenient for the respondents to answer. Such questions save time and also facilitate tabulation. This method should be used if only a selected few alternative answers exist to a particular question.

8. Leading questions should be avoided:

Questions like 'why do you use a particular type of car, say Maruti car' should preferably be framed into two questions-

(i) Which car do you use?

(ii) why do you prefer it?

It gives smooth ride ☐

It gives more mileage ☐

It is cheaper ☐

It is maintenance

[]

9 Crosschecks:

The questionnaire should be so designed as to provide internal checks on the Accuracy of the information supplied by the respondents by including some connected questions at least with respect to matters which are fundamental to the enquiry.

10 Pre testing the questionnaire:

It would be practical in every sense to try out the questionnaire on a small scale before using it for the given enquiry on a large scale. This has been found extremely useful in practice. The given questionnaire can be improved or modified in the light of the drawbacks, shortcomings and problems faced by the investigator in the pretest.

11 A Covering letter:

A covering letter from the organizers of the enquiry should be enclosed along with the questionnaire for the purposes regarding definitions, units, concepts used in the questionnaire, for taking the respondent's confidence, self-addressed envelope in case of mailed questionnaire, mention about award or incentives for the quick response, a promise to send a copy of the survey report etc.

SAMPLING

Though sampling is not new, the sampling theory has been developed recently. People knew or not but they have been using the sampling technique in their day to day life. For example, a house wife tests a small quantity of rice to see whether it has been well-cooked and gives the generalized result about the whole rice boiling in the vessel. The result arrived at is most of the times 100% correct. In another example, when a doctor wants to examine the blood for any deficiency, takes only a few drops of blood of the patient and examines. The result arrived at is most of the times correct and represent the whole amount of blood available in the body of the patient. In all these cases, by inspecting a few, they simply believe that the samples give a correct idea about the population. Most of our decision are based on the examination of a few items only i.e. Sample studies. In the words of Croxton and Cowdon, "It may be too expensive or too time consuming to attempt either a complete or a nearly complete coverage in a statistical study. Further to arrive at valid conclusions, it may not be necessary to enumerate all or nearly all of a population. We may study a sample drawn from the large population and if that sample is adequately representative of the population, we should be able to arrive at valid conclusions."

According to Rosander, “The sample has many advantages over a census or complete enumeration. If carefully designed, the sample is not only considerably cheaper but may give results which are just accurate and sometimes more accurate than those of a census. Hence a carefully designed sample may actually be better than poorly planned and executed census.”

Merits:

1. **It saves time:** Sampling method of data collection saves time because fewer items are collected and processed. When the results are urgently required, this method is very helpful.
2. **It reduces cost:** Since only a few and selected items are studied in sampling, there is reduction in cost of money and reduction in terms of man hours.

3. More reliable results can be obtained:

Through sampling, more reliable results can be obtained because

- (a) There are fewer chances of sampling statistical errors. If there is sampling error, it is possible to estimate and control the results.
 - (b) Highly experienced and trained persons can be employed for scientific processing and analyzing of relatively limited data and they can use their high technical knowledge and get more accurate and reliable results.
4. **It provides more detailed information:** As it saves time, money and labor, more detail information can be collected in a sample survey.

5. Sometimes only sampling method to depend upon:

Sometimes it so happens that one has to depend upon sampling method alone because if the population under study is finite, sampling method is the only method to be used. For example, if someone's blood has to be examined, it will become fatal to take all the blood out from the body and study depending upon the total enumeration method.

6. Administrative convenience:

The organization and administration of sample survey are easy for the reasons which have been discussed earlier.

7. More scientific:

Since the methods used to collect data are based on scientific theory and results obtained can be tested, sampling is a more scientific method of collecting data. It is not that sampling is free from

demerits or shortcomings. There are certain shortcomings of this method which are discussed below:

1. Illusory conclusion:

If a sample enquiry is not carefully planned and executed, the conclusions may be inaccurate and misleading.

2. Sample not representative:

To make the sample representative is a difficult task. If a representative sample is taken from the universe, the result is applicable to the whole population. If the sample is not representative of the universe the result may be false and misleading.

3. Lack of experts:

As there are lack of experts to plan and conduct a sample survey, its execution and analysis, and its results would be unsatisfactory and not trustworthy.

4. Sometimes more difficult than census method:

Sometimes the sampling plan may be complicated and requires more money, labor and time than a census method.

5. Personal bias:

There may be personal biases and prejudices with regard to the choice of technique and drawing of sampling units

6. Choice of sample size:

If the size of the sample is not appropriate then it may lead to untrue characteristics of the population.

7. Conditions of complete coverage:

If the information is required for each and every item of the universe, then a complete enumeration survey is better.

Essentials of sampling:

In order to reach a clear conclusion, the sampling should possess the following essentials:

- **It must be representative:** The sample selected should possess the similar characteristics of the original universe from which it has been drawn.
- **Homogeneity:** Selected samples from the universe should have similar nature and

should not have any difference when compared with the universe.

- **Adequate samples:** In order to have a more reliable and representative result, a good number of items are to be included in the sample.
- **Optimization:** All efforts should be made to get maximum results both in terms of cost as well as efficiency. If the size of the sample is larger, there is better efficiency and at the same time the cost is more. A proper size of sample is maintained in order to have optimized results in terms of cost and efficiency.

Sampling errors occur primarily due to the following reasons:

1. Faulty selection of the sample:

Some of the bias is introduced by the use of defective sampling technique for the selection of a sample e.g. Purposive or judgment sampling in which the investigator deliberately selects a representative sample to obtain certain results. This bias can be easily overcome by adopting the technique of simple random sampling.

2. Substitution:

When difficulties arise in enumerating a particular sampling unit included in the random sample, the investigators usually substitute a convenient member of the population. This obviously leads to some bias since the characteristics possessed by the substituted unit will usually be different from those possessed by the unit originally included in the sample.

3. Faulty demarcation of sampling units:

Bias due to defective demarcation of sampling units is particularly significant in area surveys such as agricultural experiments in the field of crop cutting surveys etc. In such surveys, while dealing with border line cases, it depends more or less on the discretion of the investigator whether to include them in the sample or not.

4. Error due to bias in the estimation method:

Sampling method consists in estimating the parameters of the population by appropriate statistics computed from the sample. Improper choice of the estimation techniques might introduce the error.

5. Variability of the population:

Sampling error also depends on the variability or heterogeneity of the population to be sampled.

Sampling errors are of two types: Biased Errors and Unbiased Errors

Biased Errors: The errors that occur due to a bias of prejudice on the part of the informant or enumerator in selecting, estimating measuring instruments are called biased errors. Suppose for example, the enumerator uses the deliberate sampling method in the place of simple random sampling method, then it is called biased errors. These errors are cumulative in nature and increase when the sample size also increases. These errors arise due to defect in the methods of collection of data, defect in the method of organization of data and defect in the method of analysis of data.

Unbiased Errors: Errors which occur in the normal course of investigation or enumeration on account of chance are called unbiased errors. They may arise accidentally without any bias or prejudice. These errors occur due to faulty planning of statistical investigation. To avoid these errors, the statistician must take proper precaution and care in using the correct measuring instrument. He must see that the enumerators are also not biased. Unbiased errors can be removed with the proper planning of statistical investigations. Both these errors should be avoided by the statisticians.

Reducing Sampling Errors:

Errors in sampling can be reduced if the size of sample is increased. This is shown in the following diagram. From the above diagram it is clear that when the size of the sample increases, sampling error decreases. And by this process samples can be made more representative to the population.

Testing of hypothesis:

As a part of investigation, samples are drawn from the population and results are derived to help in taking the decisions. But such decisions involve an element of uncertainty causing wrong decisions. Hypothesis is an assumption which may or may not be true about a population parameter. For example, if we toss a coin 200 times, we may get 110 heads and 90 tails. At this instance, we are interested in testing whether the coin is unbiased or not.

SUMMARY

Nowadays questionnaire method of data collection has become very popular. It is a very powerful tool to collect required data in shortest period of time and with little expense. It is scientific too. But drafting of questionnaire is a very skilled and careful work. Therefore,

there are certain requirements and essentials which should be followed at the time of framing the questionnaire. They include the following viz.,

(i) the size of the questionnaire should be small, (ii) questions should be very clear in understanding, (iii) questions should be put in a logical order, questions should have simple meaning etc. Apart from this, multiple choice questions should be asked. Questionnaire should be pre tested before going for final data collection. Information supplied should be cross checked for any false or insufficient information. After all these formalities have been completed, a covering note should accompany the questionnaire explaining various purposes, designs, units and incentives.

There are two ways of survey- census survey and Sample survey through which data can be collected. Census survey means total enumeration i.e., collecting data from each and every unit of the universe, whereas sample survey concentrates on collecting data from a few units of the universe selected scientifically for the purpose. Since census method is more time taking, expensive and labor intensive, it becomes impractical to depend on it. Therefore, sample survey is preferred which is scientific, less expensive, less time taking and less labor intensive too.

Experiments:

Experiment is the process of examining the truth of a statistical hypothesis related to some research problem. There are two types of experiments - absolute and comparative. There are three types of research designs - research design for descriptive and diagnostic research, research design for exploratory research studies and research design for hypothesis testing. Prof. Fisher has laid three principles of experimental design. They are Principle of Replication, Principle of Randomization and Principle of Local Control. There are different kinds of experimental designs. Some of them are Informal experimental design, After only with control design, Formal experimental design, Completely randomized design, Randomized block design, Latin square design and Factorial design.

UNIT-II

RESEARCH ETHICS

Introduction

Ethics is rooted in the ancient Greek philosophical inquiry of moral life. It refers to a system of principles which can critically change previous considerations about choices and actions. It is said that ethics is the branch of philosophy which deals with the dynamics of decision making concerning what is right and wrong. Scientific research work, as all human activities, is governed by individual, community and social values. Research ethics involve requirements on daily work, the protection of dignity of subjects and the publication of the information in the research.

However, when nurses participate in research, they have to cope with three value systems; society; nursing and science. The societal values about human rights, the nursing culture based on the ethic of caring and the researcher's values about scientific inquiry. According to Clarke these values may conflict with the values of subjects, communities, and societies and create tensions and dilemmas in nursing. In this chapter, the most important ethical issues will be addressed. After a short description of the nature of nursing, and the advocacy role of nurses, the writer will attempt to highlight the possible conflicts that nurses have to deal with, when undertaking or participating in research.

Historical overview- Ethical codes

Human experimentation has been conducted even before 18th century. However, the ethical attitudes of researchers drawn the interest of society only after 1940's because of human exploitation in several cases. Professional codes and laws were introduced since then in order to prevent scientific abuses of human lives. The Nazi experiments led to the Nuremberg Code (1947) which was the leading code for all subsequent codes made to protect human rights in research. This code focuses on voluntary informed consent, liberty of withdrawal from research, protection from physical and mental harm, or suffering and death. It also emphasizes the risk-benefit balance. The only weak point of this code was the self-regulation of researchers which can be abused in some research studies. All declarations followed, forbade non-therapeutic research. It was only in 1964 with the declaration of Helsinki that the need for non-therapeutic

research was initiated. The declaration emphasized the protection of subjects in this kind of research and strongly proclaimed that the wellbeing of individuals is more important than scientific and social interests. The American Nurses' Association (ANA) Guidelines for Research, the Human Rights Guidelines for nurses in clinical and other research (1985) and the Royal College of Nursing Code for nurses in research (1977) provide a strong assistance to professional nurses as well as reassurance to patients, the public and society, of professionals' intentions.

Major ethical issues in conducting research

Informed consent

Informed consent is the major ethical issue in conducting research. According to Armiger: "it means that a person knowingly, voluntarily and intelligently, and in a clear and manifest way, gives his consent". Informed consent is one of the means by which a patient's right to autonomy is protected. Beauchamp and Childress define autonomy as the ability for self-determination in action according to a personal plan. Informed consent seeks to incorporate the rights of autonomous individuals through self-determination. It also seeks to prevent assaults on the integrity of the patient and protect personal liberty and veracity. Of course individuals can make informed decisions in order to participate in research voluntarily only if they have information on the possible risks and benefits of the research free and informed consent needs to incorporate an introduction to the study and its purpose as well as an explanation about the selection of the research subjects and the procedures that will be followed. It is essential to describe any physical harm or discomfort, any invasion of privacy and any threat to dignity as well as how the subjects will be compensated in that case. In addition the subjects need to know any expected benefits either to the subject or to science by gaining new knowledge.⁸ A disclosure of alternatives is also required as for example in the Tuskegee study about syphilis. In this study, rural black men were chosen as subjects in a study of syphilis. Although a cure for syphilis was found after the start of the study, it was decided not to treat them and they had not been told that penicillin was effective to their disease. The researcher must inform the subjects about the methods which will be used to protect anonymity and confidentiality and indicate a person with whom they can discuss the study. He must also provide a "Noncoercive Disclaimer" which states that participation is voluntary and no penalties are involved in refusal to participate. Moreover, the subject must be told that some information has been deliberately withheld in order to avoid altered behaviors. The researcher must also take into account that persons with

physical, cultural and emotional barriers may require a very simple language in order to understand him. Finally, the freedom to withdraw must be explained. This is very important but raises the issue of how difficult the subjects can withdraw after developing a personal and sometimes friendly relationship with the researcher. With regard to withdrawal a researcher may be in a dilemma in case many subjects choose to withdraw at an advanced stage of the study, because this can affect the validity of the results. The Declaration of Helsinki provides some help as it declares that the interest of the subject must always prevail over the interests of society and science. According to this, the will of the subject must be respected at any cost for the research.

Another major ethical issue is obtaining an informed consent from groups with diminished autonomy which will be further discussed later. From what has been discussed, it becomes clear that disclosure, comprehension, competency and voluntariness are the four essential parts of consent.

Beneficence- Do not harm

The ethical principle of beneficence refers to the Hippocratic "be of benefit, do not harm". Beauchamp and Childress, suggest that

"the principle of beneficence includes the professional mandate to do effective and significant research so as to better serve and promote the welfare of our constituents".

Beneficence is sometimes difficult to predict when creating a hypothesis especially in qualitative research. Carr says that if the research findings prove that it was not beneficial as it was expected, this can raise immense ethical considerations especially for nurses. Ford and Reutter say that "beneficence relates to the benefits of the research, while non-maleficence relates to the potential risks of participation". Nonmaleficence requires a high level of sensitivity from the researcher about what constitutes "harm". According to Burns and Grove "discomfort and harm can be physiological, emotional, social and economic in nature".

When a researcher tries to learn intimate details of the participants lives he has to deal with opening old wounds. Nonmaleficence dictates both preventing intentional harm and minimizing potential harm. A researcher must consider all possible consequences of the research and balance the risks with proportionate benefit. The type, degree, and number of potential risks must be assessed as well as the patient's value system which ranks various harms. The risk benefit ratio can only be achieved by identifying these factors. If the risks outweigh the benefits, the study should be revised. Last, debriefing at the end of a study, should be mentioned. Treece and Treece say that debriefing refers to explaining the exact aim of the study and why the disclosure was not full. Treece and Treece suggest that subjects should feel as much at ease as

possible and express their feelings. In addition, Burns and Grove suggest that if the subjects experienced a high level of discomfort, they should be debriefed or referred to appropriate professional intervention as necessary.

Respect for anonymity and confidentiality

The issue of confidentiality and anonymity is closely connected with the rights of beneficence, respect for the dignity and fidelity. ANA suggests anonymity is protected when the subject's identity can not be linked with personal responses. If the researcher is not able to promise anonymity he has to address confidentiality, which is the management of private information by the researcher in order to protect the subject's identity. Levine advocates that confidentiality means that individuals are free to give and withhold as much information as they wish to the person they choose. The researcher is responsible to "maintain confidentiality that goes beyond ordinary loyalty". Clarke addresses the ethical dilemma of the researcher when confidentiality must be broken because of the moral duty to protect society.

According to the utilitarian theory, which focuses on the best interest of all involved, the happiness of society is of greater importance. On the other hand, the deontological theory which ignores the result implies that the moral duty is what really matters. If a researcher, though, acts deontologically he may feel that he has not protected society. Another issue is that the researcher may have to report confidential information to courts which can also cause moral dilemmas. In that cases it can be argued that the moral duty and personal ethos can be stronger than legal requirements. Even if there are no duty conflicts, the researcher faces several problems with respect to maintaining confidentiality especially in qualitative research where conduct is personal, the sample is smaller and the reports display quotations of interviews. Ford and Reutter suggest using pseudonyms and distorting identifying details of interviews when transcribing the tapes used.

In situations that are particularly complex, sensitive, and in which the participants are extremely vulnerable, a Certificate of Confidentiality issued by the U.S. Department of Health and Human Services (DHHS) may be useful to help ensure the privacy of research participants especially in studies in which participants and researchers may be exposed to compelled legal disclosure of research data.

The researchers must always bear in mind all psychological and social implications that a breach of confidentiality may have on subjects. In order to protect participants, they have to inform them on their rights, and use all possible coding systems that they regard appropriate in

each case.

Respect for privacy

The fifth principle of the entitled "A Patient's Bill of rights" document published in 1975 by the American Hospital Association (AHA), affirm the patient's right of privacy. According to Levine "privacy is the freedom an individual has to determine the time, extent, and general circumstances under which private information will be shared with or withheld from others ".

Kelman believes that an invasion of privacy happens when private information such as beliefs, attitudes, opinions and records, is shared with others, without the patient's knowledge or consent. However, the American Nurses Association says that different persons may held different opinions about when privacy is invaded. A researcher cannot decide on behalf of other persons on those delicate issues. All aims, instruments and methodology must be discussed with the prospective subject and the research workers prior to the investigation.

Treece and Treece suggest that whenever subjects refuse to report personal information as they regard it an invasion of privacy, the researcher ought to respect their views. This may even apply to report of age, income, marital status, and other details that the subject may regard intimate. They also imply that privacy can be invaded when researchers study certain groups without their knowledge and without identifying themselves. An example of such a study that the researcher hid his identity was Humphrie's study "Impersonal Sex in public places" in which, he observed homosexuals during sexual activities in public men's rooms. Health care practitioners need to be aware that "an invasion of privacy may cause loss of dignity, friendship or employment, or create feelings of anxiety, guilt, embarrassment or shame". In conclusion, all possible measures have to be taken in order to protect subjects from potential physical, psychological or social damage during the research or after circulation of the results.

Vulnerable groups of people

Nowadays, there is an increased concern about vulnerable groups and whether it is ethical or not for them to be used as research subjects." Fisher classifies vulnerability as one characteristic of people unable to protect their own rights and welfare". So, vulnerable groups include captive populations (prisoners, institutionalized, students etc.), mentally ill persons, and aged people, children, critically ill or dying, poor, with learning disabilities, sedated or unconscious.

The different opinions about their participation in research can be attributed to their inability to give an informed consent and also to their need for further protection and sensitivity from the researcher as they are in a greater risk of being deceived, threatened or forced to participate. Many are in favour of the use of such subjects in research whilst others would argue strongly

against it. Most condition their responses according to the seriousness of the research, the level of potential risk and the availability of alternatives. According to Burns and Grove vulnerability increases the need for justification for the use of such subjects.⁵ An intense analysis of potential risks and benefits should be the first step of starting such a research and careful approach should exist both in acquiring consent and during the research procedure itself. Persons with diminished autonomy are also more vulnerable to invasion of privacy, since their right to privacy is limited in contrast to other's right to know. In the case of mentally ill, family as well as employers and colleagues have the right to know while patients may not be able to see the testimony of others in their own record. In the case of mentally ill patients, it is important to measure comprehension and develop valid tools for it, before obtaining informed consent to participate in a research study. In a descriptive study of Beebe and Smith the Evaluation to Sign Consent (ESC) form was used in order to document comprehension in schizophrenia outpatients. Participants living in supervised housing were significantly more likely to require prompts than those living alone. Participants prescribed two antipsychotic medications were significantly more likely to require a prompt than those prescribed only one antipsychotic. According to Lasagna there are strong feelings among professionals who disagree with experimentation on vulnerable groups. However, the potential improvement of their nursing care raises the issue of careful consideration before rejecting or accepting this kind of research.

Skills of the researcher

Jameton declares that in research the three more important elements are the competency of the researcher, the careful design, and worthwhile expected outcomes. The Royal College of Nurses declares that nurse researchers should have the necessary skills and knowledge for the specific investigation to be carried out and be aware of the limits of personal competence in research. Any lack of knowledge in the area under research must be clearly stated. Inexperienced researchers should work under qualified supervision which has to be reviewed by an ethics committee. What is more, careful choice of method for data collection, to ensure validity and reliability, are two main requirements that must be met in all kinds of research. The choice depends on the object of the study. When human beings are involved, all the ethical issues, discussed above, must be taken into account.

The nature of Nursing

The nature and essence of nursing reflects on human beings and their relationship with health. Mckenna states that the primary scope of nursing is to help persons to adapt in different stages

of illness which is a rather task-orientated and behaviorist approach. On the other hand, Swanson notes that nursing views persons as a whole and health as a subjective and meaningful experience of integrating with the environment. Mckenna views nursing's main elements as interpersonal interactions which involve practical actions but Chinn and Jacobs make hints on holism as well. Literature contains divorced nursing definitions which indicate the complicate and uncertain nature of it. However, most authors reflect on caring as the most important part of nursing. Raya focuses on the unique element of caring in nursing while Swanson views Nursing in the same scope as "informed caring for the wellbeing of others". The ANA policy statement declares that "Nurses diagnose and treat human responses to actual or potential health problems". This is quite indicative of the nurses' role, but it does not reflect the values, experience and passion of nursing. Swanson suggests that nursing has to do with "science, concern for humanity and caring.

What exactly does it mean to care? Mayeroff describes caring as an interaction which offers space for personal growth for both the carer and the cared. Roach says that caring describes precious moments when participants realize their common base of humanity". Burnard and Chapman suggest that the most important elements of caring are: "knowledge, alternating rhythms in relationships and continuous changes in reactions to others, patience, honesty, trust, humility, hope and courage".

In Nursing however, the element of caring is undervalued because the profession was viewed as "women's work" in which, care is governed by sentiment and not by logic. Nursing was perceived by society as an extension of medicine while curing is regarded more important than "enhancing life quality" and preserving human dignity". On the other hand, Roach says that the curecare dichotomy used to distinguish nursing from medicine is an artificial one.

As McNeil et al say, "care is the basis and precondition of all cure". Swanson proposes a structure for caring which includes maintaining belief in persons, knowing the other person, being with, doing for, and enabling. The last two are the most important parts related to research. Doing for, means predicting individual needs, encouraging, performing tasks with adequate skills and competence, protecting the patient from harm and preserving the dignity. On the other hand, enabling means enhancing self-care by training, informing and explaining to the patient as well as assisting with finding alternatives. Leininger supports the thesis that: "there is no discipline that is so directly and intimately involved with caring needs and behaviors than the discipline of Nursing".

However, caring is not unique in nursing. Other professions can also claim that caring is an important part of their practice. It cannot be stated either that all nursing procedures include

caring. What is more, can nursing today be a synonym of caring? The vulnerability of the sick and the lack of patient participation in health care, creates a danger of patient exploitation by nurses. The rapid change and development of nursing emerged the need for a code of professional conduct to guide nurses in their practice.

Advocacy in nursing

Advocacy primarily used in legal contexts, refers to the protection of human rights of people who cannot defend them for themselves. The role of nurses as advocates is closely related to the purpose of nursing, the nurses views about humans and the needs of persons in health care. In literature advocacy is described in three different models: The rights protection model implies that nurses helps persons to understand and exercise their rights. They also aim to protect and enhance personal autonomy. The value based decision model suggests that nurses should not impose decisions but assist persons to decide which choices are most consistent with their values. They should also support the patients' confidence in their own decisions and prevent limitations of their freedom. This model is considered by Gadow in the "existential advocacy" which focuses on the clarification and reconsideration of the values of the patients by self-examination. According to Fowler and Arrif this thesis is distinct from both "paternalistic and consumer rights protection" and declares the fundamental rights of self-determination. However according to Johnstone, Gadow does not provide adequate reasoning why self-determination is the most important value or why the human rights claim to self-determination are quite different from a patients' rights claim to self-determination. Last, the respect for persons model focuses on human dignity, privacy and self-determined choices that the nurse has to protect if the person is not autonomous or self-determining. Murphy argues that this model which she calls the advocate model of the nurse-patient relationship, reflects the basic value of nursing which is the best possible care for patients. However, nurses should not be considered as being in a solely position to act as patients advocates.

According to Johnstone all professions with a morally significant relationship with a patient ought to fulfill the role of the advocate. The ANA Code for nurses though, refers to the nursing role of advocate in safeguarding the wellbeing of the client and the society. However, both the nature of nursing which focuses on caring, preventing harm and protecting dignity and the advocates role of nurses which calls for defending the rights of subjects, are sometimes incongruent with the ethics in research.

Conflicts in nurses

Beneficence-Non malificence

A common feature in professional conduct codes and those specific to research is the principle of non-malificence. The ANA Code of conduct declares that the nurse protects the clients and the public from unethical, incompetent or illegal practice of any person. This statement raises the issue of advocacy when nurses have to protect patients from the researchers' incompetence or unethical behavior. Even if nurses are certain about the incompetence of the investigator, which is usually very difficult, they have to deal with serious dilemmas. First they have to consider the fact that if patient learn that they are exposed to professional misconduct, they may lose faith in health care. Jameton though, believes that patient should be informed as they will appreciate the trust shown to him by frankness. If the researcher does not inform or compensate patient then nurses have to decide between the duty to safeguard the well-being of patient and be loyal to them, and the loyalty to colleagues.

However, even if nurses decide that their duty of caring and being loyal to the patient is more important, they may have to deal with the hierarchical and bureaucratic systems of institutions which demand loyalty to subordinates to the institution. In case the incompetent researcher is a higher status professional, nurses may be obliged to show loyalty, but this can conflict with loyalty to patients. Consequently, nurses may feel that their patients are vulnerable and exposed and that they cannot prevent it because they do not have a voice or power to resist. This is merely why many authors believe that it may not be possible for nurses to act as advocates of subjects in research. Many support the idea that the prohibition from the advocacy role comes from the origins and development of nursing as a women's occupation dominated by medicine in a bureaucratic system.

Another possible issue of conflict is that the caring nature of nursing with regard to the right of patients to the best treatment/care is sometimes conflicting with the aim of research in non therapeutic studies. According to the Belmont commission the general aim of practice is to enhance the well being of individuals while the purpose of research is to contribute to general knowledge. This distinction highlights the differences in the aims of a nurse practitioner and a researcher. It is therefore very difficult for nurses to be engaged in studies whose aim is not directly beneficial to the subject. They must though, consider that these studies may generate and refine nursing knowledge.

Another problem that nurses may have to face is taking part in randomized control trials. According to Brink and Wood dedicated nurses are finding themselves under pressure when

they are asked to exclude some patients from an obvious beneficial treatment such as relaxation techniques for relief of post operative pain. So, they suggest that whenever it is possible to predict such problems for nurses, the control data should be collected before introducing the beneficial variable. Skodol Wilson implies that there should be some provisions for alternative effective care. [Finally, Brink and Wood recommend that withholding benefits can be rectified at the end of an experiment. This compensation must be planned in advance so that enough money and time will be available.

In order to prevent human exploitation, ethics committees were introduced. The criteria on which the proposals are to be judged are the physical and mental discomfort or harm of subject, the qualifications and experience of the supervisor, the scientific value, the adequate consent procedures and the adequate information given to subjects. Clark warns that there is a danger that the members may have vested interests in a research. The success of any ethics committee will always depend on the commitment and moral competency of its members. If instead of the patient and his needs, the central aims of the committee are personal interests, profits and academic prestige, then nurses will have none to share their concerns with, and deal with their dilemmas in research. Nurses, need a greater accessibility to committees and demand a multidisciplinary synthesis in order to deal with very difficult cases. Moreover, the committees should be less strict so as not to prevent knowledge development in nursing

Confidentiality

The issue of confidentiality which is stated as very important in the Hippocratic oath, is another possible issue of conflict for nurses either as practitioners or researchers. Clause 10 of the ICN Code for nurses emphasizes that all information obtained during nursing practice should be kept secret apart from cases that it should be reported in a court, or in cases that the interests of society are important. On the other hand the ICN Code for nurses in research states that: "Nurses acting as data collectors must recognize that they are now committed to two separate roles " .

According to the professional code they cannot reveal confidential information not even to the members of the research team. It is important therefore, to seek advice in ethics committees to get approval for disseminating the results of the data collection including an account of what happened. In addition, they have to deal with the issue of anonymity when some features of the research make the subjects easy to identify. It is very important that nurses always bear in mind that they should protect the privacy of the patient. The trust showed to them must not be jeopardized. Patients reveal information concerning their body and mind and expect them to be used only in a therapeutic manner. When dilemmas according to confidentiality arise, trust as a

basic element of a therapeutic relationship should be considered and maintained.

Informed consent

Nurses involved in research, have to consider many ethical problems relating to the issue of informed consent. The ICN code for nurses in research, states that nurses as practitioners may be called upon to witness that informed and voluntary consent has been obtained from the subjects of research. It suggests that they should make sure that patients have fully understood what has been proposed, which means that they are aware of potential risks or discomforts. Nurses who spend more time with patients are in a good position to judge it. In addition, they must ascertain that patients have understood their right to withdraw at any time. In order to maintain the self-determination of patients, nurses must be fully informed themselves about the study and its purpose. The patient's consent should be obtained freely, with full awareness of implications. If nurses find out that it was not obtained in an appropriate manner, they should inform patient and refuse co-operation. Webb suggests that the informed consent is an obligation of the researcher and no nurse should obtain it on behalf of another professional, nor agree to give the explanation as a substitute. If a nurse tries to get consent, then the persons will feel obliged to participate, either because information is coming from their career that they trust and depend on, or, because they feel grateful for the care they are receiving.

Another conflicting issue is that giving information to patients is accepted as a major role of the nurse; but if for the sake of a research, nurses have to withhold information, this may create conflicts when they have to decide whether to participate or not. Hurst suggests that if nurses cannot tell patients about the true research objectives, they should provide a full explanation at the end of data collection. Provided, of course, that a supervisor body has decided that disclosure should not be full in order not to invalidate the research outcome.

Consent, can however, be a major ethical issue for nurses when it involves persons with diminished autonomy, such as children, aged, mentally ill etc. Nurses should ascertain that consent has been obtained either from the individual, when possible, or, by relatives or guardians. They must also protect the dignity and privacy of such groups who are more vulnerable to loss of dignity and privacy. Nurses taking part in research on children should be alert, in order to notice any verbal or non verbal dissent which warrants exclusion of the child from the study (even if this creates conflicts with the researcher. In the same prospect, nurses must act as advocates when vulnerable groups are used in research, and not prevent it. According to Levine, restricting these groups from research could end in disadvantaging those populations, even further, especially when research involves no risk and a high potential for

benefit.

Researcher role conflict

With regard to nurse researchers, the International Council of Nurses declares that they are not responsible for the care of patients. They should only intervene in case that "a harmful situation appears imminent". This statement is not congruent with the culture of nursing which is "intertwined with the ethic of caring". The commitment of nurses to caring, may create dilemmas according to the conflict between the researcher's and clinician's role.

If a researcher nurse provides physical or psychological care during an interview, the results will be biased and generalization will be difficult. Another issue raised from the ICN statement, is to determine when a "harmful situation appears imminent" and the intervention of the researcher is required. The declaration of Helsinki says that the interest of the individual should prevail over the interests of society of science. This can solve some of the ethical dilemmas of the nurse, but in case the situation is not lifethreatening, the conflict remains. Burns and Grove suggest that in case that support from the researcher is required, then, it should be given, but the subjects should be excluded from the research. They also recommend that another alternative is to seek help in other professionals to proceed with the data collection. Nevertheless, most health professionals, no matter how skilled they are in supportive techniques will provide some care if they feel that it is needed in a certain case.

Conclusions:

Ethical issues, conflicting values, and ambiguity in decision making, are recurrently emerging from literature review on nursing research. Because of lack of clarity in ethical standards, researcher must develop an awareness of these issues and an effective framework to deal with problems involving human rights. This is necessary in order to come into terms with the issue of the researcher's values relative to the individual's rights versus the interests of society. Professional codes, laws, regulations, and ethics committees can provide some guidance but the final determinant of how research is performed, rests with the researcher's value system and moral code. To prepare future nurses, ethics in research, must receive special attention in nursing curricula. The criticism and uncertainties that arise, should be rather encouraged than suppressed in nursing education. Hunt suggests that in order to liberate nursing from its "technocratic impasse" ethics should be broadly interpreted as an arena of new ideas which can change professional hierarchies, to open cross-disciplinary discussions, and question the concepts "abnormality", "patient" and "illness". He also declares that nursing, not as a biomedical branch, but as a science and art of caring, is able to start the redefinition of research in health care which was in the recent history dominated by the biomedical "paradigm".

Principles of research ethics:

There are a number of ethical principles that should be taken into account when performing undergraduate and master's level dissertation research. At the core, these ethical principles stress the need to

- (a) do good (known as beneficence) and
- (b) do no harm (known as non-maleficence). In practice, these ethical principles mean that as a researcher, you need to:
 - Obtain informed consent from potential research participants;
 - Minimize the risk of harm to participants;
 - Protect their anonymity and confidentiality;
 - Avoid using deceptive practices; and
 - Give participants the right to withdraw from your research. This article discusses these five ethical principles and their practical implications when carrying out dissertation research.

When you look at these five basic ethical principles, it may appear obvious that your dissertation should include these. However, there are many instances where it is not possible or desirable to obtain informed consent from research participants. Similarly, there may be instances where you seek permission from participants not to protect their anonymity. participants not to protect their anonymity. More often than not, such choices should reflect the research strategy that you adopt to guide your dissertation.

Broadly speaking, your dissertation research should not only aim to do good (i.e., beneficence), but also avoid doing any harm (i.e., non-maleficence). Whilst ethical requirements in research can vary across countries, these are the basic principles of research ethics. This is important not only for ethical reasons, but also practical ones, since a failure to meet such basic principles may lead to your research being (a) criticized, potentially leading to a lower mark, and/or (b) rejected by your supervisor or Ethics Committee, costing you valuable time. In the sections that follow, we discuss the five of the main practical ethical principles that stem from these basic principles. Each of these basic principles of research ethics is discussed in turn:

PRINCIPLE ONE: Minimizing the risk of harm
PRINCIPLE TWO: Obtaining informed consent

PRINCIPLE THREE: Protecting anonymity and confidentiality

PRINCIPLE FOUR: Avoiding deceptive practices

PRINCIPLE FIVE: Providing the right to withdraw

PRINCIPLE-1: Minimizing the risk of harm

Dissertation research should not harm participants. Where there is the possibility that participants could be harmed or put in a position of discomfort, there must be strong justifications for this. Such scenarios will also require (a) additional planning to illustrate how participant harm (or discomfort) will be reduced, (b) informed consent, and (c) detailed debriefing.

There are a number of types of harm that participants can be subjected to. These include:

- Physical harm to participants.
- Psychological distress and discomfort.
- Social disadvantage.
- Harm to participants? Financial status.
- An invasion of participants? Privacy and anonymity.

Typically, it is not **harm** that we need to think about since a researcher does not intentionally go out to cause harm. Rather, it is the **risk** of harm that you should try to minimize. In order to minimizing the risk of harm you should think about:

- Obtaining informed consent from participants.
- Protecting the anonymity and confidentiality of participants.
- Avoiding deceptive practices when designing your research.
- Providing participants with the right to withdraw from your research at any time.

We discuss each of these ethical principles in the sections that follow, explaining (a) what they mean and (b) instances where they should (and should not) be followed.

PRINCIPLE-2: Obtaining informed consent

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One of the foundations of research ethics is the idea of informed consent. Simply put, informed consent means that participants should understand that (a) they are taking part in research and (b) what the research requires of them. Such information may include the purpose of the research, the methods being used, the possible outcomes of the research, as well as associated demands, discomforts, inconveniences and risks that the participants may face. Whilst it is not possible to know exactly what information a potential participant would (or would not) want to know, you should aim not to leave out any material information; that is, information that you feel would influence whether consent would (or would not) be granted.

Another component of informed consent is the principle that participants should be volunteers, taking part without having been coerced and deceived. Where informed consent cannot be obtained from participants, you must explain why this is the case. You should also be aware that there are instances informed consent is not necessarily needed or needs to be relaxed. These include certain educational, organizational and naturalistic research settings.

PRINCIPLE-3: Protecting anonymity and confidentiality

Protecting the anonymity and confidentiality of research participants is another practical component of research ethics. After all, participants will typically only be willing to volunteer information, especially information of a private or sensitive nature, if the researcher agrees to hold such information in confidence. Whilst it is possible that research participants may be hurt in some way if the data collection methods used are somehow insensitive, there is perhaps a greater danger that harm can be caused once data has been collected. This occurs when data is not treated confidentially, whether in terms of the storage of data, its analysis, or during the publication process (i.e., when submitting your dissertation to be marked). However, this does not mean that all data collected from research participants needs to be kept confidential or anonymous. It may be possible to disclose the identity and views of individuals at various stages of the research process (from data collection through to publication of your dissertation). Nonetheless, permissions should be sought before such confidential information is disclosed.

An alternative is to remove identifiers (e.g., vernacular terms, names, geographical cues, etc.) or provide proxies when writing up. However, such a stripping of identifiable information may not always be possible to anticipate at the outset of your dissertation when thinking about issues of research ethics. This is not only a consideration for dissertations following a qualitative research design, but also a quantitative research design.

Forexample:

Imagine that your dissertation used a quantitative research design and a survey as your main research method. In the process of analyzing your data, it is possible that when examining relationships between variables (i.e., questions in your survey), a person's identity and responses could be inferred. For instance, imagine that you were comparing responses amongst employees within an organization based on specific age groups. There may only be a small group (or just one employee) within a particular age group (e.g., over 70 years old), which could enable others to identify the responses of this individual (or small group of employees). Therefore, you need to consider ways of overcoming such problems, such as: (a) aggregating data in tables and (b) setting rules that ensure a minimum number of units are present before data/information can be presented.

A further alternative is to seek permission for access to data and analysis to be restricted to the published material, perhaps only allowing it to be viewed by those individuals marking your work. If the work is later published, adjustments would then need to be made to protect the confidentiality of participants.

There are also a wide range of potential legal protections that may affect what research you can and cannot perform, how you must treat the data of research participants, and so forth. In other words, you don't simply have a duty to protect the data you collect from participants; you may also have (in some cases) a legal responsibility to do so. Since this varies from country-to-country, you should ask your dissertation supervisor or Ethics Committee for advice (or a legal professional).

PRINCIPLE-4: Avoiding deceptive practices:

At first sight, deceptive practices fly in the face of informed consent. After all, how can participants know (a) that they are taking part in research and (b) what the research requires of them if they are being deceived? This is part of what makes the use of deceptive practices controversial. For this reason, in most circumstances, dissertation research should avoid any kinds of deceptive practices. However, this is not always the case.

Deception is sometimes a necessary component of covert research, which can be justified in some cases. Covert research reflects research where (a) the identity of the observer and/or (b) the purpose of the research is not known to participants. Cases where you may choose to engage in covert research may include instances where:

- It is not feasible to let everyone in a particular research setting know what you are doing.
- Overt observation or knowledge of the purpose of the research may alter the particular phenomenon that is being studied.

Let's take each of these in turn:

It is *not feasible* to let everyone in a particular research setting know what you are doing

By feasibility, we are not talking about the cost of doing research. Instead, we mean that it is not practically possible to let everyone in a particular research setting know what you are doing. This is most likely to be the case where research involves observation, rather than direct contact with participants, especially in a public or online setting. There are a number of obvious instances where this may be the case:

- Observing what users are doing in an Internet chat room.
- Observing individuals going about their business (e.g., shopping, going to work, etc.).

Clearly, in these cases, where individuals are coming and going, it may simply be impossible to let everyone know what you are doing. You may not be intentionally trying to engage in deceptive practices, but clearly participants are not giving you their informed consent.

Overt observation or knowledge of the purpose of the research may *alter* the particular phenomenon that is being studied

Where observations or a participant? Knowledge of the true purpose of the research have the potential to alter the particular phenomenon that you are interested in, this is a major concern in terms of the quality of your findings.

Therefore, when you think about whether to engage in covert research and possibly deceptive practices, you should think about the extent to which this could be beneficial in your dissertation, not research in general; that is, everything from the research paradigm that guides your dissertation through to the data analysis techniques you choose affect issues of research ethics in your dissertation.

PRINCIPLE-5: Providing right to withdraw

With the exception of those instances of covert observation where it is not feasible to let everyone that is being observed know what you are doing, research participants should always have the right to withdraw from the research process. Furthermore, participants should have the right to withdraw at any stage in the research process. When a participant chooses to withdraw from the research process, they should not be pressured or coerced in any way to try and stop them from withdrawing.

If your supervisor and/or Ethics Committee expect you to complete an Ethics Consent Form, it is likely that you will have to let participants know that they have the right to withdraw at any time

What are the ethical issues in research?

Codes and Policies for Research Ethics

- Honesty. Strive for honesty in all scientific communications. ...
- Objectivity.
- Integrity. .
- Carefulness. .
- Openness. ..
- Respect for Intellectual Property. ...
- Confidentiality. ...
- Responsible Publication.

The Importance of Research Ethics

Research ethics are important for a number of reasons.

- They promote the aims of research, such as expanding knowledge.
- They support the values required for collaborative work, such as mutual respect and fairness. This is essential because scientific research depends on collaboration between researchers and groups.
- They mean that researchers can be held accountable for their actions. Many researchers are supported by public money, and regulations on conflicts of interest, misconduct, and research involving humans or animals are necessary to ensure that money is spent appropriately.
- They ensure that the public can trust research. For people to support and fund research, they have to be confident in it.
- They support important social and moral values, such as the principle of doing no harm to others.

Types of Plagiarism – Every Academic Writer Should Know

Plagiarism is the most common issue that every academic writer faces while writing their research paper or dissertation. The famous plagiarism checking tools such as Duplichecker and Turnitin are classifying the plagiarisms into 10 common types before generating the report. In this article, we are going to find out the 10 types of plagiarism that every academic writer should know to avoid it.

1. “Clone” – Plagiarism

Cloning plagiarism is also called identical copying. In Cloning, one person copies another work (word-for-word) without any change and claim as his own work.

2. “Remix” – Plagiarism

In the remix type of plagiarism, one person collects information from various sources and mix all together as a single document then claim the work as their own work.

3. “Ctrl+C” – Plagiarism

In the written document a significant portion of text copied from any single source without any alteration then it is called Ctrl+C kind of plagiarism.

4. “Hybrid” – Plagiarism

In the hybrid type of plagiarism, perfectly cited source documents are copied and arranged as a new document without citation.

5. “Find-Replace” – Plagiarism

Changing the most common keywords and phrases in the copied content and not making any changes in the essential document is called “Find and Replace” – kind of plagiarism.

6. “Recycle” – Plagiarism

Recycle is also called self-plagiarism. It refers to the act of borrowing from one’s own previous document without a proper citation.

7. “Mashup” – Plagiarism

When the written document is copied from more than one source and all are mixed together without any proper citation then it is called mashup kind of plagiarism

8. “404 Error” – Plagiarism

“404 Error” – plagiarism is the eighth most important type. In this, a person creates a document by copying from various sources and prepare as a single document with the citation. but if the citation is inaccurate or it will lead to non-existing resources then it will be called 404 types of plagiarism.

9. “Aggregator” – Plagiarism

In this type of plagiarism, the written document includes all the proper citation but it does not contain original work then it is called aggregator plagiarism.

10. “Re-Tweet” – Plagiarism

Tips to Avoid Plagiarism

- Read and understand the original document several times before start explaining about it.
- Do not copy any word or sentence from the original document.
- Give proper citation to all the sources (Books, Journal, Website, Video, and so on).
- In case of citing online sources, Include the accessed date and appropriate URL in the reference.
- Common phrases and definition need to be quoted and cited without any modification.
- Make a practice to include the “references” section whenever write an academic document.
- Cross verify all your citations before submitting your document.
- Finally, take a plagiarism report from any one of the famous plagiarism software to ensure the originality of the written document.

Hope, this will help academic writers to know about the 10 common types of plagiarisms and its severity.

UNIT III

RESEARCH PROPOSAL

After collecting and analyzing the data, the researcher has to accomplish the task of drawing inferences followed by report writing. This has to be done very carefully, otherwise misleading conclusions may be drawn and the whole purpose of doing research may get vitiated. It is only through interpretation that the researcher can expose relations and processes that underlie his findings. In case of hypotheses testing studies, if hypotheses are tested and upheld several times, the researcher may arrive at generalizations. But in case the researcher had no hypothesis to start with, he would try to explain his findings on the basis of some theory. This may at times result in new questions, leading to further researches. All this analytical information and consequential inference(s) may well be communicated, preferably through research report, to the consumers of research results who may be either an individual or a group of individuals or some public/private organization.

MEANING OF INTERPRETATION

Interpretation refers to the task of drawing inferences from the collected facts after an analytical and/or experimental study. In fact it is a search for broader meaning of research findings. The task of interpretation has two major aspects viz., (i) the effort to establish continuity in research through linking the results of a given study with those of another, and (ii) the establishment of some explanatory concepts. “In one sense, interpretation is concerned with relationships within the collected data, partially overlapping analysis. Interpretation also extends beyond the data of the study to include the results of other research, theory and hypotheses”. Thus, interpretation is the device through which the factors that seem to explain what has been observed by researcher in the course of the study can be better understood and it also provides a theoretical conception which can serve as a guide for further researches.

WHY INTERPRETATION?

Interpretation is essential for the simple reason that the usefulness and utility of research findings lie in proper interpretation. It is being considered a basic component of research process because of the following reasons:

It is through interpretation that the researcher can well understand the abstract principle that works beneath his findings. Through this he can link up his findings with those of other studies, having the same abstract principle, and thereby can predict about the concrete

world of events. Fresh inquiries can test these predictions later on. This way the continuity in research can be maintained.

- (i) Interpretation leads to the establishment of explanatory concepts that can serve as a guide for future research studies; it opens new avenues of intellectual adventure and stimulates the quest for more knowledge.
- (ii) Researcher can better appreciate only through interpretation why his findings are what they are and can make others to understand the real significance of his research findings.
- (iii) The interpretation of the findings of exploratory research study often results into hypotheses for experimental research and as such interpretation is involved in the transition from exploratory to experimental research. Since an exploratory study does not have a hypothesis to start with, the findings of such a study have to be interpreted on a *post-factum* basis in which case the interpretation is technically described as '*post factum*' interpretation.

TECHNIQUE OF INTERPRETATION

The task of interpretation is not an easy job, rather it requires a great skill and dexterity on the part of researcher. Interpretation is an art that one learns through practice and experience. The researcher may, at times, seek the guidance from experts for accomplishing the task of interpretation.

The technique of interpretation often involves the following steps:

- (i) Researcher must give reasonable explanations of the relations which he has found and he must interpret the lines of relationship in terms of the underlying processes and must try to find out the thread of uniformity that lies under the surface layer of his diversified research findings. In fact, this is the technique of how generalizations should be done and concepts be formulated.
- (ii) Extraneous information, if collected during the study, must be considered while interpreting the final result of research study, for it may prove to be a key factor in understanding the problem under consideration.
- (iii) It is advisable, before embarking upon final interpretation, to consult someone having insight into the study and who is frank and honest and will not hesitate to point out omissions and errors in logical argumentation. Such a consultation will result in correct interpretation and, thus, will enhance the utility of research results.
- (iv) Researcher must accomplish the task of interpretation only after considering all relevant factors affecting the problem to avoid false generalization. He must be in no hurry while interpreting results, for quite often the conclusions, which appear to be all right at the beginning, may not at all be accurate.

PRECAUTIONS IN INTERPRETATION

One should always remember that even if the data are properly collected and analyzed, wrong interpretation would lead to inaccurate conclusions. It is, therefore, absolutely essential that the task of interpretation be accomplished with patience in an impartial manner and also in correct perspective.

Researcher must pay attention to the following points for correct interpretation:

- (i) At the outset, researcher must invariably satisfy himself that (a) the data are appropriate, trustworthy and adequate for drawing inferences; (b) the data reflect good homogeneity; and that (c) proper analysis has been done through statistical methods.
- (ii) The researcher must remain cautious about the errors that can possibly arise in the process of interpreting results. Errors can arise due to false generalization and/or due to wrong interpretation of statistical measures, such as the application of findings beyond the range of observations, identification of correlation with causation and the like. Another major pitfall is the tendency to affirm that definite relationships exist on the basis of confirmation of particular hypotheses. In fact, the positive test results accepting the hypothesis must be interpreted as “being in accord” with the hypothesis, rather than as “confirming the validity of the hypothesis”. The researcher must remain vigilant about all such things so that false generalization may not take place. He should be well equipped with and must know the correct use of statistical measures for drawing inferences concerning his study.
- (iii) He must always keep in view that the task of interpretation is very much intertwined with analysis and cannot be distinctly separated. As such, he must take the task of interpretation as a special aspect of analysis and accordingly must take all those precautions that one usually observes while going through the process of analysis viz., precautions concerning the reliability of data, computational checks, validation and comparison of results.
- (iv) He must never lose sight of the fact that his task is not only to make sensitive observations of relevant occurrences, but also to identify and disengage the factors that are initially hidden to the eye. This will enable him to do his job of interpretation on proper lines. Broad generalizations should be avoided as most research is not amenable to it because the coverage may be restricted to a particular time, a particular area and particular conditions. Such restrictions, if any, must invariably be specified and the results must be framed within their limits.
- (v) The researcher must remember that “ideally in the course of a research study, there should be constant interaction between initial hypothesis, empirical observation and theoretical conceptions. It is exactly in this area of interaction between theoretical orientation and empirical observation that opportunities for originality and creativity lie.” He must pay special attention to this aspect while engaged in the task of interpretation.

SIGNIFICANCE OF REPORT WRITING

Research report is considered a major component of the research study for the research task remains incomplete till the report has been presented and/or written. As a matter of fact even the most brilliant hypothesis, highly well designed and conducted research study, and the most striking generalizations and findings are of little value unless they are effectively communicated to others. The purpose of research is not well served unless the findings are made known to others. Research results must invariably enter the general store of knowledge. All this explains the significance of writing research report. There are people who do not consider writing of report as an integral part of the research process. But the general opinion is in favour of treating the presentation of research results or the writing of report as part and parcel of the research project. Writing of report is the last step in a research study and requires a set of skills somewhat different from those called for in respect of the earlier stages of research. This task should be accomplished by the researcher with utmost care; he may seek the assistance and guidance of experts for the purpose.

DIFFERENT STEPS IN WRITING REPORT

Research reports are the product of slow, painstaking, accurate inductive work. The usual steps involved in writing report are:

- a) Logical analysis of the subject-matter;
- b) Preparation of the final outline;
- c) Preparation of the rough draft;
- d) Rewriting and polishing;
- e) Preparation of the final bibliography; and
- f) Writing the final draft.

Logical analysis of the subject matter: It is the first step which is primarily concerned with the development of a subject. There are two ways in which to develop a subject (a) logically and (b) chronologically. The logical development is made on the basis of mental connections and associations between the one thing and another by means of analysis. Logical treatment often consists in developing the material from the simple possible to the most complex structures. Chronological development is based on a connection or sequence in time or occurrence. The directions for doing or making something usually follow the chronological order.

Preparation of the final outline: It is the next step in writing the research report "Outlines are the framework upon which long written works are constructed. They are an aid to the logical organization of the

material and a reminder of the points to be stressed in the report.”

Preparation of the rough draft: This follows the logical analysis of the subject and the preparation of the final outline. Such a step is of utmost importance for the researcher now sits to write down what he has done in the context of his research study. He will write down the procedure adopted by him in collecting the material for his study along with various limitations faced by him, the technique of analysis adopted by him, the broad findings and generalizations and the various suggestions he wants to offer regarding the problem concerned.

Rewriting and polishing of the rough draft: This step happens to be most difficult part of all formal writing. Usually this step requires more time than the writing of the rough draft. The careful revision makes the difference between a mediocre and a good piece of writing. While rewriting and polishing; one should check the report for weaknesses in logical development or presentation. The researcher should also “see whether or not the material, as it is presented, has unity and cohesion; does the report stand upright and firm and exhibit a definite pattern, like a marble arch? Or does it resemble an old wall of moldering cement and loose brick.” In addition the researcher should give due attention to the fact that in his rough draft he has been consistent or not. He should check the mechanics of writing grammar, spelling and usage.

Preparation of the final bibliography: Next in order comes the task of the preparation of the final bibliography.

The bibliography, which is generally appended to their search report, is a list of books in some way pertinent to the research which has been done. It should contain all those works which the researcher has consulted. The bibliography should be arranged alphabetically and may be divided into two parts; the first part may contain the names of books and pamphlets, and the second part may contain the names of magazine and newspaper articles. Generally, this pattern of bibliography is considered convenient and satisfactory from the point of view of reader, though it is not the only way of presenting bibliography. The entries in bibliography should be made adopting the following order:

For books and pamphlets the order may be as under:

1. Name of author, last name first.
2. Title, underlined to indicate italics.
3. Place, publisher, and date of publication.
4. Number of volumes.

Example

Kothari, C.R., *Quantitative Techniques*, New Delhi, Vikas Publishing House Pvt. Ltd., 1978.

For magazines and newspapers the order may be as under:

1. Name of the author, last name first.
2. Title of article, in quotation marks.
3. Name of periodical, underlined to indicate italics.
4. The volume or volume and number.
5. The date of the issue.
6. The pagination.

Example

Robert V. Roosa, "Coping with Short-term International Money Flows", *The Banker*, London, September, 1971, p. 995.

The above examples are just the samples for bibliography entries and may be used, but one should also remember that they are not the only acceptable forms. The only thing important is that, whatever method one selects, it must remain consistent.

Writing the final draft: This constitutes the last step. The final draft should be written in a concise and objective style and in simple language, avoiding vague expressions such as "it seems", "there maybe", and the like ones. While writing the final draft, the researcher must avoid abstract terminology and technical jargon. Illustrations and examples based on common experiences must be incorporated in the final draft as they happen to be most effective in communicating the research findings to others. A research report should not be dull, but must enthuse people and maintain interest and must show originality. It must be remembered that every report should be an attempt to solve some intellectual problem and must contribute to the solution of a problem and must add to the knowledge of both the researcher and the reader.

LAYOUT OF THE RESEARCH REPORT

Anybody, who is reading the research report, must necessarily be conveyed enough about the study so that he can place it in its general scientific context, judge the adequacy of its methods and thus form an opinion of how seriously the findings are to be taken. For this purpose there is the need of proper layout of the report. The layout of the report means as to what the research report should contain. A comprehensive layout of the research report should comprise (A) preliminary pages; (B) the main text; and (C) the end matter. Let us deal with them separately.

(A) Preliminary Pages

In its preliminary pages the report should carry a *title and date*, followed by acknowledgements in the form of 'Preface' or 'Foreword'. Then there should be a *table of contents* followed by *list of tables and illustrations* so that the decision-maker or anybody interested in reading the report can easily locate the required information in the report.

(B) Main text

The main text provides the complete outline of the research report along with all details. Title of the research study is repeated at the top of the first page of the main text and then follows the other details on pages numbered consecutively, beginning with the second page. Each main section of the report should begin on a new page. The main text of the report should have the following sections:

- (i) Statement of findings and recommendations; (ii) The results; (iii) The implications drawn from the results; and (iv) The summary.

(i) *Introduction*: The purpose of introduction is to introduce the research project to the readers. It should contain a clear statement of the objectives of research i.e., enough background should be given to make clear to the reader why the problem was considered worth investigating. A brief summary of other relevant research may also be stated so that the present study can be seen in that context. The hypotheses of study, if any, and the definitions of the major concepts employed in the study should be explicitly stated in the introduction of the report.

The methodology adopted in conducting the study must be fully explained. The scientific reader would like to know in detail about such thing: How was the study carried out? What was its basic design? If the study was an experimental one, then what were the experimental manipulations? If the data were collected by means of questionnaires or interviews, then exactly what questions were asked (The questionnaire or interview schedule is usually given in an appendix)? If measurements were based on observation, then what instructions were given to the observers? Regarding the sample used in the study the readers should be told: Who were the subjects? How many were there? How were they selected? All these questions are crucial for estimating the probable limits of generalizability of the findings. The statistical analysis adopted must also be clearly stated. In addition to all this, the scope of the study should be stated and the boundary lines be demarcated. The various limitations, under which the research project was completed, must also be narrated.

(ii) *Statement of findings and recommendations*: After introduction, the research report must contain a statement of findings and recommendations in non-technical language so that it can be

easily understood by all concerned. If the findings happen to be extensive, at this point they should be put in the summarized form.

Results: A detailed presentation of the findings of the study, with supporting data in the form of tables and charts together with a validation of results, is the next step in writing the main text of the report. This generally comprises the main body of the report, extending over several chapters. The result section of the report should contain statistical summaries and reductions of the data rather than the raw data. All the results should be presented in logical sequence and spitted into readily identifiable sections. All relevant results must find a place in the report. But how one is to decide about what is relevant is the basic question. Quite often guidance comes primarily from the research problem and from the hypotheses, if any, with which the study was concerned. But ultimately the researcher must rely on his own judgment in deciding the outline of his report. "Nevertheless, it is still necessary that he states clearly the problem with which he was concerned, the procedure by which he worked on the problem, the conclusions at which he arrived, and the bases for his conclusions."

(iv) *Implications of the results:* Toward the end of the main text, the researcher should again put down the results of his research clearly and precisely. He should, state the implications that flow from the results of the study, for the general reader is interested in the implications for understanding the human behaviour. Such implications may have three aspects as stated below:

- (a) A statement of the inferences drawn from the present study which may be expected to apply in similar circumstances.
- (b) The conditions of the present study which may limit the extent of legitimate generalizations of the inferences drawn from the study.
- (c) The relevant questions that still remain unanswered or new questions raised by the study along with suggestions for the kind of research that would provide answers for them. It is considered a good practice to finish the report with a short conclusion which summarizes and recapitulates the main points of the study. The conclusion drawn from the study should be clearly related to the hypotheses that were stated in the introductory section. At the same time, a forecast of the probable future of the subject and an indication of the kind of research which needs to be done in that particular field is useful and desirable.

(v) *Summary:* It has become customary to conclude the research report with a very brief summary, resting in brief the research problem, the methodology, the major findings and the major conclusions drawn from the research results.

(C) End matter

At the end of the report, appendices should be enlisted in respect of all technical data such as questionnaires, sample information, mathematical derivations and the like ones. Bibliography of sources consulted should also be given. Index (an alphabetical listing of names, places and topics along with the numbers of the pages in a book or report on which they are mentioned or discussed) should invariably be given at the end of the report. The value of index lies in the fact that it works as a guide to the reader for the contents in the report.

⁵ Selltiz, Jahoda, Deutsch and Cook, *Research Methods in Social Relations*, p. 448.

TYPES OF REPORTS

Research reports vary greatly in length and type. In each individual case, both the length and the form are largely dictated by the problems at hand. For instance, business firms prefer reports in the letter form, just one or two pages in length. Banks, insurance organizations and financial institutions are generally fond of the short balance-sheet type of tabulation for their annual reports to their customers and shareholders. Mathematicians prefer to write the results of the investigations in the form of algebraic notations. Chemists report their results in symbols and formulae. Students of literature usually write long reports presenting the critical analysis of some writer or period or the like with a liberal use of quotations from the work of the author under discussion. In the field of education and psychology, the favorite form is the report on the results of experimentation accompanied by the detailed statistical tabulations. Clinical psychologists and social pathologists frequently find it necessary to make use of the case-history form.

News items in the daily papers are also forms of report writing. They represent first hand on the scene accounts of the events described or compilations of interviews with persons who were on the scene. In such reports the first paragraph usually contains the important information in detail and the succeeding paragraphs contain material which is progressively less and less important.

Book-reviews which analyze the content of the book and report on the author's intentions, his success or failure in achieving his aims, his language, his style, scholarship, bias or his point of view. Such reviews also happen to be a kind of short report. The reports prepared by governmental bureaus, special commissions, and similar other organizations are generally very comprehensive reports on the issues involved. Such reports are usually considered as important research products. Similarly, Ph.D. theses and dissertations are also a form of report-writing, usually completed by students in academic institutions.

The above narration throws light on the fact that the results of a research investigation can be presented in a number of ways viz., a technical report, a popular report, an article, a monograph at times even in the form of oral presentation. Which method(s) of presentation to be used in a particular study depends on the circumstances under which the study arose and the nature of the results. A *technical report* is used whenever a full written report of the study is required whether for record-keeping or for public dissemination. A *popular report* is used if the research results have policy implications. We give below a few details about the said two types of reports:

(A) Technical report

In the technical report the main emphasis is on (i) the method employed, (ii) assumptions made in the course of the study, (iii) the detailed presentation of the findings including their limitations and supporting data.

A general outline of a technical report can be as follows:

- 1) *Summary of results*: A brief review of the main findings just in two or three pages.
 - a. *Nature of the study*: Description of the general objectives of study, formulation of the problem in operational terms, the working hypothesis, the type of analysis and data required, etc.
- 2) *Methods employed*: Specific methods used in the study and their limitations. For instance, in sampling studies we should give details of sample design viz., sample size, sample selection, etc.
- 3) *Data*: Discussion of data collected their sources, characteristics and limitations. If secondary data are used, their suitability to the problem at hand be fully assessed. In case of a survey, the manner in which data were collected should be fully described.
- 4) *Analysis of data and presentation of findings*: The analysis of data and presentation of the findings of the study with supporting data in the form of tables and charts be fully narrated. This, in fact, happens to be the main body of the report usually extending over several chapters.
- 5) *Conclusions*: A detailed summary of the findings and the policy implications drawn from the results be explained.
- 6) *Bibliography*: Bibliography of various sources consulted be prepared and attached.
- 7) *Technical appendices*: Appendices be given for all technical matters relating to questionnaire, mathematical derivations, elaboration on particular technique of analysis and the like ones.
- 8) *Index*: Index must be prepared and be given invariably in the report at the end.

The order presented above only gives a general idea of the nature of a technical report; the order of presentation may not necessarily be the same in all the technical reports. This, in other words,

means that the presentation may vary in different reports; even the different sections outlined above will not always be the same, nor will all these sections appear in any particular report.

It should, however, be remembered that even in a technical report, simple presentation and ready availability of the findings remain an important consideration and as such the liberal use of charts and diagrams is considered desirable.

(B) Popular Report

The popular report is one which gives emphasis on simplicity and attractiveness. This implication should be sought through clear writing, minimization of technical, particularly mathematical, details and liberal use of charts and diagrams. Attractive layout along with large print, many subheadings, even an occasional cartoon now and then is another characteristic feature of the popular report. Besides, in such a report emphasis is given on practical aspects and policy implications.

We give below a general outline of a popular report.

1. *The findings and their implications:* Emphasis in the report is given on the findings of most practical interest and on the implications of these findings.
2. *Recommendations for action:* Recommendations for action on the basis of the findings of the study is made in this section of the report.
3. *Objective of the study:* A general review of how the problem arises is presented along with the specific objectives of the project under study.
4. *Methods employed:* A brief and non-technical description of the methods and techniques used, including a short review of the data on which the study is based, is given in this part of the report.
5. *Results:* This section constitutes the main body of the report wherein the results of the study are presented in clear and non-technical terms with liberal use of all sorts of illustrations such as charts, diagrams and the like ones.
6. *Technical appendices:* More detailed information on methods used, forms, etc. is presented in the form of appendices. But the appendices are often not detailed if the report is entirely meant for general public.

There can be several variations of the form in which a popular report can be prepared. The only important thing about such a report is that it gives emphasis on simplicity and policy implications from the operational point of view, avoiding the technical details of all sorts to the extent possible.

ORAL PRESENTATION

At times oral presentation of the results of the study is considered effective, particularly in cases where policy recommendations are indicated by project results. The merit of this approach lies in the fact that it provides an opportunity for give-and-take decisions which generally lead to a better understanding of the findings and their implications. But the main demerit of this sort of presentation is the lack of any permanent record concerning the research details and it may be just possible that the findings may fade away from people's memory even before an action is taken. In order to overcome this difficulty, a written report may be circulated before the oral presentation and referred to frequently during the discussion. Oral presentation is effective when supplemented by various visual devices. Use of slides, wall charts and blackboards is quite helpful in contributing to clarity and in reducing the boredom, if any. Distributing a board outline, with a few important tables and charts concerning the research results, makes the listeners view have a ready outline on which to focus their thinking. This very often happens in academic institutions where the researcher discusses his research findings and policy implications with others either in a seminar or in a group discussion. Thus, research results can be reported in more than one way, but the usual practice adopted, in academic institutions particularly, is that of writing the Technical Report and then preparing several research papers to be discussed at various forums in one form or the other. But in practical field and with problems having policy implications, the technique followed is that of writing a popular report. Researches done on governmental account or on behalf of some major public or private organizations are usually presented in the form of technical reports.

MECHANICS OF WRITING A RESEARCH REPORT

There are very definite and set rules which should be followed in the actual preparation of the research report or paper. Once the techniques are finally decided, they should be scrupulously adhered to, and no deviation permitted. The criteria of format should be decided as soon as the materials for the research paper have been assembled. The following points deserve mention of the mechanics of writing a report are concerned:

1. *Size and physical design:* The manuscript should be written on unruled paper in size. If it is to be written by hand, then black or blue-black ink should be used. A margin of at least one and one-half inches should be allowed at the left hand and of at least half an inch at the right hand of the paper. There should also be one-inch margins, top and bottom. The papers should be neat and legible. If the manuscript is to be typed, then all typings should be double-spaced on one side of the page only except for the insertion of the long quotations.

2. *Procedure*: Various steps in writing the report should be strictly adhered (All such steps have already been explained earlier in this chapter).

3. *Layout*: Keeping in view the objective and nature of the problem, the layout of the report should be thought of and decided and accordingly adopted (The layout of the research report and various types of reports have been described in this chapter earlier which should be taken as a guide for report-writing in case of a particular problem).

4. *Treatment of quotations*: Quotations should be placed in quotation marks and double spaced, for immediate part of the text. But if a quotation is of a considerable length (more than four or five typewritten lines) then it should be single-spaced and indented at least half an inch to the right of the normal text margin.

5. *The footnotes*: Regarding footnotes one should keep in view the followings:

- (a) The footnotes serve two purposes viz., the identification of materials used in quotations in the report and then notice of materials not immediately necessary to the body of the research text but still of supplemental value. In other words, footnotes are meant for cross references, citation of authorities and sources, acknowledgement and elucidation or explanation of a point of view. It should always be kept in view that footnote is not an end or a means of the display of scholarship. The modern tendency is to make the minimum use of footnotes for scholarship does not need to be displayed.
- (b) Footnotes are placed at the bottom of the page on which the reference or quotation which they identify or supplement ends. Footnotes are customarily separated from the textual material by a space of half an inch and a line about one and a half inches long.
- (c) Footnotes should be numbered consecutively, usually beginning with 1 in each chapter separately. The numbers should be put slightly above the line, say at the end of a quotation. At the foot of the page, again, the footnote number should be indented and typed a little above the line. Thus, consecutive numbers must be used to correlate the reference in the text with its corresponding note at the bottom of the page, except in case of statistical tables and other numerical material, where symbol such as the asterisk (*) or the like one may be used to prevent confusion.
- (d) Footnotes are always typed in single space though they are divided from one another by double space.

6. *Documentation style*: Regarding documentation, the first footnote reference to any given work should

be complete in its documentation, giving all the essential facts about the edition used. Such documentary footnotes follow a general sequence. The common order may be described as under:

(i) *Regarding the single-volume reference*

1. Author's name in normal order (and not beginning with the last name as in a bibliography) followed by a comma;
2. Title of work, underlined to indicate italics;
3. Place and date of publication;
4. Pagination references (The page number).

example

John Gassner, *Masters of the Drama*, New York: Dover Publications, Inc. 1954, p. 315.

(ii) *Regarding multi-volume reference*

1. Author's name in the normal order;
2. Title of work, underlined to indicate italics;
3. Place and date of publication;
4. Number of volume;
5. Pagination references (The page number).

(iii) *Regarding works arranged alphabetically*

For works arranged alphabetically such as encyclopedias and dictionaries, no pagination reference is usually needed. In such cases the order is illustrated as under:

Example 1

"Salamanca," *Encyclopedias Britannica*, 14th Edition.

Example 2

"Mary Wollstonecraft Godwin," *Dictionary of national biography*.

But if there should be a detailed reference to a long encyclopedia article, volume and pagination reference may be found necessary.

iii) *Regarding periodicals reference*

6. Name of the author in normal order;
7. Title of article, in quotation marks;
8. Name of periodical, underlined to indicate italics;
9. Volume number;
10. Date of issuance;
11. Pagination.

(iii) *Regarding anthologies and collections reference*

Quotations from anthologies or collections of literary works must be acknowledged not only by author, but also by the name of the collector.

(iv) *Regarding second-hand quotations reference*

In such cases the documentation should be handled as follows:

1. Original author and title;
2. “quoted or cited in,”;
3. Second author and work.

Example

J.F. Jones, *Life in Polynesia*, p. 16, quoted in *History of the Pacific Ocean area*, by R.B. Abel, p. 191.

v) *Case of multiple authorship*

If there are more than two authors or editors, then in the documentation the name of only the first is given and the multiple authorship is indicated by “et al.” or “and others”.

Subsequent references to the same work need not be so detailed as stated above. If the work is cited again without any other work intervening, it may be indicated as *ibid*, followed by a command the page number. A single page should be referred to as p., but more than one page be referred to as pp. If there are several pages referred to at a stretch, the practice is to use often the page number, for example, pp. 190ff, which means page number 190 and the following pages; but only for page 190 and the following page ‘190f’. Roman numerical is generally used to indicate the number of the volume of a book. Op. cit. (operacitato, in the work cited) or Loc. cit. (lococitato, in the place cited) are two of the very convenient abbreviations used in the footnotes. Op. cit. or Loc. cit. after the writer’s name would suggest that the reference is to work by the writer which has been cited in detail in an earlier footnote but intervened by some other references.

7. *Punctuation and abbreviations in footnotes*: The first item after the number in the footnote is the author’s name, given in the normal signature order. This is followed by a comma. After the comma, the title of the book is given: the article (such as “A”, “An”, “The” etc.) is omitted and only the first word and proper nouns and adjectives are capitalized. The title is followed by a comma. Information concerning the edition is given next. This entry is followed by a comma. The place of publication is then stated; it may be mentioned in an abbreviated form, if the place happens to be a famous one such as Lond. for London, N.Y. for New York, N.D. for New Delhi and so on. This entry is followed by a comma. Then the name of the publisher is mentioned and this entry is closed by a comma. It is followed by the date of publication if the date is given on the title page. If the date appears in the copyright notice on the reverse side of the title page or elsewhere in the volume, the comma should be omitted and the date enclosed in square brackets [c 1978], [1978]. The entry is followed by a comma. Then follow the volume and page references and are separated by a comma if both are given. A period closes the complete documentary reference. But one should remember

that the documentation regarding acknowledgements from magazine articles and periodical literature follow a different form as stated earlier while explaining the entries in the bibliography.

Certain English and Latin abbreviations are quite often used in bibliographies and footnotes to eliminate tedious repetition. The following is a partial list of the most common abbreviations frequently used in report-writing (the researcher should learn to recognize them as well as he should learn to use them):

anon.,	anonymous
ante.,	before
art.,	article
aug.,	augmented
bk.,	book
bull.,	bulletin
cf.,	compare
ch.,	chapter
col.,	column
diss.,	dissertation
ed.,	editor, edition, edited.
ed.cit.,	edition cited
e.g.,	exempli gratia: for example
eng.,	enlarged
et.al.,	and others
et seq.,	et sequens: and the following
ex.,	example
f., ff.,	and the following
fig(s).,	figure(s)
fn.,	footnote
ibid., ibidem:	in the same place (when two or more successive footnotes refer to the same work, it is not necessary to repeat complete reference for the second footnote. Ibid. may be used. If different pages are referred to, pagination must be shown).
id., idem:	the same
illust(s).	illustrated, illustration(s)
Intro., intro.,	introduction
<i>l</i> , or <i>ll</i> ,	line(s)
loc.cit.,	in the place cited; used as op.cit., (when new reference lococitato: is made to the same pagination as cited in the previous note) MS., MSS., Manuscript or Manuscripts
N.B., notabene:	note well
n.d.,	no date
n.p.,	no place
n.pub.,	no publisher

no(s).,	number(s)
o.p.,	out of print
op.cit:	in the work cited (If reference has been made to a work
operacitato	and new reference is to be made, <i>ibid.</i> , may be used, if intervening reference has been made to different works, <i>op.cit.</i> must be used. The name of the author must precede.
p.orpp.,	page(s)
passim:	here and there
post:	after
rev.,	revised
tr., trans.,	translator, translated, translation
vidorvide:	see, refer to
viz.,	namely
vol.or vol(s).,	volume(s)
vs., versus:	against

8. *Use of statistics, charts and graphs:* A judicious use of statistics in research reports is often considered a virtue for it contributes a great deal towards the clarification and simplification of the material and research

results. One may well remember that a good picture is often worth more than a thousand words. Statistics are usually presented in the form of tables, charts, bars and line-graphs and pictograms. Such presentation should be self-explanatory and complete in itself. It should be suitable and appropriate looking to the problem at hand. Finally, statistical presentations should be neat and attractive.

9. *The final draft:* Revising and rewriting the rough draft of the report should be done with great care before writing the final draft. For the purpose, the researcher should put to himself questions like: Are the sentences written in the report clear? Are they grammatically correct? Do they say what is meant? Do the various points incorporated in the report fit together logically? "Having at least one colleague read the report just before the final revision is extremely helpful. Sentences that seem crystal-clear to the writer may prove quite confusing to other people; a connection that had seemed self-evident may strike others as a *non-sequitur*. A friendly critic, by pointing out passages that see much clearer or illogical, and perhaps suggesting ways of remedying the difficulties, can be an invaluable aid in achieving the goal of adequate communication.,

10. *Bibliography:* Bibliography should be prepared and appended to the research report as discussed earlier.

11. *Preparation of the index:* At the end of the report, an index should invariably be given, the value of which lies in the fact that it acts as a good guide, to the reader. Index may be prepared both as subject index and as author index. The former gives the names of the subject-topics or concepts

along with the number of pages on which they have appeared or discussed in the report, whereas the latter gives the similar information regarding the names of authors. The index should always be arranged alphabetically. Some people prefer to prepare only one index common for names of authors, subjects, topics, concepts and the like ones.

PRECAUTIONS FOR WRITING RESEARCH REPORTS

Research report is a channel of communicating the research findings to the readers of the report. A good research report is one which does this task efficiently and effectively. As such it must be prepared keeping the following precautions in view:

1. While determining the length of the report (since research reports vary greatly in length), one should keep in view the fact that it should be long enough to cover the subject but short enough to maintain interest. In fact, report-writing should not be a means to learn more and more about less and less.
2. A research report should not, if this can be avoided, be dull; it should be such as to sustain reader's interest.
3. Abstract terminology and technical jargon should be avoided in a research report. The report should be able to convey the matter as simply as possible. This, in other words, means that report should be written in an objective style in simple language, avoiding expressions such as "it seems," "there may be" and the like.
4. Readers are often interested in acquiring a quick knowledge of the main findings and as such the report must provide a ready availability of the findings. For this purpose, charts, graphs and the statistical tables may be used for the various results in the main report in addition to the summary of important findings.
5. The layout of the report should must be appropriate and in accordance with the objective of the research problem.
6. The reports should be free from grammatical mistakes and must be prepared strictly in accordance with the techniques of composition of report-writing such as the use of quotations, footnotes, documentation, proper punctuation and use of abbreviations in footnotes and the like.
7. The report must present the logical analysis of the subject matter. It must reflect a structure wherein the different pieces of analysis relating to the research problem fit well.
8. A research report should show originality and should necessarily be an attempt to solve some intellectual problem. It must contribute to the solution of a problem and must add to the store of knowledge.

9. Towards the end, the report must also state the policy implications relating to the problem under consideration. It is usually considered desirable if the report makes a forecast of the probable future of the subject concerned and indicates the kinds of research still needs to be done in that particular field.
10. Appendices should be listed in respect of all the technical data in the report.
11. Bibliography of sources consulted is a must for a good report and must necessarily be given.
12. Index is also considered an essential part of a good report and as such must be prepared and appended at the end.
13. Report must be attractive in appearance, neat and clean, whether typed or printed.
14. Calculated confidence limits must be mentioned and the various constraints experienced in conducting the research study may also be stated in the report.
15. Objective of the study, the nature of the problem, the methods employed and the analysis techniques adopted must all be clearly stated in the beginning of the report in the form of introduction.

RESEARCH PROPOSAL

WHAT IS A REPORT?

A report is a written document on a particular topic, which conveys information and ideas and may also make recommendations. Reports often form the basis of crucial decision making. Inaccurate, incomplete and poorly written reports fail to achieve their purpose and reflect on the decision, which will ultimately be made. This will also be the case if the report is excessively long, jargonistic and/or structureless. A good report can be written by keeping the following features in mind:

1. All points in the report should be clear to the intended reader.
2. The report should be concise with information kept to a necessary minimum and arranged logically under various headings and sub-headings.
3. All information should be correct and supported by evidence.
4. All relevant material should be included in a complete report.

5. Purpose of research report

- Why am I writing this report? Do I want to inform/explain/persuade, or indeed all of these.
- Who is going to read this report? Managers/ academicians/ researchers! What do they already know? What do they need to know? Do any of them have certain attitudes or prejudices?

- What resources do we have? Do i have access to a computer? Do i have enough time? Can any of my colleagues help?
- Think about the content of your report – what am i going to put in it? What are my main themes? How much should be the text, and how much should be the illustrations?

Framework of a report

The various frameworks can be used depending on the content of the report, but generally the same rules apply. Introduction, method, results and discussion with references or bibliography at the end, and an abstract at the beginning could form the framework.

STRUCTURE OF A REPORT

Structure your writing around the IMR&D framework and you will ensure a beginning, middle and end to your report.

I	Introduction	Why did i do this research?	(beginning)
M	Method	What did i do and how did i go about doing it?	(middle)
R	Results	What did i find?	(middle)
AND			
D	Discussion	What does it all mean?	(end)

What do I put in the beginning part?

TITLE PAGE	Title of project, Sub–title (where appropriate), Date, Author, Organization, Logo
BACKGROUND	History(if any) behind project
ACKNOWLEDGEMENT	Author thanks people and organization who helped during the project

SUMMARY (sometimes called abstract of the synopsis)	A condensed version of a report – outlines salient points, emphasizes main conclusions and (where appropriate) the main recommendations. N.B this is often difficult to write and it is suggested that you write it last.
LIST OF CONTENTS	An at-a-glance list that tells the reader what is in the report and what page number(s) to find it on.
LIST OF TABLES	As above, specifically for tables.
LIST OF APPENDICES	As above, specifically for appendices.
INTRODUCTION	Author sets the scene and states his/ her intentions.
AIMS AND OBJECTIVES	AIMS – general aims of the audit/ project, broad statement of intent. OBJECTIVES – specific things expected to do/deliver (e.g. expected outcomes)

What do I Put In the middle Part?

METHOD	Work steps; what was done – how, by whom, when?
RESULT/FINDINGS	Honest presentation of the findings, whether these were as expected or not. Give the facts, including any inconsistencies or difficulties encountered

What do I put in the end part?

DISCUSSION	Explanation of the results. (you might like to keep the SWOT analysis in mind and think about your project's strengths, weakness, opportunities and threats, as you write)
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CONCLUSIONS	The author links the results/ findings with the points made in the introduction and strives to reach clear, simply stated and unbiased conclusions. Make sure they are fully supported by evidence and arguments of the main body of your audit/project.
RECOMMENDATIONS	The author states what specific actions should be taken, by whom and why. They must always be linked to the future and should always be realistic. Don't make them unless asked to.
REFERENCES	A section of a report, which provides full details of publications mentioned in the text, or from which extracts have been quoted.
APPENDIX	The purpose of an appendix is to supplement the information contained in the main body of the report.

PRACTICAL REPORTS VS. ACADEMIC REPORTS

Practical Reports:

In the practical world of business or government, a report conveys information and (sometimes) recommendations from a researcher who has investigated a topic in detail. A report like this will usually be requested by people who need the information for a specific purpose and their request may be written in terms of reference or the brief. Whatever the report, it is important to look at the instruction for what is wanted. A report like this differs from an essay in that it is designed to provide information which will be acted on, rather than to be read by people interested in the ideas for their own sake. Because of this, it has a different structure and layout.

Academic Reports:

A report written for an academic course can be thought of as a simulation. We can imagine that someone wants the report for a practical purpose, although we are really writing the report as an academic exercise for assessment. Theoretical ideas will be more to the front in an academic report than in a practical one. Sometimes a report seems to serve academic and practical purposes. Students on placement with organizations often have to produce a report for the organization and for assessment on the course. Although the background work for both will be related, in practice, the report the student produces for academic assessment will be different from the report produced for the organization, because the needs of each are different.

RESEARCH REPORT: PRELIMINARIES

It is not sensible to leave all your writing until the end. There is always the possibility that it will take much longer than you anticipate and you will not have enough time. There could also be pressure upon available word processors as other students try to complete their own reports. It is wise to begin writing up some aspects of your research as you go along. Remember that you do not have to write your report in the order it will be read. Often it is easiest to start with the method section. Leave the introduction and the abstract to last. The use of a word processor makes it very straightforward to modify and rearrange what you have written as your research progresses and your ideas change. The very process of writing will help your ideas to develop. Last but by no means least, ask someone to proofread your work.

STRUCTURE OF A RESEARCH REPORT

A research report has a different structure and layout in comparison to a project report. A research report is for reference and is often quite a long document. It has to be clearly structured for the readers to quickly find the information wanted. It needs to be planned carefully to make sure that the information given in the report is put under correct headings.

PARTS OF RESEARCH REPORT

Cover sheet: This should contain some or all of the following: Full title of the report

Name of the researcher

Name of the unit of which the project is a part Name of the institution

Date/year.

Title page: Full title of the report. Your name

Acknowledgement: a thanks giving to the people who helped you.

Contents

List of the Tables

Headings and sub-headings used in the report should be given with their page numbers. Each chapter

should begin on a new page. Use a consistent system in dividing the report into parts. The simplest may be to use chapters for each major part and subdivide these into sections and sub-sections. 1, 2, 3 etc. Can be used as the numbers for each chapter. These sections of chapter 3 (for example) would be 3.1, 3.2, 3.3, and so on. For further sub-division of a sub-section you may use 3.2.1, 3.2.2, and so on.

Abstract or Summary or Executive Summary or Introduction:

This presents an overview of the whole report. It should let the reader see in advance, what is in the report. This includes what you set out to do, how review of literature is focused and narrowed in your research, the relation of the methodology you chose to your objectives, a summary of your findings and analysis of the findings

BODY

Aims and purpose or aims and objectives:

Why did you do this work? What was the problem you were investigating? If you are not including review of literature, mention the specific research/es which is/are relevant to your work.

Review of Literature

This should help to put your research into a background context and to explain its importance. Include only the books and articles which relate directly to your topic. You need to be analytical and critical, and not just describe the works that you have read.

Methodology

Methodology deals with the methods and principles used in an activity, in this case research. In the methodology chapter, explain the method/s you used for the research and why you thought they were the appropriate ones. You may, for example, be depending mostly upon secondary data or you might have collected your own data. You should explain the method of data collection, materials used, subjects interviewed, or places you visited. Give a detailed account of how and when you carried out your research and explain why you used the particular method/s, rather than other methods. Included in this chapter should be an examination of ethical issues, if any.

Results or Findings

What did you find out? Give a clear presentation of your results. Show the essential data and calculations here. You may use tables, graphs and figures.

Analysis and Discussion

Interpret your results. What do you make out of them? How do they compare with those of others who have done research in this area? The accuracy of your measurements/results should be discussed and deficiencies, if any, in the research design should be mentioned.

Conclusions

What do you conclude? Summarize briefly the main conclusions which you discussed under “Results.” were you able to answer some or all of the questions which you raised in your aims and objectives? Do not be tempted to draw conclusions which are not backed up by your evidence. Note the deviation/s from expected results and any failure to achieve all that you had hoped.

Recommendations

Make your recommendations, if required. The suggestions for action and further research should be given.

Appendix

You may not need an appendix, or you may need several. If you have used questionnaires, it is usual to include a blank copy in the appendix. You could include data or calculations, not given in the body, that are necessary, or useful, to get the full benefit from your report. There may be maps, drawings, photographs or plans that you want to include. If you have used special equipment, you may include information about it.

The plural of an **appendix** is **appendices**. If an appendix or appendices are needed, design them thoughtfully in a way that your readers find it/them convenient to use.

References

List all the sources which you referred in the body of the report. You may use the pattern prescribed by American Psychological Association, or any other standard pattern recognized internationally.

REVIEW OF LITERATURE

In the case of small projects, this may not be in the form of a critical review of the literature, but this is often asked for and is a standard part of larger projects. Sometimes students are asked to write Review of Literature on a topic as a piece of work in its own right. In its simplest form, the review of literature is a list of relevant books and other sources, each followed by a description and comment on its relevance.

The literature review should demonstrate that you have read and analyzed the literature relevant to your topic. From your readings, you may get ideas about methods of data collection and analysis. If the review is part of a project, you will be required to relate your readings to the issues in the project, and while describing the

readings, you should apply them to your topic. A review should include only relevant studies. The review should provide the reader with a picture of the state of knowledge in the subject. Your literature search should establish what previous researches have been carried out in the subject area. Broadly speaking, there are three kinds of sources that you should consult:

1. Introductory material;
2. Journal articles and
3. Books.

To get an idea about the background of your topic, you may consult one or more textbooks at the appropriate time. It is a good practice to review in cumulative stages - that is, do not think you can do it all at one go. Keep a careful record of what you have searched, how you have gone about it, and the exact citations and page numbers of your readings. Write notes as you go along. Record suitable notes on everything you read and note the methods of investigations. Make sure that you keep a full reference, complete with page numbers. You will have to find your own balance between taking notes that are too long and detailed, and ones too brief to be of any use. It is best to write your notes in complete sentences and paragraphs, because research has shown that you are more likely to understand your notes later if they are written in a way that other people would understand. Keep your notes from different sources and/or about different points on separate index cards or on separate sheets of paper. You will do mainly basic reading while you are trying to decide on your topic. You may scan and make notes on the abstracts or summaries of work in the area. Then do a more thorough job of reading later on, when you are more confident of what you are doing. If your project spans several months, it would be advisable towards the end to check whether there are any new and recent references.

REFERENCES

There are many methods of referencing your work; some of the most common ones are the numbered style, American psychological association style and the harvard method, with many other variations. Just use the one you are most familiar and comfortable with. Details of all the works referred by you should be given in the reference section.

THE PRESENTATION OF REPORT

Well-produced, appropriate illustrations enhance the preventability of a report. With today's computer packages, almost anything is possible. However, histograms, bar charts and pie charts are still the three 'staples'. Readers like illustrated information, because it is easier to absorb and it's more memorable. Illustrations are useful only when they are easier to understand than words or figures and they must be

relevant to the text. Use the *algorithm* included to help you decide whether or not to use an illustration. They should never be included for their own sake, and don't overdo it; too many illustrations distract the attention of readers.

Characteristics of good research report

Reports vary in length and type. Students' study reports are often called term papers, project reports, theses, dissertations depending on the nature of the report. Reports of researchers are in the form of monographs, research papers, research thesis, etc. In business organizations a wide variety of reports are under use: project reports, annual reports of financial statements, report of consulting groups, project proposals etc. News items in daily papers are also one form of report writing. In this lesson, let us identify different forms of reports and their major components.

Types of reports

Reports may be categorized broadly as Technical Reports and General Reports based on the nature of methods, terms of reference and the extent of in-depth enquiry made etc. On the basis of usage pattern, the reports may also be classified as information oriented reports, decision oriented reports and research based reports. Further, reports may also differ based on the communication situation. For example, the reports may be in the form of Memo, which is appropriate for informal situations or for short periods. On the other hand, the projects that extend over a period of time, often call for project reports. Thus, there is no standard format of reports. The most important thing that helps in classifying the reports is the outline of its purpose and answers for the following questions:

- What did you do?
- Why did you choose the particular research method that you used?
- What did you learn and what are the implications of what you learned?
- If you are writing a recommendation report, what action are you recommending in response to what you learned?

Two types of report formats are described below:

A Technical Report

A technical report mainly focuses on methods employed, assumptions made while conducting a study, detailed presentation of findings and drawing inferences and comparisons with earlier findings based on the type of data drawn from the empirical work.

An outline of a Technical Report mostly consists of the following: Title and nature of the study:

Brief title and the nature of work sometimes followed by subtitle indicate more appropriately either the

method or tools used. Description of objectives of the study, research design, operational terms, working hypothesis, type of analysis and data required should be present.

Abstract of Findings:

A brief review of the main findings just can be made either in a paragraph or in one/two pages.

Review of current status:

A quick review of past observations and contradictions reported, applications observed and reported are reviewed based on the in-house resources or based on published observations.

Sampling and Methods employed

Specific methods used in the study and their limitations. In the case of experimental methods, the nature of subjects and control conditions are to be specified. In the case of sample studies, details of the sample design i.e., sample size, sample selection etc are given.

Data sources and experiment conducted

Sources of data, their characteristics and limitations should be specified. In the case of primary survey, the manner in which data has been collected should be described.

Analysis of data and tools used.

The analysis of data and presentation of findings of the study with supporting data in the form of tables and charts are to be narrated. This constitutes the major component of the research report.

Summary of findings

A detailed summary of findings of the study and major observations should be stated. Decision inputs if any, policy implications from the observations should be specified. References

A brief list of studies conducted on similar lines, either preceding the present study or conducted under different experimental conditions is listed.

Technical appendices

These appendices include the design of experiments or questionnaires used in conducting the study, mathematical derivations, elaboration on particular techniques of analysis etc.

General Reports

General reports often relate popular policy issues mostly related to social issues. These reports are

generally simple, less technical, good use of tables and charts. Most often they reflect the journalistic style. Example for this type of report is the “Best B-Schools Survey in Business Magazines”. The outline of these reports is as follows:

1. Major Findings and their Implications
2. Recommendations for action
3. Objectives of the study
4. Method Employed for Collecting data
5. Results

Writing Styles:

There are at least three distinct report writing styles that can be applied by students of Business Studies. They are called:

1. Conservative
2. Key points
3. Holistic

1. Conservativestyle

Essentially, the conservative approach takes the best structural elements from essay writing and integrates these with appropriate report writing tools. Thus, headings are used to deliberate upon different sections of the answer. In addition, the space is well utilized by ensuring that each paragraph is distinct (perhaps separated from other paragraphs by leaving two blank lines in between).

2. Key PointStyle

This style utilizes all of the report writing tools and is thus more overtly ‘report-looking’. Use of headings, underlining, margins, diagrams and tables are common. Occasionally reporting might even use indentation and dot points. The important thing to remember is that the tools should be applied in a way that add to the report. The question must be addressed and the tools applied should assist in doing that. An advantage of this style is the enormous amount of information that can be delivered relatively quickly.

3. Holisticstyle

The most complex and unusual of the styles, holistic report writing aims to answer the question from a thematic and integrative perspective. This style of report writing requires the researcher to have a strong understanding of the course and is able to see which outcomes are being targeted by the question.

Essentials of a good report:

Good research report should satisfy some of the following basic characteristics:

STYLE

Reports should be easy to read and understand. The style of the writer should ensure that sentences are succinct and the language used is simple, to the point and avoiding excessive jargon.

LAYOUT

A good layout enables the reader to follow the report's intentions, and aids the communication process. Sections and paragraphs should be given headings and sub-headings. You may also consider a system of numbering or lettering to identify the relative importance of paragraphs and sub-paragraphs. Bullet points are an option for highlighting important points in your report.

ACCURACY

Make sure everything you write is factually accurate. If you would mislead or misinform, you will be doing a disservice not only to yourself but also to the readers, and your credibility will be destroyed. Remember to refer to any information you have used to support your work.

CLARITY

Take a break from writing. When you would come back to it, you'll have the degree of objectivity that you need. Use simple language to express your point of view.

READABILITY

Experts agree that the factors, which affect readability the most, are:

- Attractive appearance
- Non-technical subject matter
- Clear and direct style
- Short sentences
- Short and familiar words

REVISION

When first draft of the report is completed, it should be put to one side at least for 24 hours. The report should then be read as if with eyes of the intended reader. It should be checked for spelling and grammatical errors. Remember the spell and grammar check on your computer. Use it!

REINFORCEMENT

Reinforcement usually gets the message across. This old adage is well known and is used to good effect in all sorts of circumstances e.g., presentations - not just report writing.

• **TELL THEM WHAT YOU ARE GOING TO SAY:** in the introduction and summary, you set the scene for what follows in your report.

• **THEN SAY IT :** you spell things out in results/findings

• **THEN TELL THEM WHAT YOU SAID:** you remind your readers through the discussion what it was all about.

FEEDBACK MEETING

It is useful to circulate copies of your report prior to the feedback meeting. Meaningful discussion can then take place during the feedback meeting with recommendations for change more likely to be agreed upon which can then be included in your conclusion. The following questions should be asked at this stage to check whether the Report served the purpose:

- Does the report have impact?
- Do the summary /abstract do justice to the report?
- Does the introduction encourage the reader to read more?
- Is the content consistent with the purpose of the report?
- Have the objectives been met?
- Is the structure logical and clear?
- Have the conclusions been clearly stated?
- Are the recommendations based on the conclusions and expressed clearly and logically?

Format and Presentation of a Report

Any report serves its purpose, if it is finally presented before the stakeholders of the work. In the case of an MBA student, Project Work undertaken in an industrial enterprise and the findings of the study would be more relevant, if they are presented before the internal managers of the company. In the case of reports prepared out of consultancy projects, a presentation would help the users to interact with the research team and get clarification on any issue of their interest. Business Reports or Feasibility Reports do need a summary presentation, if they have to serve the intended purpose. Finally, the Research Reports of the scholars would help in achieving the intended academic purpose, if they are made public in academic symposiums, seminars or in Public Viva Voce examinations. Thus, the presentation of a report goes along with preparation of a good report. Further, the use of graphs, charts,

citations and pictures draw the attention of readers and audience of any type. In this lesson, it is intended to provide a general outline related to the presentation of any type of report. See Exhibit-I

Exhibit-I

Common Elements of a Report

A report may contain some or all of the following, please refer to your departmental guidelines.

MEMORANDUM OR COVERING LETTER

Memorandum or Covering Letter is a brief note stating the purpose or giving an explanation that is used when the report is sent to someone within the same organization.

TITLE PAGE

It is addressed to the receiver of a report while giving an explanation for it, and is used when the report is for someone who does not belong to the same organization as the writer. It contains a descriptive heading or name. It may also contain author's name, position, company's name and so on.

EXECUTIVE SUMMARY

Executive summary summarizes the main contents and is usually of about 300-350 words.

TABLE OF CONTENTS

Table of Contents consists of a list of the main sections, indicating the page on which each section begins.

INTRODUCTION

Informs the reader of what the report is about—aim and purpose, significant issues, any relevant background information.

REVIEW OF LITERATURE

Presents critical analysis of the available research to build a base for the present study.

METHODOLOGY

Gives details about nature of the study, research design, sample, and tools used for data collection and analysis.

RESULTS

Presents findings of the study.

DISCUSSION

Describes the reasoning and research in detail.

CONCLUSION/S

Summarizes the main points made in the written work in the light of objectives. It often includes an overall answer to the problem/s addressed; or an overall statement synthesizing the strands of information dealt with.

RECOMMENDATION/S OR IMPLICATIONS

Gives suggestions related to the issue(s) or problem(s) dealt with. It may highlight the applications of the findings under implications section.

REFERENCES

An alphabetical list of all sources referred in the report.

APPENDICES

Extra information of further details placed after the main body of the text.

FORMATS OF REPORTS

Before attempting to look into presentation dimensions of a Report, a quick look into standard format associated with a Research Report is examined hereunder. The format generally includes the steps one should follow while writing and finalizing their research report.

Different Parts of a Report

Generally different parts of a report include:

1. Cover Page / Title Page
2. Introductory Pages (Foreword, Preface, Acknowledgement, Table of Contents, List of Tables, List of Illustrations or Figures, Key Words / Abbreviations Used Etc.)
3. Contents of the Report (Which Generally Includes a Macro Setting, Research Problem, Methodology Used, Objectives of the Study, Review of Studies, Tools Used for Data Collection and Analysis, Empirical Results in One/Two Sections, Summary of Observations etc.)
4. References (Including Appendices, Glossary of Terms Used, Source Data, Derivations of Formulas

for Models Used in the Analysis etc.)

Title Page:

The Cover Page or Title Page of a Research Report should contain the following information:

1. Title of the Project /Subject
2. Who has conducted the study
3. For what purpose
4. Organization
5. Period of submission

Model:

An example of a Summer Project Report conducted by an MBA student generally follows the following Title Page:

**A STUDY ON THE USE OF COMPUTER TECHNOLOGY IN BANKING
OPERATIONS IN XXX BANK LTD., PONDICHERRY**

**A SUMMER PROJECT REPORT PREPARED
BY
Ms. MADAVI LATHA**

Submitted at

**SCHOOL OF MANAGEMENT
PONDICHERRY UNIVERSITY
PONDICHERRY – 605 014
2006**

Introductory Pages:

Introductory pages generally do not constitute the Write up of the Research work done. These introductory pages basically form the Index of the work done. These pages are usually numbered in Roman numerical (eg, I, ii, iii etc). The introductory pages include the following components

- 1) Foreword Preface
- 2) Acknowledgements
- 3) Table of Contents
- 4) List of Tables
- 5) List of Figures /Charts

Foreword is usually one page write up or a citation about the work by any eminent / popular personality or a specialist in the given field of study. Generally, the write up includes a brief background on the contemporary issues and suitability of the present subject and its timeliness, major highlights of the present work, brief background of the author etc. The writer of the foreword generally gives the foreword on his letterhead

Preface is again one/two pages write up by the author of the book/ report stating circumstances under which the present work is taken up, importance of the work, major dimensions examined and intended audience for the given work. The author gives his signature and address at the bottom of the page along with date and year of the work

Acknowledgements: is a short section, mostly a paragraph. It mostly consists of sentences giving thanks to all those associated and encouraged to carry out the present work. Generally, author takes time to acknowledge the liberal funding by any funding agency to carry out the work, and agencies which had given permission to use their resources. At the end, the author thanks everybody and gives his signature.

Table of Contents: refers to the index of all pages of the said Research Report. These contents provide the information about the chapters, sub- sections, annexure for each chapter, if any, etc. Further, the page numbers of the content of the report greatly helps any one to refer to those pages for necessary details. Most authors use different forms while listing the sub contents. These include alphabet classification and decimal classification.

Examples for both of them are given below:

Example of content sheet (alphabet classification)

An example of Content Sheet with decimal classification

CONTENTS

Foreword	i
Preface	iii
Acknowledgement	v
Chapter I (Title of the Chapter) INTRODUCTION	
1. Macro-economic background	1
2. Performance of a specific industry sector	6
3. Different studies conducted so far	9
4 nature and scope	17
4.1. Objectives of the study	18
4.2. Methodology adopted	19
4.2. A. Sampling Procedure adopted	20
4.2.b. Year of the study	20
Chapter II (Title of the Chapter): Empirical Results I	22
1. Test Results of H1	22

2. Test Results of H2	27
3 test Results of H3	32
3.1. Sub Hypothesis of H3	33
3.2. Sub hypothesis of h2	37
Chapter III	45
Chapter IV	85
Chapter V (Summary/Conclusions)	120
Appendices	132
References/Bibliography	135
Glossary	140

List of Tables and Charts:

Details of Charts and Tables given in the Research Report are numbered and presented on separate pages and the lists of such tables and charts are given on a separate page. Tables are generally numbered either in Arabic numerals or in decimal form. In the case of decimal form, it is possible to indicate the chapter to which the said table belongs. For example, Table 2.1 refers to Table 1 in Chapter 2.

Executive Summary:

Most Business Reports or Project works conducted on a specific issue carry one or two pages of Executive Summary. This summary precedes the chapters of the Regular Research Report. This summary generally contains a brief description of problem under enquiry, methods used and the findings. A line about the possible alternatives for decision making would be the last line of the Executive Summary.

BODY OF THE REPORT:

The body of the Report is the most important part of the report. This body of report may be segmented into a handful of Units or Chapters arranged in a sequential order. Research Report often present the Methodology, Objectives of the study, data tools, etc in the first or second chapters along with a brief background of the study, review of relevant studies. The major findings of the study are incorporated into two or three chapters based on the major or minor hypothesis tested or based on the sequence of objectives of the study. Further, the chapter plan may also be based likely on different dimensions of the problem under enquiry.

Each Chapter may be divided into sections. While the first section may narrate the descriptive characteristics of the problem under enquiry, the second and subsequent sections may focus on empirical results based on deeper insights of the problem of study. Each chapter based on research studies mostly contain major headings, sub headings, quotations drawn from observations made by earlier writers, footnotes and exhibits.

Use of References:

There are two types of reference formatting. The first is the 'in-text' reference format, where previous researchers and authors are cited during the building of arguments in the introduction and discussion sections. The second type of format is that adopted for the Reference section for writing footnotes or Bibliography.

Citations in the text

The names and dates of researchers go in the text as they are mentioned. e.g., "This idea has been explored in the work of Smith (1992)." it is generally unacceptable to refer to authors and previous researchers etc.

Examples of Citing References (Single Author)

Duranti (1995) has argued or it has been argued that (Duranti, 1995) In the case of more authors, Moore, Maguire, and Smyth (1992) proposed or it has been proposed that (Moore, Macquire, & Smyth, 1992)

For subsequent citations in the same report: Moore et al. (1992) also proposed... Or it has also been proposed that.... (Moore et al., 1992)

The reference section:

The report ends with reference section, which comes immediately after the Recommendations and begins on a new page. It is titled as 'References' in upper and lower case letters centered across the page.

Published Journal Articles

Beckerian, D.A. (1993). In search of the typical eyewitness. *American psychologist*, 48, 574-576.

Gubbay, S.S., Ellis, W., Walton, J.N., and Court, S.D.M. (1965). Clumsy Children: a study of apraxic and agnosic defects in 21 children. *Brain*, 88, 295-312.

Authored Books

Cone, J.D., and Foster, S.L. (1993). *Dissertations and theses from start to finish: psychology and related fields*. Washington, Dc: American Psychological Association.

Cone, J.D., and Foster, S.L. (1993). *Dissertations and theses from start to finish: psychology and related fields* (2nd Ed.). Washington, Dc: American Psychological Association.

APPENDICES:

The purpose of the appendices is to supplement the main body of your text and provide additional information that may be of interest to the reader.

There is no major heading for the appendices. You simply need to include each one, starting on a new page, numbered, using capital letters, and headed with a centered brief descriptive title. For example:

Appendix A: List of stimulus words presented to the participants

Dos and Don'ts of report writing

1. Choose a font size that is not too small or too large; 11 or 12 is a good font size to use.
2. Acknowledgment need not be a separate page, except in the final report. In fact, you could just drop it altogether for the first- and second-stage reports. Your guide already knows how much you appreciate his/her support. Express your gratitude by working harder instead of writing a flowery acknowledgment.
3. Make sure your paragraphs have some indentation and that it is not too large. Refer to some textbooks or journal papers if you are not sure.
4. If figures, equations, or trends are taken from some reference, the reference must be cited right there, even if you have cited it earlier.
5. The correct way of referring to a figure is Fig. 4 or Fig. 1.2 (note that there is a space after Fig.). The same applies to Section, Equation, etc. (e.g., sec. 2, eq. 3.1).
6. Cite a reference as, for example, "The threshold voltage is a strong function of the implant dose [1]."

note that there must be a space before the bracket.

7. Follow some standard format while writing references. For example, you could look up any IEEE transactions issue and check out the format for journal papers, books, conference papers, etc.
8. Do not type references (for that matter, any titles or captions) entirely in capital letters. The only capital letters required are (i) the first letter of a name, (ii) acronyms, (iii) the first letter of the title of an article (iv) the first letter of a sentence.
9. The order of references is very important. In the list of your references, the first reference must be the one which is cited before any other reference, and so on. Also, every reference in the list must be cited at least once (this also applies to figures). In handling references and figure numbers, Latex turns out to be far better than Word.
10. Many commercial packages allow “screen dump” of figures. While this is useful in preparing reports, it is often very wasteful (in terms of toner or ink) since the background is black. Please see if you can invert the image or use a plotting program with the raw data such that the background is white.
11. The following tips may be useful: (a) for windows, open the file in Paint and select Image/Invert Colors. (b) For Linux, open the file in Image Magick (this can be done by typing `display`) and then selecting Enhance/Negate.
12. As far as possible, place each figure close to the part of the text where it is referred to.
13. A list of figures is not required except for the final project report. It generally does not do more than wasting paper.
14. The figures, when viewed together with the caption, must be, as far as possible, self-explanatory. There are times when one must say, “see text for details”. However, this is an exception and not a rule.
15. The purpose of a figure caption is simply to state what is being presented in the figure. It is not the right place for making comments or comparisons; that should appear only in the text.
16. If you are showing comparison of two (or more) quantities, use the same notation throughout the report. For example, suppose you want to compare measured data with analytical model in four different figures, in each figure, make sure that the measured data is represented by the same line type or symbol. The same should be followed for the analytical model. This makes it easier for the reader to focus on the important aspects of the report rather than getting lost in lines and symbols.
17. If you must resize a plot or a figure, make sure that you do it simultaneously in both x and y directions. Otherwise, circles in the original figure will appear as ellipses, letters will appear too fat

or too narrow, and other similar calamities will occur.

18. In the beginning of any chapter, you need to add a brief introduction and then start sections. The same is true about sections and subsections. If you have sections that are too small, it only means that there is not enough material to make a separate section. In that case, do not make a separate section. Include the same material in the main section or elsewhere.
19. Remember, a short report is perfectly acceptable if you have put in the effort and covered all important aspects of your work. Adding unnecessary sections and subsections will create the impression that you are only covering up the lack of effort.
20. Do not make one-line paragraphs.
21. Always add a space after a full stop, comma, colon, etc. Also, leave a space before opening a bracket. If the sentence ends with a closing bracket, add the full stop (or comma or semicolon, etc) after the bracket.
22. Do not add a space before a full stop, comma, colon, etc.
23. Using a hyphen can be tricky. If two (or more) words form a single adjective, a hyphen is required; otherwise, it should not be used. For example, (a) A short-channel device shows a finite output conductance.
(b) This is a good example of mixed-signal simulation. (c) Several devices with short channels were studied.
24. If you are using Latex, do not use the quotation marks to open. If you do that, you get “this”. Use the single opening quotes (twice) to get “this”.
25. Do not use very informal language. Instead of “this theory should be taken with a pinch of salt,” you might say, “this theory is not convincing,” or “it needs more work to show that this theory applies in all cases.”
26. Do not use “&”; write “and” instead. Do not write “There’re” for “There are” etc.
27. If you are describing several items of the same type (e.g., short-channel effects in a MOS transistor), use the “list” option; it enhances the clarity of your report.
28. Do not use “bullets” in your report. They are acceptable in a presentation, but not in a formal report. You may use numerals or letters instead.
29. Whenever in doubt, look up a text book or a journal paper to verify whether your grammar and

punctuation are correct.

30. Do a spell check before you print out your document. It always helps.
31. Always write the report so that the reader can easily make out what your contribution is. Do not leave the reader guessing in this respect.
32. Above all, be clear. Your report must have a flow, i.e., the reader must be able to appreciate continuity in the report. After the first reading, the reader should be able to understand (a) the overall theme and (b) what is new (if it is a project report).
33. Plagiarism is a very serious offense. You simply cannot copy material from an existing report or paper and put it verbatim in your report. The idea of writing a report is to convey in your words what you have understood from the literature.

The above list may seem a little intimidating. However, if you make a sincere effort, most of the points are easy to remember and practice. A supplementary exercise that will help you immensely is that of looking for all major and minor details when you read an article from a newspaper or a magazine, such as grammar, punctuation, organization of the material, etc.

PRESENTATION OF A REPORT

In this section, we will look into the issues associated with presentation of a Research Report by the Researcher or Principal Investigator. While preparing for the presentation of a report, the researchers should focus on the following issues:

1. What is the purpose of the report and issues on which the presentation has to focus?
2. Who are the stakeholders and what are the areas of interest?
3. The mode and media of presentation.
4. Extent of Coverage and depth to address it.
5. Time, Place and cost associated with presentation.
6. Audio – Visual aids intended to be used.

Case Study

1. Satisfying customer need:

A customer is approaching a Godrej Refrigerator (Exclusively) dealer. By considering the following how will you match the product to the customer for the satisfaction?

- a. Vegetarian/Non vegetarian

- b. Non Vegetarian/Fostfree
 - c. Size of refrigerator andfamily
 - d. Brand first/Shopfirst
 - e. Buying behavior/Changing behavior.
2. A leading software services company has lived to as a researcher. The task before you is to assess the need for software products that will be accepted readily in the market. The company has not looked at software products and has no idea of the industry demand.Preparea research proposal to identify the industrial segment and the type of software products that the company can consider manufacturing. The proposal should include the research design, time line andimitations.

UNIT-IV

PATENTING

Introduction

Intellectual property (IP) is a term referring to creation of the intellect (the term used in studies of the human mind) for which a monopoly (from greek word monos means single poleintosell) is assigned to designated owners by law. Some common types of intellectual property rights (IPR), in some foreign countries intellectual property rights is referred to as *industrial property*, copyright, patent and trademarks, trade secrets all these cover music, literature and other artistic works, discoveries and inventions and words, phrases, symbols and designs. Intellectual Property Rights are themselves a form of property called intangibleproperty.

Although many of the legal principles governing IP and IPR have evolved over centuries, it was not until the 19th century that the term *intellectual property* began to be used and not until the late 20th century that it became commonplace in the majority of the world.

Types of Intellectual Property

The term intellectual property is usually thought of as comprising four separate legal fields:

1. Trademarks
2. Copyrights
3. Patents
4. Tradeseecrets

1. Trademarks and Service Marks: A trademark or service mark is a word, name, symbol, or device used to indicate the source, quality and ownership of a product or service. A trademark is used in the marketing is recognizable sign, design or expression which identifies products or service of a particular source from those of others. The trademark owner can be an individual, business organization, or any legal entity. A trademark may be located on a package, a label, a voucher or on the product itself. For the sake of corporate identity trademarks are also being.

General Logos:



The Trademark Registration Logo



In addition to words, trademarks can also consist of slogans, design, or sounds. Trademark provides guarantee of quality and consistency of the product or service they identify. Companies expend a great deal of time, effort and money/ in establishing consumer recognition of and confidence in their marks.



Federal Registration of trademarks:

Interstate use of trademarks is governed by federal law, namely, the United States Trademark Act (also called the Lanham Act), found at 15 U.S.C 1051 et seq. In the United States, trademarks are generally protected from their date of first public use. Registration of a mark is not required to secure protection for a mark, although it offers numerous advantages, such as allowing the registrant to bring an action in federal court for infringement of the mark.

Applications for federal registration of trademarks are made with the PTO. Registration is a fairly lengthy process, generally taking anywhere from twelve to twenty-four months or even longer. The filing fee is \$335 per mark (Present \$225 per class) per class of goods or services covered by the mark.

A trademark registration is valid for 10 years and may be renewed for additional ten-year periods thereafter as long as the mark is in use in interstate commerce. To maintain a mark the registrant is required to file an affidavit with the PTO between the fifth and sixth year after registration and every ten years to verify the mark is in continued use. Marks not in use are then available to others.

A properly selected, registered and protected mark can be of great value to a company or individual desiring to establish and expand market share and better way to maintain a strong position in the marketplace.

2. Copyrights: Copyright is a form of protection provided by U.S. law (17 U.S.C 101 etseq) to the authors of "original works of authorship" fixed in any tangible medium of expression. The manner and medium of fixation are virtually unlimited. Creative expression may be captured in words, numbers, notes, sounds, pictures, or any other graphic or symbolic media. The subject matter of copyright is extremely broad, including literary, dramatic, musical, artistic, audiovisual, and architectural works. Copyright protection is available to both published and unpublished works.

Copyright protection is available for more than merely serious works of fiction or art. Marketing materials, advertising copy and cartoons are also protectable. Copyright is available for original works protectable by copyright, such as titles, names, short phrases, or lists of ingredients. Similarly, ideas, methods and processes are not protectable by copyright, although the expression of those ideas is.

Copyright protection exists automatically from the time a work is created in fixed form. The owner of a copyright has the right to reproduce the work, prepare derivative works based on the original work (such as a sequel to the original), distribute copies of the work, and to perform and display the work. Violations of such rights are protectable by infringement actions. Nevertheless, some uses of copyrighted works are considered "fair use" and do not constitute infringement, such as use of an insignificant portion of a work for noncommercial purposes or parody of a copyrighted work.

Definition:

General Definition of copyright "Copyright owner", with respect to any one of the exclusive rights comprised in a copyright, refers to the owner of that particular right.

Federal Registration of Copyrights: The works are protected under federal copyright law from the time of their creation in a fixed form. Registration, however, is inexpensive, requiring only a \$30 (present \$85) filing fee, and the process is expeditious. In most cases, the Copyright Office processes applications within four to five months.

Copyrighted works are automatically protected from the moment of their creation for a term generally enduring for the author's life plus an additional seventy years after the author's death. The policy underlying the long period of copyright protection is that it may take several years for a painting, book, or opera to achieve its true value, and thus, authors should receive a length of protection that will enable the work to appreciate to its greatest extent.

3. Patents: A patent for an invention is the grant of a property right to the inventor, issued by the United States Patent and Trademark Office. Generally, the term of a new patent is 20 years from the date on which the application for the patent was filed in the United States or, in special cases, from the date an earlier related application was filed, subject to the payment of maintenance fees. U.S. patent grants are effective only within the United States, U.S. territories, and U.S. possessions. Under certain circumstances, patent term extensions or adjustments may be available.

The right conferred by the patent grant is, in the language of the statute and of the grant itself, "the right to exclude others from making, using, offering for sale, or selling" the invention in the United States or "importing" the invention into the United States. What is granted is not the right to make, use, offer for sale, sell or import, but the right to exclude others from making, using, offering for sale, selling or importing the

invention. Once a patent is issued, the patentee must enforce the patent without aid of the USPTO.

There are three types of patents:

Utility patents may be granted to anyone who invents or discovers any new and useful process, machine, article of manufacture, or composition of matter, or any new and useful improvement thereof;

Design patents may be granted to anyone who invents a new, original, and ornamental design for an article of manufacture; and

Plant patents may be granted to anyone who invents or discovers and asexually reproduces any distinct and new variety of plant.

Federal Registration of Patents: Patents are governed exclusively by federal law (35 U.S.C. 100 et seq.). To obtain a patent, an inventor must file an application with the PTO (the same agency that issues trademark registration) that fully describes the invention. Patent prosecution is expensive, time consuming and complex. Costs can run into the thousands of dollars, and it generally takes over two years for the PTO to issue a patent.

Patent protection exists for twenty years from the date of filing of an application for utility patents and fourteen years from the date of grant for design patents. After this period of time, the invention falls into the public domain and may be used by any person without permission.

The inventor is granted an exclusive but limited period of time within which to exploit the invention. After the patent expires, any member of the public is free to use, manufacture, or sell the invention. Thus, patent law strikes a balance between the need to protect inventors and the need to allow public access to important discoveries.

4. Trade Secrets: A trade secret consists of any valuable business information. The business secrets are not to be known by the competitor. There is no limit to the type of information that can be protected as trade secrets; **For Example:** *Recipes, Marketing plans, financial projections, and methods of conducting business can all constitute trade secrets.* There is no requirement that a trade secret be unique or complex; thus, even something as simple and nontechnical as a list of customers can qualify as a trade secret as long as it affords its owner a competitive advantage and is not common knowledge.

If trade secrets were not protectable, companies would have no incentive to invest time, money and effort in research and development that ultimately benefits the public. Trade secret law thus promotes the development of new methods and processes for doing business in the marketplace.

Protection of Trade Secrets: Although trademarks, copyrights and patents are all subject to extensive statutory schemes for their protection, application and registration, there is no federal law relating

to trade secrets and no formalities are required to obtain rights to trade secrets. Trade secrets are protectable under various state statutes and cases and by contractual agreements between parties. **For Example:** *Employers often require employees to sign confidentiality agreements in which employees agree not to disclose proprietary information owned by the employer.*

If properly protected, trade secrets may last forever. On the other hand, if companies fail to take reasonable measures to maintain the secrecy of the information, trade secret protection may be lost. Thus, disclosure of the information should be limited to those with a “need to know” it so as to perform their duties, confidential information should be kept in secure or restricted areas, and employees with access to proprietary information should sign nondisclosure agreements. If such measures are taken, a trade secret can be protected in perpetuity.

Another method by which companies protect valuable information is by requiring employee to sign agreements promising not to compete with the employer after leaving the job. Such covenants are strictly scrutinized by courts, but generally, if they are reasonable in regard to time, scope and subject matter, they are enforceable.

ΑΓΕΝΧΙΕΣ ΠΕΣΠΟΝΣΙΒΛΕ ΦΟΡ ΙΝΤΕΛΛΕΚΤΥΑΛ ΠΡΟΠΕΡΤΥ ΡΕΓΙΣΤΡΑΤΙΟΝ

United States Patents and Trademark Office:

The agency charged with granting patents and registering trademarks is the United States Patent and Trademark Office (PTO), one of fourteen bureaus within the U.S. Department of Commerce. The PTO, founded more than two hundred years ago, employs nearly 700 (present 1000 employees) are working. At present it is located in 18 building in Arlington, Virginia. Its official mailing address is Commissioner of Patents and Trademarks, Washington, DC 20231.

The PTO is physically located at 2900 Crystal Drive in Arlington, Virginia. Its web site is <http://www.uspto.gov> and offers a wealth of information, including basic information about trademarks and patents, fee schedules, forms, and the ability to search for trademarks and patents. Since 1991, under the Omnibus Budget Reconciliation Act, the PTO has operated in much the same way as a private business, providing valued products and services to customers in exchange for fees that are used to fully fund PTO operations.

It uses no taxpayer funds. The PTO plans to move all of its operations to Alexandria, Virginia, by mid-2005. The PTO is one of the busiest of all government agencies, and as individuals and companies begin to understand the value of intellectual property, greater demands are being made on the PTO.

Legislation passed in 1997 established the PTO as a performance-based organization that is managed by professionals, resulting in the creation of a new political position, deputy secretary of commerce for intellectual property. In brief, the PTO operates more like a business with greater autonomy over its budget, hiring, and procurement. U.S. patents issued its first patent in 1790. Since 1976 the text and images of more than three million are pending for registration. The PTO is continuing its transition filing for both trademarks and from paper to electronic filing for both trademarks and patents.

The PTO is led by the Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office (the “Director”), who is appointed by the President. The Secretary of Commerce appoints a Commissioner for Patents and a Commissioner for Trademarks. Citations to many cases in this text will be to “U.S.P.Q.”, a reference to United States Patent Quarterly, a reporter of cases decided by the Trademark Trial and Appeal Board (TTAB) as well as patent and copyright cases.

INTERNATIONAL ORGANIZATIONS, AGENCIES AND TREATIES

There are a number of International organizations and agencies that promote the use and protection of intellectual property. Although these organizations are discussed in more detail in the chapters to follow, a brief introduction may be helpful:

International Trademark Association (INTA) is a not-for-profit international association composed chiefly of trademark owners and practitioners. It is a global association. Trademark owners and professionals dedicated in supporting trademarks and related IP in order to protect consumers and to promote fair and effective commerce. More than 4000 (*Present 6500 member*) companies and law firms more than 150 (*Present 190 countries*) countries belong to INTA, together with others interested in promoting trademarks. INTA offers a wide variety of educational seminars and publications, including many worthwhile materials available at no cost on the Internet (see INTA’s home page at <http://www.inta.org>). INTA members have collectively contributed almost US \$ 12 trillion to global GDP annually. INTA undertakes advocacy [active support] work throughout the world to advance trademarks and offers educational programs and informational and legal resources of global interest. Its head quarter in New York City, INTA also has offices in Brussels, Shanghai and Washington DC and representative in Geneva and Mumbai. This association was founded in 1878 by 17 merchants and manufacturers who saw a need for an organization. The INTA is formed to protect and promote the rights of trademark owners, to secure useful legislation (the process of making laws), and to give aid and encouragement to all efforts for the advancement and observance of trademark rights.

World Intellectual Property Organization (WIPO) was founded in 1883 and is specialized agency of the United Nations whose purposes are to promote intellectual property throughout the world and to administer 23 treaties (Present 26 treaties) dealing with intellectual property. WIPO is one of the 17 specialized agencies of the United Nations. It was created in 1967, to encourage creative activity, to promote the protection of Intellectual Property throughout the world. More than 175 (*Present 188*) nations are members of WIPO. Its headquarters in Geneva, Switzerland, current Director General of WIPO is **Francis Gurry** took charge on October 1, 2008. The predecessor to WIPO was the BIRPI [Bureaux for the Protection of Intellectual Property] it was established in 1893. WIPO was formally created by the convention (meeting) establishing the world intellectual Property organization which entered into force on April 26 1970.

Berne Convention for the Protection of Literary and Artistic Works (the Berne Convention) An International copyright treaty called the convention for the protection of Literary and Artistic works signed at Berne, Switzerland in 1886 under the leadership of **Victor Hugo** to protect literary

and artistic works. It has more than 145 member nations. The United States became a party to the Berne Convention in 1989. The Berne Convention is administered by WIPO and is based on the precept that each member nation must treat nationals of other member countries like its own nationals for purposes of copyright (the principle of “nation treatment”). In addition to establishing a system of equal treatment that internationalized copyright amongst signatories, the agreement also required member states to provide strong minimum standards for copyrights law. It was influenced by the French “right of the author”.

Madrid Protocol It is a legal basis is the multilateral treaties Madrid (it is a city situated in Spain) Agreement concerning the International Registration of Marks of 1891, as well as the protocol relating to the Madrid Agreement 1989. The Madrid system provides a centrally administered system of obtaining a bundle of trademark registration in separate jurisdiction. The protocol is a filing treaties and not substantive harmonization treaty. It provides a cost-effective and efficient way for trademark holder. It came into existence in 1996. It allows trademark protection for more than sixty countries, including all 25 countries of the European Union.

Paris Convention: The Paris convention for the protection of Industrial Property, signed in Paris, France, on 20th March 1883, was one of the first Intellectual Property treaties, after a diplomatic conference in Paris, France, on 20 March 1883 by Eleven (11) countries. According to Articles 2 and 3 of this treaty, juristic (one who has through knowledge and experience of law) and natural persons who are either National or domiciled in a state party to the convention. The convention is currently still force. The substantive provisions of the convention fall into *three main categories*: National Treatment, Priority right and Common Rules.

An applicant for a trademark has six months after filing an application in any of the more than 160 member nations to file a corresponding application in any of the other member countries of the Paris Convention and obtain the benefits of the first filing date. Similar priority is afforded for utility patent applications, although the priority period is one year rather than six months. The Paris Convention is administered by WIPO.

North American Free Trade Agreement (NAFTA) came into effect on January 1, 1994, and is adhered to by the United States, Canada, and Mexico. The NAFTA resulted in some changes to U.S. trademark law, primarily with regard to marks that include geographical terms. The NAFTA was built on the success of the Canada-U.S Free Trade Agreement and provided a compliment to Canada’s efforts through the WTO agreements by making deeper commitments in some key areas. This agreement has brought economic growth and rising standards of living for people in all three countries.

General Agreement on Tariffs and Trade (GATT) was concluded in 1994 and is adhered to by most of the major industrialized nations in the world. The most significant changes to U.S intellectual property law from GATT are that nonuse of a trademark for three years creates a presumption the mark has been abandoned and that the duration of utility patent is now twenty years from the filing date of the application (rather than seventeen years from the date the patent issued, as was previously the case).

THE INCREASING IMPORTANCE OF INTELLECTUAL PROPERTY RIGHTS

- ❖ Protecting Intellectual Property Rights
- ❖ Technology has led to increase awareness about the IP
- ❖ Some individuals and companies offer only knowledge. Thus, computer consultant, advertising agencies, Internet companies, and software implementers sell only brainpower.
- ❖ Domain names and moving images are also be protected
- ❖ More than fifty percent of U.S. exports now depend on some form of intellectual property protection.
- ❖ The rapidity with which information can be communicated through the Internet has led to increasing challenges in the field of intellectual property.
- ❖ The most valuable assets a company owns are its Intellectual property assets
- ❖ Companies must act aggressively to protect these valuable assets from infringement (breaching, violation of law) or misuse by others
- ❖ The field of intellectual property law aims to protect the value of such investments

TRADEMARKS

Introduction

Although there was some use of trademarks or symbols in the Middle East and Far East several centuries ago, contemporary (modern) trademark law can be traced back to use of trademarks during the medieval period in Europe by merchants who sought to distinguish the goods they sold from those sold by others by applying a mark or symbol to their goods. By viewing the mark, purchasers would immediately be able to identify the craftsman that made the goods and make an informed decision about the quality of the material. The use of symbols by medieval craftspeople to distinguish and identify their goods is the direct antecedent for the modern use of trademarks.

Definition of Trademark:

The modern definition of trademark is that "it is a word, name, symbol, or device or a combination thereof, used by a person [including a business entity], or which a person has a bonafide intention to use, to identify and distinguish his or her goods from those manufactured by others and to indicate the source of those goods."

PURPOSE AND FUNCTION OF TRADEMARK

Trademarks perform two critical functions in the marketplace: [1] *they provide assurance that goods are of a certain quality and consistency, and* [2] *they assist consumers in making decisions about the purchase of goods.* The main purpose of trademark is to show the difference about the quality of goods and service **For example:** If a trademark such as NIKE could be counterfeited (imitating) and used by another on inferior merchandise (goods), there would be no incentive for the owners of the NIKE mark to produce high-quality shoes and to expend money establishing consumer recognition of the products offered under the NIKE marks.

Thus, protection of trademarks results in increased competition in the marketplace, with both the

producer of goods and services and the consumer as the ultimate beneficiaries. Business benefit because they can reap the rewards of their investment in developing and marketing a product with one fearing another business will deceive consumer by using the same or a confusingly similar mark for like goods, and consumers benefit because they are able to identify and purchase desired and quality goods.

The value inherent in achieving consumer loyalty to a particular product or service through the maintenance of consistent quality of the products or service offered under a mark is called goodwill.

- ❖ they identify one maker's goods or services and distinguish them from those offered by others
- ❖ They indicate that all goods or services offered under the mark come from a single producer, manufacturer, or "source"
- ❖ They indicate that all goods or services offered under the mark are of consistent quality and they serve as an advertising device so that consumers link a product or service being offered with a mark

TYPES OF MARKS

There are four different types of marks. They are:

Trademark

Service mark

Certification mark

Collective mark

Trademark & Service mark

The term trademark thus refers to some physical and tangible good, and service mark refers to an intangible service, in common usage the term *trademark* is often used to refer to marks for both goods and service. The key point in this legal description is that a trademark is a visual mark that may use any combination of letters and imagery to aid a company in differentiating itself from other entities.

The purpose of a trademark is to visually represent a person, company, or product, and trademark should be designed to provide easy and definite recognition. The term **mark** will be used as a synonym for both trademark and service marks. The federal statute ((law) an act passed by a legislative body) governing trademark law, the U.S. Trademark Act (Lanham Act, found at 15 U.S.C 1051 et seq.) itself states that the term mark includes any trademark, service mark, collective mark, or certification mark.

A Certification mark

A certification mark is a word, name, symbol, device, or combination thereof, used by one person to certify that the goods or services of others have certain features in regard to quality, material, mode of manufacture, or some other characteristic (or that the work done on the goods or services was performed by members of a union or other organization). **For example:** Hallmark, ISO mark and in U.S Underwriters Laboratory seals of approval (*Underwriters Laboratory is the largest and best known independent, not for profit testing laboratory in the world based in Northwood, Illinois, UL conducts safety and quality tests on*

a broad range of products, from fire door's to CCTV cameras seals of approval).

CollectiveMark

A collective mark is one used by a collective membership organization, such as a labor union, fraternity, or professional society, to identify that the person displaying the mark is a member of the organization. Thus, the FUTURE FARMERS OF AMERICA and AMERICAN BAR ASSOCIATION marks indicate membership in certain organizations. A company may use several marks **For Example:** the word: COCA-COLA, the stylized WAVE DESIGN, and the slogan "THINGS GO BETTER WITH COKE". All of these marks are used on one product and all are protected by the Coca-Cola Company. On some occasions, companies use house marks to establish recognition in a wide range of products or service.

ACQUISITION OF TRADEMARK RIGHTS

In most foreign countries, trademark rights arise from registering the mark with a governmental entity. The law in the United States is quite different: trademark rights arise from adoption and *use* of a mark. A person using a mark may have valid and enforceable rights in a mark even though the mark is not registered with the PTO, such an owner will have priority even over a subsequent user who has secured a federal registration for a mark with the PTO. The "use" required to establish trade mark rights is more than token use, it must be public use, while actual sales of products or services are not required, a certain level of presale activity is required. **For example:** *Sales within a company or to personal friends are insufficient to show use, while soliciting [plead for something] and accepting order is usually sufficient to show commercial use.* Thus, a person using a mark may have valid and enforceable rights in a mark even though the mark is not registered with the PTO. Such an owner will have priority even over a subsequent user who has secured a federal registration for a mark with the PTO.

Establishing a date of first use is critical for a trademark owner because priority of trademark rights is measured from this date. If one party first used of mark on September 15, 2015 and another first used a similar mark on October 15, 2015, the prior, or **senior, user** will be able to preclude the **junior user** from using a confusingly similar mark.

For a mark to be registrable, it must be based on use in commerce, meaning the type of commerce that can be regulated by Congress. Generally, the use is based on interstate commerce or commerce between states (although it could be based on commerce between the United State and a foreign country). A purely intrastate use does not provide a basis for federal registration of a mark. A purely intrastate use does not provide a basis for federal registration of a mark. The requirement of interstate (within one state) commerce is satisfied if the goods or services are advertised in more than one state, offered to citizens of more than one state, or offered on the Internet, which is considered use in commerce because it is available to a national audience through the use of telephonerlines.

The general rule is that acquisition of trademark rights stem from use, there is one exception to this rule: the **intent-to-use application**. Until 1989, the United States was one of only two countries in the world that required that a mark be in actual use before an owner could file an application to register it. After an applicant had begun using the mark and then filed an application, the PTO might refuse registration of the mark on the basis it was confusingly similar to a prior mark or was subject to some other defect. The applicant would then have invested substantial money and time in developing the mark, in using

it in commerce, marketing and advertising, and in applying for registration, only to be told the mark was unregistrable. **To remedy this situation**, the Trademark Law Revision Act of 1988 allowed persons to file applications for marks based on a bona fide intent to use the mark in commerce in the future. If the PTO determines the mark is unregistrable, the applicant will not have expended any sums other than the PTO filing fee and can readily file another application for a new mark. Once the mark proceeds to registration, priority is measured from the date the intent-to-use-application was filed, even though that filing date may precede actual use in commerce by more than three years.

Minimal or token use cannot serve as the basis for securing or maintaining a registration, ensuring that an owner does not reserve or “warehouse” a mark by making only sporadic use of it with the intent to block others from using it rather than having a true commercial intent to exploit the mark for sales. The PTO desires to clear its records of unused marks, or “deadwood”, so that such unused marks may be available by others. The use required is “bonafide use of a mark in the ordinary course of trade, and not made merely to reserve a right in a mark”, 15 U.S.C.1127.

COMMON LAW RIGHTS, FEDERAL REGISTRATION UNDER THE LANHAM ACT, LAWS AND TREATIES GOVERNING TRADEMARKS, AND STATE TRADEMARK RIGHTS

Common Law Rights

The United States, trademark rights arise from use of a mark. It is not necessary to secure permission or registration from any governmental entity to acquire trademark rights. A party who is using a mark without any such governmental registration is said to have a **common law trademark**, it can be enforced in any geographical area in which the mark is used.

Federal Registration

Although there is no requirement that a trademark owner apply for a secure federal registration of mark with the PTO, registration on the ‘PTO’s Principal Register’ does offer several advantages:

- ❖ nationwide constructive use effective from the filing date of the application (the public assumed to have notice that the registrant has nationwide priority in the use of its mark as of this date)
- ❖ nationwide notice to the public of an owner’s claim to a mark, thereby precluding a later user from claiming it used a mark in good faith in a remote territory and should be able to continue use;
- ❖ the ability to bar importation of goods bearing infringing trademarks
- ❖ the right under the Paris Convention to obtain a registration in various foreign countries based upon the U.S. registration;
- ❖ the right to bring an action in federal court for trademark infringement and recover lost profits, damages, costs, and possibly triple damages and attorney’s fees
- ❖ incontestable status of the registration after five years of continuous use subsequent to the registration
- ❖ the right to use the registration symbol with the mark
- ❖ a possible basis to claim priority to an Internet domain name and
- ❖ prima facie (literally, “on its face”) evidence of the validity of the registration, the registrant’s ownership of the mark, and the registrant’s exclusive right to use the mark in connection with the

identified goods and services.

Laws and Treaties Governing Trademark

There are several laws and treaties governing trademark, including the following:

Lanham Act The federal statute governing trademark rights is the **Lanham Act** (also called the United States Trademark Act and found at 15 U.S.C § 1051 et seq.), enacted in 1946 and named for Congressman Fritz Garland Lanham (D.Tex.), the then chair of the House Patent Committee (which also proposed legislation relating to trademarks) who introduced the legislation. In addition to providing for federal trademark protection, the Lanham Act also includes statutes prohibiting unfair competition. The Lanham Act has been amended numerous times. Perhaps the most significant amendment occurred with the Trademark Law Revision Act of 1988, which provided the following two critical changes: allowing for a trademark application based on the applicant's intent to use a mark in the future. Rules of practice and procedure relating to trademarks are found at Title 37 of the Code of Federal Regulation (C.F.R.).

North American Free Trade Agreement (NAFTA) came into effect on January 1, 1994, and is adhered to by the United States, Canada, and Mexico. The NAFTA resulted in some changes to U.S. trademark law, primarily with regard to marks that include geographical terms. The NAFTA was built on the success of the Canada-U.S Free Trade Agreement and provided a compliment to Canada's efforts through the WTO agreements by making deeper commitments in some key areas. This agreement has brought economic growth and rising standards of living for people in all three countries.

Madrid Protocol It is a legal basis is the multilateral treaties Madrid (it is a city situated in Spain) Agreement concerning the International Registration of Marks of 1891, as well as the protocol relating to the Madrid Agreement 1989. The Madrid system provides a centrally administered system of obtaining a bundle of trademark registration in separate jurisdiction. The protocol is a filing treaties and not substantive harmonization treaty. It provides a cost-effective and efficient way for trademark holder. It came into existence in 1996. It allows trademark protection for more than sixty countries, including all 25 countries of the European Union.

Trade-Related aspects of Intellectual Property Rights (TRIPs) is an international agreement administered by the World Trade Organization (WTO) that sets down minimum standards for many forms of intellectual property (IP) regulation as applied to nationals of other WTO Members. It was negotiated at the end of the Uruguay Round of the General Agreement on Tariffs and Trade (GATT) in 1994.

The Doha declaration is a WTO statement that clarifies the scope of TRIPS, stating for example that TRIPS can and should be interpreted in light of the goal "to promote access to medicines for all." Specifically, TRIPS requires WTO members to provide copyright rights, covering content producers including performers, producers of sound recordings and broadcasting organizations; geographical indications, including appellations of origin; industrial designs; integrated circuit layout-designs; patents; new plant varieties; trademarks; trade dress; and undisclosed or confidential information. TRIPS also specify enforcement procedures, remedies, and dispute resolution procedures.

Trademark Law Treaty Implementation Act (TLTIA) effective in late 1998 simplified several requirements relating to trademark registration and maintenance. **For example:** at present, the applicant need only submit one specimen showing how a mark is used rather than three, as was previously required. Additionally, a trademark applicant need no longer state the manner in which the mark is used. Finally, TLTIA established a six month grace period for filing a renewal for a trademark registration.

Federal Trademark Dilution Act The **Federal Trademark Dilution Act of 1995** is a United States federal law which protects famous trademarks from uses that dilute their distinctiveness, even in the absence of any likelihood of confusion or competition. It went into effect on January 16, 1996. This act has been largely supplanted by the Trademark Dilution Revision Act of 2006 (TDRA), signed into law on October 6, 2006.

Anticybersquatting Consumer Protection Act. 15 U.S.C. § 1125(d), is an American law enacted in 1999 that established a cause of action for registering, trafficking in, or using a domain name confusingly similar to, or dilutive of, a trademark or personal name. The law was designed to thwart "cybersquatters" who register Internet domain names containing trademarks with no intention of creating a legitimate web site, but instead plan to sell the domain name to the trademark owner or a third party. Critics of the ACPA complain about the non-global scope of the Act and its potential to restrict free speech, while others dispute these complaints. Before the ACPA was enacted, trademark owners relied heavily on the Federal Trademark Dilution Act (FTDA) to sue domain name registrants. The FTDA was enacted in 1995 in part with the intent to curb domain name abuses. The legislative history of the FTDA specifically mentions that trademark dilution in domain names was a matter of Congressional concern motivating the Act. Senator Leahy stated that "it is my hope that this anti-dilution statute can help stem the use of deceptive Internet addresses taken by those who are choosing marks that are associated with the products and reputations of others".

CATEGORIES OF MARKS

Although marks can consist of words, symbols, designs, slogans, or a combination thereof, not every term is protectable. Even among marks that are protectable, some marks are stronger than others. In determining strength of marks, courts recognize several categories of marks. In ascending order of strength and protectability, the five categories are:

- ❖ **A Generic Mark** Generic "marks" are devices which actually name a product and are incapable of functioning as a trademark. Unlike descriptive marks, generic devices will not become a trademark even if they are advertised so heavily that secondary meaning can be proven in the mind of consumers. The rationale for creating the category of generic marks is that no manufacturer or service provider should be given exclusive right to use words that generically identify a product. A valid trademark can become generic if the consuming public misuses the mark sufficiently for the mark to become the generic name for the product. The prime examples of former trademarks that became the generic name for a product are ASPIRIN, XEROX and CELLOPHANE.
- ❖ **A Descriptive mark** (or more properly, "merely descriptive marks") are devices which merely describe the services or goods on which the mark is used. If a device is merely descriptive, it is not

A mark at all, since it does not serve to identify the source of the goods or services. No trademark rights are granted to merely descriptive marks. Mis-descriptive marks are equally weak. As explained in connection with suggestive marks above, descriptive marks are often difficult to distinguish from suggestive marks. Suggestive marks require some imagination, thought, or perception to reach a conclusion as to the nature of the goods. Descriptive marks allow one to reach that conclusion without such imagination, thought or perception. Putting this distinction into practice can be very difficult. Merely descriptive marks can be registered federally on the Supplemental Register (see the Bit Law discussion on federal registration of trademarks for more information). The descriptive mark will not register in PTO until the consumer links the mark with a single source. That learned association is called **Secondary meaning** or acquired distinctiveness. The PTO assumes that secondary meaning has been acquired after five years of consecutive and exclusive use of a mark. Secondary meaning can be demonstrated by a significant level of advertising, sales and consumer survey evidence, to prove that when consumers encounter a mark.

For Example: The following imaginary marks could be considered merely descriptive for computer peripherals:

- ✓ FAST BAUD for modems (describing the quickness of the modem);
- ✓ 104 KEY for computer keyboards (describing the number of keys on a keyboard);
- ✓ LIGHT for portable computers (describing the computer's weight); and
- ✓ TUBELESS for computer monitors (even if misdescriptive for a monitor that contains tubes).

- ❖ **A Suggestive mark** is a mark that suggests a quality or characteristic of the goods and services. Despite the fact that suggestive marks are not as strong as fanciful or arbitrary marks, suggestive marks are far more common due to the inherent marketing advantage of tying a mark to the product in a customer's mind. Suggestive marks are often difficult to distinguish from descriptive marks (described below), since both are intended to refer to the goods and services in question. Suggestive marks require some imagination, thought, or perception to reach a conclusion as to the nature of the goods. Descriptive marks allow one to reach that conclusion without such imagination, thought or perception. Putting this distinction into practice clearly is one of the most difficult and disputed areas of trademark law.

The following marks can be considered suggestive:

- ✓ MICROSOFT (suggestive of software for microcomputers)
- ✓ NETSCAPE (suggestive of software which allows traversing the "landscape" of the Internet)
- ✓ SILICON GRAPHICS (suggestive of graphic oriented computers)

- ❖ **Arbitrary Marks** An arbitrary mark utilizes a device having a common meaning that has no relation to the goods or services being sold.

Examples of arbitrary marks include:

- ✓ APPLE (for computers)
- ✓ LOTUS (for software)
- ✓ SUN (for computers)
- ✓ CROWN (For Television)

- ❖ **Fanciful Marks** are devices which have been invented for the sole purpose of functioning as a trademark and have no other meaning than acting as a mark. Fanciful marks are considered to be the strongest type of mark. Examples of fanciful marks are: EXXON, KODAK and XEROX.

PROTECTABLE MATTER

Slogans, Letters and Numbers

A word or other groupings of letters is the most common type of mark **For Examples:** APPLE, SILICON, GRAPHICS, NETSCAPE, IBM, NBC. Slogans from advertising campaigns are also used as trademarks. Example slogans which have strong trademark rights attached **For Example:**



Nike

Alphanumeric symbols (letters and numbers) may be protectable as long as they are not merely descriptive. If the numbers or letters describe something about the product or service offered under the mark, however, they will not be registrable unless proof of secondary meaning is shown. Thus, the mark “VT220” for computer hardware peripherals was held merely descriptive and unregistrable because “VT” Video Terminal and 220 was a mere model number.

Logos and Symbols

Logos are probably the next most common form of mark. A logo can be described as a design which becomes a mark when used in close association with the goods or services being marketed. The logo mark does not need to be elaborate; it need only distinguish goods and services sold under the mark from other goods and services. Examples of logo marks are:

McDonald's double arches:



NBC's peacock styledesign:



Apple Computer'sApple:



Names of performingArtists

A mark that merely serves to identify an artist or entertainer is not registrable. However, if the owner of themarkhas controlled the quality of the goods or services, and the name of the artist or group has been used numerous times on different records (thereby representing an assurance of quality to the public), the name may be registered as a trademark, Thus, GOO GOO DOLLS and BOB BYLAN have been registered for musical soundrecordings.

DomainNames

Domain names, for example, www.ibm.com, are registrable as trademark or service marks only if they function as an identification of the source of goods and service. Thus, www.oakwood.comhas been registered for real estate leasing service and www.eilberg.comwas refused registration because the mark merely indicated the location on the Internet where the applicant's web site appeared and it did not separately identify the applicant's legal services. Another complication with domain name registration is that the PTO has held that businesses that create a web site for the sole purpose of advertising their own products or services cannot register a domain name used to identify that activity. Thus, www.amazon.comis registered for providing online chat rooms and bulletin boards. It is not registered in connection with offering books or other goods forsale.

Shapes andContainers

A product or container shape can also serve a source identifying function and therefore can be an enforceable trademark. A product or container shape may also be subject to a design patent (see the BitLaw discussion of design patents to see an analysis of the similarities and differences between design patents and trademark protection for product shapes). Historically, trademark protection was not granted to product shapes until the consuming public recognized the shape as indicating the source of the product. In other words, the product shape was required to obtain secondary meaning. However, recent court decisions may mean that an inherently distinctive product shape can be a protectable trademark even before secondary meaning is obtained. Examples of product shapes and configurations that likely enjoy trademark status include:

Coca-colaBottle



Apple's iPod



TradeDress

Trade dress is the overall commercial image (look and feel) of a product or service that indicates or identifies the source of the product or service and distinguishes it from those of others. It may include the design or configuration of a product; the labeling and packaging of goods; and/or the décor or environment in which services are provided. Trade dress can consist of such elements as size, shape, color and texture to the extent such elements are not functional. In many countries, trade dress is referred to as “get-up” or “product design”. Only nonfunctional trade dress can be protected. Because trade dress is often protected through the law of unfair competition.

Color

The color of an item can also function as a trademark. The Supreme Court held in the 1995 case of *Qualitex Co. v. Jacobson Products Co.*, 115 S.Ct. 1300 (1995) that the green-gold color of a dry cleaning press pad can function as a trademark. Before this decision, the argument was often made that color alone could not be considered a trademark, since granting trademark status to colors would soon lead to the depletion of the number of colors available for an object. The Court in *Qualitex* rejected arguments based on this depletion theory, reasoning that alternative colors would usually be available for competitors. In those cases where alternative colors were not available, courts could deny trademark protection in those circumstances where color depletion may actually occur.

Fragrances, Sounds, and Moving Images

A sound can also be a trademark or a service mark. The three-tone chime of NBC has been registered as a service mark. Sound trademarks recently were in the news when Harley-Davidson announced that it was attempting to register the exhaust sound of a Harley-Davidson motorcycle with the U.S. Patent and Trademark Office (USPTO). Harley-Davidson was reacting to moves by competitors to duplicate the Harley sound in competing motorcycles. Hearings in front of the USPTO have been scheduled to determine whether Harley-Davidson can register the sound. A fragrance can function as trademark if it is distinctive and not functional. **For example:** in *In re Clarke*, 17 U.S.P.Q.2d 1238 (T.T.A.B.1990), a floral fragrance was allowed as a trademark for sewing thread and embroidery yarn and was not functional when used in connection with those goods. The roar of the MGM lion and Woody Woodpecker's distinctive laugh are also registered. Finally, the Internet has given rise to applications for marks that consist of moving images, such as Microsoft Company's spinning EXPLORERGLOBE.

Design and Ornamentation

A design can function as a trademark as long as it is distinctive rather than merely functional or ornamental. Some designs are protected on their own, such as Nike's famous “swoosh” design, the

alligator that appears on shirts, and Betty Crocker's spoon. If the design is merely back ground material, however, and does not create a separate commercial impression, or if it consists solely of some simple geometric shape, such as an oval or square, it cannot be protected without proof of secondary meaning. **For example**, the PTO refused registration of two parallel colored bands placed at the top of socks as pure ornamentation. Merely decorative subject matter and pure ornamentation cannot be registered because they do not identify and distinguish goods or services and thus cannot function as trademark.

Serialized Literary and Movie Titles

The title of a single book or movie title is generally not protectable. The title of a serialized work, such as THE BRADY BUNCH or NEWSWEEK, however, can be protected as a trademark or servicemark.

Insignia

Flags, coats of arms, and other insignia of the United States or any state or any foreign nation cannot be registered.

Picture and Drawings

Pictures or drawings of a character or scene are often used as trademarks or servicemarks.

Corning's Pink Panther



Sun Microcomputer, Inc.'s Duke



MSN's Butterfly



Apples Automator



SELECTING AND EVALUATING A TRADEMARK

Selecting a Mark

The selection of mark occurs in a variety of ways.

- ❖ companies hold contests and encourages employees to create a mark for a new product line or service
- ❖ Companies engage sophisticated research
- ❖ Branding firms that will conduct surveys and create a mark and a logo or design for the company.
- ❖ There are name creation software programs that help individuals and companies create marks

Once the mark is selected, it must be screened and evaluated for use and registrability, if failed then it leads to wastage in expenditure of time and money in advertising, using, and applying for a mark that is rejected for registration by the PTO or, in the worst case scenario, might subject the owner to damages for trademark infringement and unfair competition.

Reviewing a Proposed Mark

Once a mark is selected, it should be carefully scrutinized to ensure that it will not be excluded from protection under the Lanham Act.

- ❖ Firstly they have to check whether the mark contains scandalous (giving offence to moral sensibilities and injurious to reputation)
- ❖ Whether consent from a living person will be required,
- ❖ Whether the mark is generic,
- ❖ Whether it is statutorily protected
- ❖ Whether the mark is descriptive of some feature of the goods and services offered under the mark,
- ❖ It also see that the mark includes foreign terms
- ❖ Many law firms specializing in trademark work use a questionnaire form or data sheet to gather questionnaire form or data sheet to gather basic information from clients about their marks

THE TRADEMARK SEARCH

Scope of search

- ❖ There are a variety of sources that can be reviewed to locate potentially conflicting marks
- ❖ There are literally millions of marks registered or applied for at the PTO, and thousands of journals, trade magazines, directories, telephone books, Internet sources, state records, and state trademark registrations that might contain other marks or business names, a computer assisted or online search is the most effective method of searching.
- ❖ Both LEXIS and WESTLAW, the computer-assisted legal research system, offer access to vast databases that may point out conflicts.
- ❖ One of the best-known databases is TRADEMARKSCAN product OF Thomson & Thomson.

Conducting the trademarksearch

The trademark searching is a two-step process:

- ❖ **a preliminary search** is conducted of the records of the PTO to make a quick determination as to whether the mark may be available or whether there is conflict that would preclude use of the mark. It is also called a **knockout search**.
- ❖ If the results of the preliminary or knockout search indicate a mark may be available, a comprehensive search of other sources (including state trademark records, telephone directories, Internet records, and trade journals) is then conducted.

Step One: The Preliminary Search

There are a variety of sources that can be used to conduct an initial trademark search, including online subscription services, CD-ROM, the Patent and Trademark Depository Libraries, and the PTO website search services. Following are some resources commonly used for conducting a preliminary search:

Electronic Database and CD-ROM

- ❖ TRADEMARKSCAN is a database owned by Thomson & Thomson, a renowned trademark search firm, which provides information on all active registered trademarks and service marks. The TRADEMARKSCAN database is primarily used as a quick screening tool to determine the availability of a new mark.
- ❖ DIALOG is another database offered by Thomson & Thomson. Its database includes trademarks from the United States plus numerous foreign countries as well as patent and copyright information. It provides online training and practice and free practice searching at the following web site: <http://training.dialog.com/onlinecourses/trademarks/>.
- ❖ SAEGIS is an entire suite of services provided by Thomson & Thomson that allows online worldwide trademark searching as well as searching of domain name registries and websites to locate common law uses of proposed marks.
- ❖ TRADEMARK.COM is an online search service offered by Micro Patent LLC, offering a variety of searchable databases, including federal marks, and common law uses of potentially conflicting marks.
- ❖ LEXIS and WESTLAW, the computer-assisted research system, offer access to vast trademark databases that may disclose potentially conflicting marks.

Many law firms subscribe to one or more of these services so they can perform an initial screening search in-house.

PTO Web Site : Perhaps the easiest and least expensive way to conduct a very preliminary search is to review the records of the PTO (<http://www.uspto.gov>) and its free public searching called **Trademark Electronic Search System (TESS)**.

Step Two: The Comprehensive Search

A separate professional trademark search firms are existing for the companies when their need of searching the trademark. These companies review the records of the PTO (go through existing and pending application) , review state trademark office records for state trademark registration, and they perform a “common law” search of various journals, directories, press releases, domain names and Internet references to locate unregistered names and mark.

These professional search firms can save considerable time and money and more importantly, provide a more thorough search than that which an individual can conduct on his or her own, they also check for identical and phonetically equivalent marks for similar goods and services and will also check for foreign equivalents. They will charge for the searching of the marks. The report is typically divided into three sections: results gained from reviewing PTO registrations and applications; results gained from reviewing state trademark records; and the common law results.

TRADEMARK REGISTRATION PROCESSES

Preparing the application

- ❖ Once a mark has been selected and evaluated for use and registrability, an application for federal registration of the /mark should be prepared and filed.
- ❖ An application is provided by PTO
 - ✓ The name of the applicant
 - ✓ The citizenship of the applicant
 - ✓ The address of the applicant
 - ✓ The address of the applicant
 - ✓ An identification of the goods and or services offered under the mark
 - ✓ A drawing of the mark
 - ✓ A verification or declaration signed by the applicant or agent or attorney
- ❖ The application is based on actual use of the mark or the owner's intent to use the mark.
- ❖ The process of moving an application through the PTO is called prosecution [(law) the institution and conduct of legal proceedings against a defendant for criminal behavior]
- ❖ The application must be in English.
- ❖ Electronically filed application are provided by the PTO
- ❖ Self-application is also be prepared as the letter size (namely 8 ½ inches by 11 inches) paper, typewriter, double-spaced, with margins of at least 1 ½ inches at the left and top of the pages.
- ❖ The application should be written on only one side of the paper.
- ❖ The filing and prosecution of trademark application are governed by the TMEP [Trademark Manual of Examination Procedure]
- ❖ The PTO introduced on electronic filing system in 1998.
- ❖ The Trademark Electronic Application System [TEAS]. Permits applicants to file numerous documents electronically.
- ❖ PTO considers the electronically filed document after transmission.

The applicant

- ❖ The mark can be made only by the owner of the mark or, in the case of intent –to-use application, by a person who has a Bonafede to use the mark in commerce.
- ❖ Application may be natural persons or business entities such as corporation, partnership, association, unions or other organization.
- ❖ Government entities such as nations, states municipalities and other governmental bodies.
- ❖ The applicant name must be in correct legal form
- ❖ A mark should be identified in the application by the name set forth in its articles of incorporation.
- ❖ Clients often make mistakes in their corporate names or in the punctuation
- ❖ The certificate of registration will issue in the name of the application as set forth in the application
- ❖ If the application is a person or business that conducts business under a fictitious [fake] business name, the application will be rejected.
- ❖ The applicant is a partnership **For example:** “Balboa Gardens Partnership”, the application should be made by the partnership itself and the state in which the partnership was organized.
- ❖ A trademark or service mark application is usually filed in the name of one party.
- ❖ The PTO has been reluctant [unwilling] to accept application by joint applicants.
- ❖ A joint venture or a partnership cannot be joint applicants

Identification of Goods or Services

The application must identify the goods and/or services offered or to be offered under the mark that is the subject of the application. Careful consideration must be given to drafting this part of the application. Goods and services are categorized by the PTO into forty-five separate classes, called **International Classes** because many other nations use this same classification system established by WIPO. Until 1973, the PTO used a different classification scheme, called the United States Classification Scheme. Each class requires a filing fee of \$335.

A detailed listing of the International Classes with numerous examples is found in Chapter 1400 of TMEP, available on the PTO’s web site. If a mark is used for more than one class of goods or services, the applicant may either file a combined application, listing all of the goods and services. Some attorneys prefer to file separate application believing that a defect in regard to one class of goods or services in a combined application will hold up registration for the mark in all class.

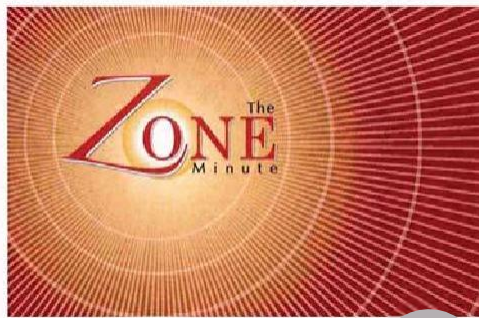
The PTO requires that the identification of goods or services be as clear, accurate and concise as possible. Once the application filed, no other item can be added in the process of registration, a separate application should be applied.

REGISTRATION

- ❖ A registration will issue about twelve weeks after publication in the official gazette
- ❖ If no notice of opposition is filed to the application
- ❖ For an ITU [Intent-to-Use] application registration will occur after publication in the official Gazette.
- ❖ The PTO will issue a certificate of registration for the mark
- ❖ The term of the registration is presently ten years from the date the mark is registered [for registration issued before November 16, 1989, the term is twenty years]
- ❖ “TM” for Trademark & SM for service mark.

A SAMPLE REGISTRATION CERTIFICATE

❖ **United States of America**
United States Patent and Trademark Office



A SAMPLE REGISTRATION CERTIFICATE

United States of America

United States Patent and Trademark Office



Reg. No. 3,665,378 WISDOM TO GO, INC. (CALIFORNIA CORPORATION) Registered Aug 11, 2009, 1828 WEST LINDA LANE PHOENIX, AZ 85061

Int. Cls.: 41 and 45 FOR: PERSONAL COACHING SERVICES IN THE FIELD OF SELF-IMPROVEMENT; EDUCATIONAL SERVICES, NAMELY, CONDUCTING SEMINARS AND WORKSHOPS IN THE FIELD OF SELF-IMPROVEMENT; ENTERTAINMENT IN THE NATURE OF ON-DEMAND TELEVISION AND VIDEO PROGRAMS IN THE FIELD OF SELF-IMPROVEMENT, IN CLASS 41 (U.S. CLS. 100, 101 AND 107).

FIRST USE 1-19-2007; IN COMMERCE 1-19-2007.

FOR: PERSONAL ENRICHMENT SERVICES, NAMELY, PROVIDING SELF-IMPROVEMENT COUNSELING; PROVIDING INFORMATION IN THE FIELD OF SELF-IMPROVEMENT VIA THE INTERNET AND PORTABLE MEDIA INCLUDING CELL PHONES AND VIDEO PHONES, IN CLASS 45 (U.S. CLS. 100 AND 101).

FIRST USE 1-19-2007; IN COMMERCE 1-19-2007.

NO CLAIM IS MADE TO THE EXCLUSIVE RIGHT TO USE "ONE MINUTE", APART FROM THE MARK AS SHOWN.
THE COLOR(S) BLACK, RED, WHITE, GOLD, YELLOW, RUST AND MAGENTA IS/ARE CLAIMED AS A FEATURE OF THE MARK.



THE MARK CONSISTS OF THE WORDING "THE ONE MINUTE ZONE", WITH THE LETTERS "ONE" FORMING BOTH "ONE" AND PART OF THE WORD "ZONE", AND A SUN DESIGN RADIATING OUT FROM THE CENTER OF THE LETTER "O". THE COLORS BLACK, RED, WHITE, GOLD, YELLOW, RUST AND MAGENTA ARE CLAIMED AS A FEATURE OF THE MARK. THE WORDS "THE" AND "MINUTE" ARE IN THE COLOR BLACK, THE LETTER "Z" AND THE LETTERS "ONE" ARE IN THE COLOR RED AND OUTLINED IN THE COLOR WHITE, THE CENTER OF THE SUN DESIGN IN THE LETTER "O" IS IN THE COLOR WHITE, THE OUTER SUN DESIGN IS IN THE COLOR GOLD, AND THE LINES RADIATING FROM THE SUN DESIGN ARE IN THE COLORS YELLOW, GOLD, RUST AND MAGENTA.

David J. Kypas

Director of the United States Patent and Trademark Office

GER. NO. 76-661,666, FILED 10-09-2007.

JOHN GARTNER, EXAMINING ATTORNEY

* Note: The seal will be a gold, embossed seal similar to what appears on the current cover blind.

**REQUIREMENTS TO MAINTAIN YOUR
FEDERAL TRADEMARK REGISTRATION**

WARNING: YOUR REGISTRATION WILL BE CANCELLED IF YOU DO NOT

FILE THE DOCUMENTS BELOW DURING THE SPECIFIED TIME PERIODS.

Requirements in the First /Ten Years

*** What and When to File:**

- **First Filing Deadline:** You must **file** a Declaration of Use (or Excusable Nonuse) between the 5th and 6th years after the registration date. See 15 U.S.C. §1058. If the declaration is accepted, the registration will continue in force for the remainder of the ten-year period from the registration date, unless cancelled by an order of the Commissioner for Trademarks or a federal court.
- **Second Filing Deadline:** You must **file** a Declaration of Use (or Excusable Nonuse) and an Application for Renewal between the 9th and 10th years after the registration date. See 15 U.S.C. §1058.

Requirements in Successive Ten Year Periods

*** What and When to File:**

- You must **file** a Declaration of Use (or Excusable Nonuse) and an Application for Renewal between every 9th and 10th-year period calculated from the registration date.

Grace Period Filings*

The above documents will be accepted as timely if **filed** six-months after the deadlines listed above with the payment of an additional fee.

The United States Patent and Trademark Office (USPTO) will NOT send you any future notice or reminder of these **USPTO** requirements.

***ATTENTION MADRID PROTOCOL REGISTRANTS:** The holder of an international registration with an extension of protection to the United States under the Madrid Protocol must also timely **file** the Declaration of Use (or Excusable Nonuse) referenced above at the USPTO **before** the U.S. expiration date (not the international registration date). However, the grace periods for these registrations are different, as is the time period for **fileing** the declarations of use due every ten years **after** **fileing** registration date. The declarations due every ten years must be **filed** within six-months before expiration of the ten year period. In addition, there is no grace period for the declaration due between the 5th and 6th years after the registration date, and there is a three-month grace period for the declarations due every ten years. See 15 U.S.C. §1141k. Further, owners of these registrations do not **file** renewal applications at the USPTO, but instead must **file** a renewal of the underlying international registration at the International Bureau of the World Intellectual Property Organization, under Article 7 of the Madrid Protocol, before the expiration of each ten-year term of protection from the date of the international registration. **See** 37 U.S.C. §1141k. For more information and renewal forms for the international registration, see <http://www.uspto.int/madrid/en/>.

NOTE: Fees and requirements for maintaining registrations are subject to change. Please check the USPTO website for further information. You can **file** the registration maintenance documents referenced above online at <http://www.uspto.gov>.

*** Note:** The seal will be a gold, embossed seal similar to what appears on the current coverblind

COPYRIGHTS

Introduction

Every year millions of Americans create original works like books, music, research and other forms of creative expression. All these creations are Intellectual Property and all of them are protected by copyright. Writers, editors and publishers, understanding copyrights issues are essential. Especially now that the production of counterfeit [imitating] and pirated goods, including written works, has become so prevalent.

In 2005 more than \$600 billion in pirated and counterfeited goods were recognized by WCO [World Customs Organization]. Now-a-days the internet has made copying and distributing protected material easier than ever before for avoiding copying the material. So, in order to protect yourself from IP theft, it's important to know the basics about rights.

Definition

“The legal protection given to published works forbidding anyone but the author from publishing or selling them. An author can transfer the copyright to another person or corporation, such as a publishing company.”

What is a Copyright?

- ❖ Copyright is a form of protection provided by U.S. Law to the authors of “**Original Works of Authorship**” fixed in any tangible medium of expression.
- ❖ The manner and medium of fixation are virtually unlimited.
- ❖ Creative expression may be captured in words, number, notes, sounds, pictures or any other graphic or symbolic media.
- ❖ The subject matter of copyright is extremely broad, including literary, dramatic, musical, artistic, audiovisual and architectural works.
- ❖ Copyright protection is available for both published and unpublished works.

History

- ❖ In England prompted the first insistence upon protection for publication of books
- ❖ Bookbinders and printers demanded protection from copying of books.
- ❖ Authors also began to demand protection from unauthorized copying and demanded to share in the financial rewards
- ❖ Finally, in 1710, parliament enacted the first copyright statute [Act/law], the Statute of Anne [Named after Anne, Queen of Great Britain, the Statute became the foundation for British and American Copyright Law]
- ❖ The first copyright law is enacted under the new U.S. Constitution, Protecting books maps and charts for 14 years with privilege of renewal for another 14 years

- ❖ Copy right registration is made in the U.S. district court where the author or proprietor resides.
- ❖ The first copyright entry, “The Philadelphia Spelling Book” by John Barry, is registered in U.S. District court of Pennsylvania. Protection is for 14 years with a renewal period of author 14 years.

Common Law Right

- ❖ The enacted the first copyright act in 1790 and the first federal copyright registration were issued.
- ❖ Until January 1, 1978 [the effective date of the 1976 copyright Act] the U.S had a dual system of copyright protection.
- ❖ Until 1978, an author has a perpetual common law right to their unpublished works.
- ❖ Once the work was published, however, the common law perpetual copyright was extinguished and protection was afforded by virtue [quality] of the 1909 act, provide protection up to fifty-six years.
- ❖ Publication is the distribution of copies of a work to the public for sale or other transfer of ownership, by rental lease, or lending.
- ❖ The dual nature of copyright protection was complex, often led to controversy
- ❖ The 1976 act eliminated the distinction between unpublished and published works.

For Example: Ernest Hemingway’s A Farewell to Arms [Published in 1929], are governed by the act in existence on the date of their publication. Hemingway’s book would thus be governed by the 1909 act.

- ❖ Just as trademark rights arise from use and not from registration with PTO
- ❖ A copyright registration from the copyright office provides certain advantages to author’s of work, including the following.
 - ✓ Registration establishes a public record of the copyright claim
 - ✓ Before an infringement suit may be filed in court, registration is necessary for works of U.S. origin
 - ✓ If made before or within five years of publication, registration will establish Prima facie evidence in court of the validity of the copyright and of the facts stated in the certificate and
 - ✓ If registration is made within three months after publication of the work or prior to an infringement of the work, statutory damages and attorney’s fee will be available to the copyright owner in court action
- ❖ Copyright protection generally lasts until seventy years from the death of the author.
- ❖ The 1976 copyright act is found at 17 U.S.C. §§101-1101 and it was amended for several times.
- ❖ In 1980, specific protection was afforded to computer programs as works entitled to copyright protection.
- ❖ Copyright Act © represents
- ❖ Another 1998 amendment to copyright law is the Digital Millennium Copyright act.

The United States Copyright Office:

Register of Copyright,
Copyrights office,

Library of Congress,
101 Independence Avenue SE,
Washington,
DC 20559-6000

- ❖ The copyright office is not permitted to give legal advice and will not offer guidance on matter such as disputes, suits against possible infringers or other matters related to copyright.
- ❖ Among the more useful publications and materials are the following:
 - ✓ Forms for copyright registration
 - ✓ Circular 1, "Copyright Basics",
 - ✓ Circular 2, "Publication on copyrights",
 - ✓ Circular 3, "Copyright Notice",
 - ✓ Circular 4, "Copyright Fees"
 - ✓ Circular 15, "Renewal of Copyright"
 - ✓ Circular 15a, "Duration of Copyright"; and
 - ✓ Circular 38a, "International copyright Relations of the United States"; and
 - ✓ Circular 61, "Copyright Registration for computer Programs"

To order copyright publications, write to:

**Library of Congress,
Copyright Office,
Publication section,
LM-455,
101 Independence Avenue SE,
Washington-DC 20559-6000**

- ❖ Circulars and announcements are available via facsimile
- ❖ If you do not know the document number of the items you want, you may request that a menu be faxed to you
- ❖ All the data pertaining to copyrights are available in Internet
- ❖ The copyright office provides a free electronic mailing list, "NewsNet", that issues periodic e-mail messages on copyright issues
- ❖ Copyright office process the application via electronically

Originality of Material:

Introduction

- ❖ The limits of copyrightability are dictated [command] by federal statute
- ❖ According to 17 U.S.C § 102, copyright protection exists in original works [tangible medium]

Thus, there are three basic requirements for copyrightability:

1. A work must be original
2. A work must be fixed in a tangible form of expression; and
3. A work must be a work of authorship

Originality of material

- ❖ To be eligible for copyright protection
 - ★ Material must be original
 - ★ Meaning
 - ★ Independently created
 - ★ Possess a modicum of creativity
 - ★ It should not be confused with novelty, worthiness or aesthetic [dealing with beauty] appeal
- ❖ “Originality” thus does not mean “first”, it merely means “independently created”,
- ❖ A slight amount of “creative spark”.

Fixation of Material :(17U.S.C. §101

- ❖ The copyright act protects works of authorship that are “fixed in any tangible medium of expression”.
- ❖ A work is “fixed”:
 - ✓ When it is embodied [existing in broad form]
 - ✓ Phonorecord and is sufficiently permanent
 - ✓ Stable to permit it to be perceived, reproduced or communicated for a period of more than transitory [temporary] duration
- ❖ Thus there are two tangible categories
 - ✓ Copies: A copy is a material object from which a work can be perceived, reproduced or communicated, either directly by human perception or with the help of a machine.
 - ✓ Phonorecord: A Phonorecord is a material object in which sounds are fixed and from which the sounds can be perceived, reproduced or communicated either directly by human perception or with the help of a machine.

Works of Authorship: (17 U.S.C §102)

- ❖ The copyright act provides that copyright protection subsists [support oneself] in original works of authorship fixed in any tangible medium of expression, now known or hereafter developed, from which they can be perceived, reproduced or otherwise communicated.
- ❖ The list is preceded by the phrase that works of authorship “include” those categories, demonstrating that the listed categories are not only types of works that can be protected, but are illustrative only
 - ✓ Literary works
 - ✓ Musical works
 - ✓ Dramatic works
 - ✓ Pantomimes and choreographic works
 - ✓ Pictorial, graphic and sculptural works
 - ✓ Motion pictures and other audiovisual works
 - ✓ Sound recording and
 - ✓ Architectural works

Exclusions from copyright protection:

- ❖ **Not all works are protected by copyright**
 - ✓ Ideas, Methods, or System
 - ✓ Blank forms, Titles, short phrases and common property
 - ✓ Public domain works
 - ✓ Facts
 - ✓ Computing and measuring devices

The Rights afforded by copyright law:

Introduction

- ❖ The copyright act provides that, subject to certain exceptions, the owner of a copyright has the exclusive rights to do and to authorize any of the following:
 - ✓ To reproduce the copyrighted work in copies or phonorecords
 - ✓ To prepare derivative works based on the copyrighted work
 - ✓ To distribute copies or phonorecords of the copyrighted work to the public
 - ✓ To perform the copyrighted work publicly
 - ✓ To display the copyrighted work publicly
 - ✓ To perform the copyrighted work publicly by means of a digital audio transmission
 - ✓ Unless exemption exists, unauthorized exercise of any of these rights by another is an infringement.
 - ✓ *These exclusive rights, usually referred to as a “bundle”*

Rights of Reproduction:

- ❖ The most fundamental of the rights granted to copyright owners is the right to reproduce the work
- ❖ A violation of the copyright act occurs whether or not the violator profits by thereproduction
- ❖ Only the owner has the right to reproduce the work
- ❖ Secretly taping a concert, taking pictures at a performance, or recording all violate the owner's right to reproduce
- ❖ The suggestion of congress, in 1978 a group of authors, publishers and users established a not-for-profit entity called Copyright Clearance Center[CCC]
- ❖ CCC grants licenses to academic, government and corporate users to copy and distribute the works
- ❖ It collects royalty fees, which are distributed to the authors
- ❖ Companies that photocopy articles from journals and magazines often enter into licensing arrangements with the CCC so they can make copies.

Rights to prepare Derivative works:

- ❖ Section 106 of the copyright Act provides that the owner of a copyright has the exclusive right to prepare derivative works based upon the copyrighted work
- ❖ This right I often referred to as the right to adapt the original work

Definition:

“A derivative work is broadly defined as a work based upon one or more preexisting works, such as a translation, dramatization, fictionalized motion pictures version, abridgment condensation or any other from in which a work may be recast, transformed, or adapted.

- ❖ a work consisting of editorial revisions, annotations, elaborations, or other modifications is also a derivative work

❖ New material represents original work of authorship

Rights of distribution and the first sale doctrine:

- ❖ Section 106 (3) of the copyright act provides that the owner of a copyright has the exclusive right to distribute copies or phonorecords of the work to the public by sale or other transfer of ownership
- ❖ A violation of the distribution right can arise solely from the act of distribution itself
- ❖ The distributor did not make an unlawful copy or the copy being distributed was unauthorized
- ❖ Thus, blockbuster video store can be liable for violating an owner's right to distribute
- ❖ Once the author has parted with ownership of copyrighted material, the new owner of a lawfully made copy can treat the object as his or her own

- ❖ The new owner the right to lend the book or movie to a friend, resell the work at a garage sale, or even destroy it.
- ❖ The first sale doctrine does not apply to or limit the author's exclusive rights to prepare derivative works or rights of public performance and
- ❖ Without permission of authorship the goods are not permitted to be imported into the U.S.

Rights to perform the work publicly

- ❖ Section 106 [5] of the Copyright Act provided that
 - ✓ In the case of all copyrighted works other than sound recording & works of architecture, the copyright owner has the exclusive right to display the work publicly.
 - ✓ A display is "public" under the same circumstances in which a performance is "public".
 - ✓ Namely if it occurs at a place open to the public (or) at a place where a substantial number of persons outside of the normal circle of a family.

Copyright Ownership Issues [17 U.S.C. §201(a)]:

- ❖ Copyright in a work protected under the copyright act vests [provide with power and authority] in the author or authors of the work
- ❖ Issues about ownership arise when more than one person creates a work
- ❖ Ownership of a physical object is separate and distinct from ownership of the copyright embodied in the material object
- ❖ Unless copyright has been explicitly conveyed with those physical articles, the original authors generally retain all other rights associated with the works.

Joint Works [intent to create a unitary whole]

- ❖ A joint work is a work prepared by two or more authors with the intention that their contributions be merged into inseparable or interdependent parts of a unitary whole.
- ❖ One copyright exists in the created works
- ❖ Joint authors are those who "mastermind" or "super mind" the creative effort.

Ownership Rights in Joint Works

- ❖ If individual are authors of a joint work, each owns an equal undivided interest in the copyright as a tenant in common, [each has the right to use the work, prepare derivative works, display it without seeking the other coauthor's permission].
- ❖ If profits arise out of such use, an accounting must be made so, that each author shares in the benefits or proceeds.
- ❖ The death of a coauthor, his or her rights pass to heirs who then own the rights in common with the other coauthor.

Ownership in Derivative or Collective Works

- The author of the original book has rights only to his or her work and cannot reproduce or perform the derivative work without permission.
- If a work such as a book is created by one person who intends it to be complete at the time and illustrations are later added to it by another, the work cannot be a joint work because there was no intention of the parties to create a unitary whole at the time of their creation.
- The author of the derivative work cannot create further works based on the original book without permission and cannot reproduce the original work without permission.
- Multiple ownership rights may also arise if separately copyrightable works are compiled into a collection.
- **For Example:** If essays written by Jerry Seinfeld, Ellen DeGeneres, and Paul Reiser are collected into a humor anthology by Bill Jones (with permission of the original authors), the original authors retain their exclusive rights (such as rights to reproduce, distribute, and perform) in their respective essays. No joint work is created because there was no intent at the time the separate essays were created to merge them into a unitary whole. No derivative work is created because the original works have not been transformed in any way and nothing new has been added to them. The anthology by the compiler, Bill Jones, is a collective work and pursuant to section 201(c) of the act, Jones acquires only the right to reproduce and distribute the contributions as part of the particular collective work or any revision of the collective work.

Works Made for hire

- The general rule is that the person who creates a work is the author of that work and the owner of the copyright therein, there is an exception to that principle: the copyright law defines a category of works called **works made for hire**.
 - If a work is “made for hire”, the author is considered to be the employer or commissioning party and not the employee or the actual person who created the work.
 - The employer or commissioning party may be a company or an individual.
 - There are two types of works that are classified as works made for hire; works prepared by an employer within the scope of employment and certain categories of specially ordered or commissioned works.
-

Copyright Registration

- A work is “created” when it is fixed in a copy or phonorecord for the first time.
- Although not required to provide copyright protection for a work, registration of copyright with the Copyright Office is expensive, easy and provides several advantages, chiefly, that registration is a condition precedent for bringing an infringement suit for works of US origin.

- To register a work, the applicant must send the following three elements to the Copyright Office: a properly completed application form, a filing fee, and a deposit of the work being registered.
- Registration may be made at any time within the life of the copyright.

THE APPLICATION FOR COPYRIGHT REGISTRATION

The following persons are entitled to submit an application for registration of copyright:

- the author (either the person who actually created the work or, if the work is one made for hire, the employer or commissioning party)
- the copyright claimant (either the author or a person or organization that has obtained ownership of all of the rights under the copyright originally belonging to the author, such as a transferee)
- the owner of exclusive right, such as the transferee of any of the exclusive rights of copyright ownership (for example, one who prepares a movie based on an earlier book may file an application for the newly created derivative work, the movie); and
- the duly authorized agent of the author, claimant, or owner of exclusive rights (such as an attorney, trustee, or anyone authorized to act on behalf of such parties)

Application Forms

The Copyright Office provides forms for application or copyright registration.

- Each form is one 8 ½ by 11” (inches) sheet, printed front and back.
- An applicant may use photocopies of forms
- The Copyright Office receives more than 6,00,000 applications each year, each application must use a similar format to ease the burden of examination.
- The type of form used is dictated by the type of work that is the subject of copyright.
- **For example:** One form is used for literary works, while another is used for sound recording. Following are the forms used for copyright application.
 - ✓ **Form TX** (Literary works, essays, poetry, textbooks, reference works, catalogs, advertising copy, compilations of information, and computer programs)
 - ✓ **Form PA** (Pantomimes, choreographic works, operas, motion pictures and other audiovisual works, musical compositions and songs.
 - ✓ **Form VA** (Puzzles, greeting cards, jewelry designs, maps, original prints, photographs, posters, sculptures, drawings, architectural plans and blueprints.
 - ✓ **Form SR** (Sound recording)
 - ✓ **Form SE** (periodicals, newspapers magazines, newsletter, annuals and Journals. etc.

Notice of copyright

- Since March 1, 1989 (the date of adherence by the United States to the Berne Convention), use of a **notice of copyright** (usually the symbol © together with the year of first publication and copyright owner's name) is no longer mandatory, although it is recommended and offers some advantages.
- Works published before January 1, 1978, are governed by the 1909 copyright Act.
- Under that act, if a work was published under the copyright owner's authority without a proper notice of copyright, all copyright protection for that work was permanently lost in the United States.
- With regard to works published between January 1, 1978, and March 1, 1989, omission of a notice was generally excused if the notice was omitted from a smaller number of copies, registration was made within five years of publication, and a reasonable effort was made to add the notice after discovery of its omission.

International Copyright Law

- Developments in technology create new industries and opportunities for reproduction and dissemination of works of authorship.
- A number of new issues have arisen relating to the growth of electronic publishing, distribution, and viewing of copyrighted works.
- Along with new and expanded markets for works comes the ever-increasing challenge of protecting works from piracy or infringement.
 - ✓ Copyright protection for computer programs
 - ✓ Copyright protection for Automated Databases
 - ✓ Copyright in the Electronic Age
 - ✓ The Digital Millennium Copyright Act

UNIT-V PATENTING

Patents: A patent for an invention is the grant of a property right to the inventor, issued by the United States Patent and Trademark Office. Generally, the term of a new patent is 20 years from the date on which the application for the patent was filed in the United States or, in special cases, from the date an earlier related application was filed, subject to the payment of maintenance fees. U.S. patent grants are effective only within the United States, U.S. territories, and U.S. possessions. Under certain circumstances, patent term extensions or adjustments may be available.

The right conferred by the patent grant is, in the language of the statute and of the grant itself, “the right to exclude others from making, using, offering for sale, or selling” the invention in the United States or “importing” the invention into the United States. What is granted is the right to make, use, offer for sale, sell or import, but the right to exclude others from making, using, offering for sale, selling or importing the invention. Once a patent is issued, the patentee must enforce the patent without aid of the USPTO.

There are three types of patents:

Utility patents may be granted to anyone who invents or discovers any new and useful process, machine, article of manufacture, or composition of matter, or any new and useful improvement thereof;

Design patents may be granted to anyone who invents a new, original, and ornamental design for an article of manufacture; and

Plant patents may be granted to anyone who invents or discovers and asexually reproduces any distinct and new variety of plant.

Federal Registration of Copyrights: Patents are governed exclusively by federal law (35 U.S.C. 100 et seq). To obtain a patent, an inventor must file an application with the PTO (the same agency that issues trademark registration) that fully describes the invention. Patent prosecution is expensive, time consuming and complex. Costs can run into the thousands of dollars, and it generally takes over two years for the PTO to issue a patent.

Patent protection exists for twenty years from the date of filing of an application for utility patents and fourteen years from the date of grant for design patents. After this period of time, the invention falls into the public domain and may be used by any person without permission.

The inventor is granted an exclusive but limited period of time within which to exploit the invention. After the patent expires, any member of the public is free to use, manufacture, or

sell the invention. Thus, patent law strikes a balance between the need to protect inventors and the need to allow public access to important discoveries.

Scope of patent right/law

The Patent Law: What does it cover

Patent Law is a branch of **intellectual property law** that governs how patents are granted by the Federal government. It is granted to an inventor for a limited time period (20 years) for the disclosure of his/her invention. Generally, patents are granted if the invention is not a natural object or process. It should be new, useful and not obvious.

It is worth to mention that patents do not protect ideas. Business methods, manufactured articles, new compositions or software are eligible for protection. Even some living organisms generated in a laboratory or man-made DNA are under the protection of **Patent Law**. Yet, the scope of Patent Law does not cover the protection of laws of nature, ideas, atomic weapons, human organisms, naturally occurring phenomena and some other fields.

The three most common types of patents issued by United States Patent & Trademark Office are a utility patent, a design patent and a plant patent. The utility patent covers the functional aspects of products (processes); the design patent covers the decorative design of objects; the plant patent covers new types of living plants.

The first Patent Act, passed by the US Congress, was called “An Act to promote the progress of useful Arts” and dates back to April 1790. Samuel Hopkins was the first inventor who was granted the patent for his new method of producing potassium carbonate (July 31, 1790).

Filing a Patent Application

If you invented something new, useful and original, you will probably want to patent it. The patent application process is complex and time-consuming, but do not fall into despair. The experienced and knowledgeable attorneys of the Margarian Law Firm are there to help you throughout the application process. They are specialized in Patent Law and will easily determine the patent type to file an application for.

Note that it takes one to five years for a patent to be granted. If your application is rejected twice, the attorney will file an appeal with the Patent Trial and Appeal Board. The Margarian Law Firm's attorneys have all the necessary qualifications and knowledge to represent clients in Patent Trial and Appeal Board.

Patent Infringement and Protection

Patent infringement is a frequent occasion. After patenting your innovation, taking measures to protect is the other most important thing to do. Policies to protect your patent include: monitoring the industry; using notices and labeling; pursuing infringers of the patent.

The patent owner has the right to exclude others from making, using, offering for sale, or selling his/her patented invention by suing a civil remedy against the perpetrator of patent infringement. Due to the complexities of the patent law, it is advisable to hire an attorney, if you are determined to sue. The attorneys of the Margarian Law Firm have specific education and experience in patent litigation and not just in intellectual property law generally. You can trust your patent case to the highly professional attorneys of the Margarian Law firm and they will help you to prepare, file, and sue for your patent rights.

So, you can get highly effective intellectual property protection with the assistance of the [Margarian Law firm attorneys](#), as they appreciate your efforts as an innovator and believe that you deserve all available protections under the law.

New developments in IPR:

Intellectual Property Rights are patents, copyrights, trademarks, geographical indicators, protection of undisclosed information, layout designs of integrated circuits, industrial designs and traditional knowledge that are recognized by the Trade Related Intellectual Property Rights agreement (TRIPS) and governed by the WTO (World Trading Organization). In the present article, development of Intellectual Property Law in India, Evaluation of an International Intellectual Property Regime, New Dimensions and issues for resolution, Importance of IPR in developing countries and its impact are discussed in brief.

Law of patents

- The word *Patent* is a shorthand expression for “letters patent”
- A **Patent** is a grant from the U.S. government to exclude others from making, using, or selling another person’s new, nonobvious, and useful invention in the United States for the term of patent protection.
- It is protected for 20 years
- Under patent law, inventors can enjoin the making, using or selling of an infringing invention even if it was independently created.
- A Patent allows its owner to exclude others from using the owner’s invention; it does not provide any guarantee that the owner can sell the invention.
- To obtain a patent, an inventor must file an application with the PTO, same agency of the Department of Commerce that issues trademark registration.
- The application must describe the invention with specificity.
- The application will be reviewed by a PTO examiner, and, if approved, the patent will issue.
- The U.S. Constitution provides that Congress shall have the power “to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive rights to their respective writings and discoveries”.
- Patent promotes the public good in that patent protection incentivizes inventors.

Advantages of Patents

- Patents promote the public good in that patent protection incentivizes inventors
- The introduction of new products and processes benefits society.
- In return for the full disclosure to the public of specifics of the invention, thus advancing science and technology, the inventor is given a limited period of time within which to exploit his or her invention and excluded others from doing so.
- Inventors are thus incentivized to create new products, and the public benefits from inventions that ultimately will fall into the public domain.

Rights Under Federal Law

- Patent law derives from the Constitution.
- In 1790, pursuant to the direction provided in the Constitution, Congress passed the first patent, which in large part relied upon English Law.
- Three years later, the statute was replaced with a new act authored by *Thomas Jefferson*.
- These early acts provided the structural framework for U.S. patent law and specified the four basic conditions, still existing, that an invention must satisfy to secure patent protection:
 - ✓ The invention must be a utility, design, or plant patent
 - ✓ It must be useful (or ornamental in the case of a design patent or distinctive in the case of a plant patent);
 - ✓ It must be novel in relation to the prior art in the field; and
 - ✓ It must not be obvious to a person of ordinary skill in the field.
- Revision of federal patent statutes occurred in 1836 when the Patent Office was created and again in 1870 and 1897.
- Thereafter, in 1952, Congress enacted a new patent act, codified in title 35 of the United States Code (U.S.C), it is last major revision to federal patent statutes
- Development of patent law has evolved primarily through federal court decisions rather than the legislature
- In 1982, Congress created a new court, the Court of Appeals for the Federal Circuit (CAFC), the exercise exclusive jurisdiction over all cases involving patent issues and to promote uniform interpretation of the U.S. patent statutes, which until then had been interpreted in often inconsistent ways by the various federal courts of appeals throughout the nation.
- Moreover, some inventions such as computer programs are protectable under copyright law as well as patent law.

LICENSING AND TRANSFER OF TECHNOLOGY:

Licensing: Agreement whereby an owner of a technological intellectual property (the licensor) allows another party (the licensee) to use, modify, and/or resell that property in exchange for a compensation (consideration).

The most common **types of licensing** agreements include technology (patents), trademarks (merchandise), copyright and trade secrets

WHAT IS TECHNOLOGY TRANSFER?

Technology is information that is put to use in order to accomplish some task. Transfer is the movement of technology via some communication channel from one individual or organization to another. Technology is the useful application of knowledge and expertise into an operation.

Technology transfer usually involves some source of technology, group which possess specialized technical skills, which transfers the technology to a target group of receptors who do not possess those specialized technical skills, and who therefore cannot create the tool themselves (Carayannis et al., 1997). In the United States especially, the technology transfer experience has pointed to multiple transfer strategies, two of which are the most significant: the licensing of intellectual property rights and extending property rights and technical expertise to developing firms.

The major categories of technology transfer and commercialization involve the transfer of:

1. technology codified and embodied in tangible artifacts
2. processes for implementing technology
3. knowledge and skills that provide the basis for technology and process development.

WHY TRANSFER TECHNOLOGY?

Most technology transfer takes place because the organization in which a technology is developed is different from the organization that brings the technology to market. The process of introducing a technology into the marketplace is called technology commercialization. In many cases, technology commercialization is carried out by a single firm. The firm's employees invent the technology, develop it into a commercial product or process, and sell it to customers. In a growing number of cases, however, the organization that creates a technology does not bring it to the market. There are several potential reasons for this:

- If the inventing organization is a private company, it may not have the resources needed to bring the technology to market, such as a distribution network, sales organization, or simply the money and equipment for manufacturing the product (these resources are called complementary assets). Even if the company has those resources, the technology may not be viewed as a strategic product for that firm, especially if the technology was created as a byproduct of a research project with a different objective.

- If the inventing organization is a government laboratory, that laboratory is forbidden in general by law or policy (in the United States) from competing with the private sector by selling products or processes. Therefore, the technology can only be brought to market by a private firm.
- If the inventing organization is a university, the university usually does not have the resources or expertise to produce and market the products from that technology. Also, if the technology was developed with funding from the federal government, U.S. law strongly encourages the university to transfer the technology to a private firm for commercialization.

From a public policy perspective, technology transfer is important because technology can be utilized as a resource for shared prosperity at home and abroad. As a resource, technology (1) consists of a body of knowledge and know-how, (2) acts as a [stimulant](#) for healthy competitive international trade, (3) is linked with other nations' commercial needs, and (4) needs an effective plan for management and entrepreneurship from lab to market.

From a business perspective, companies engage in technology transfer for a number of reasons:

- Companies look to transfer technologies from other organizations because it may be cheaper, faster, and easier to develop products or processes based on a technology someone else has invented rather than to start from scratch. Transferring technology may also be necessary to avoid a patent infringement lawsuit, to make that technology available as an option for future technology development, or to acquire a technology that is necessary for successfully commercializing a technology the company already possesses.
- Companies look to transfer technologies to other organizations as a potential source of revenue, to create a new industry standard, or to partner with a firm that has the resources or complementary assets needed to commercialize the technology.

For government laboratories and universities, the motivations for technology transfer are somewhat different:

- Governments or universities may transfer technology from outside organizations if it is needed to accomplish a specific goal or mission (for example, universities may transfer in

educational technologies), or if that technology would add value to a technology the government or university is hoping to transfer out to a company.

- Government laboratories and universities commonly transfer technologies to other organizations for economic development reasons (to create jobs and revenues for local firms), as an alternate source of funding, or to establish a relationship with a company that could have benefits in the future.

HOW DO YOU TRANSFER TECHNOLOGY?

The first requirement for an organization to transfer a technology is to establish legal ownership of that technology through intellectual property law. There are four generally recognized forms of intellectual property in [industrialized nations](#):

- patents, dealing with functional and design [inventions](#)
- trademarks, dealing with commercial origin and identity
- copyrights, dealing with literary and artistic expressions
- trade secrets, which protect the proprietary capabilities of the firm

Under U.S. law, a patent is granted only by the federal government and lets the patentee exclude others from making, using, selling or offering an invention for a fixed term, currently 20 years from the date the patent application is filed. The number of patents granted by the U.S. government is up by 21 percent in 2003. A trademark, as defined under the Trademark Act of 1946 (The Lanham Act) is "any word, name, symbol, or device, or any combination thereof (1) used by a person, or (2) which a person has a bona fide intention to use in commerce...to identify and distinguish his or her goods, including a unique product, from those manufactured or sold by others, and to indicate the source of the goods, even if that source is unknown."

A copyright seeks to promote literary and artistic creativity by protecting, for a limited time, what the U.S. Constitution broadly calls writings of authors. The general rule in the United States for a work created on or after January 1, 1978, whether or not it is published, is that copyright lasts for the author's life-time plus 50 years after the author's death. The copyright in a work made for hire or in an anonymous work lasts for 75 years from publication or 100 years from creation, whichever is shorter.

A trade secret is information that an inventor chooses not to disclose and to which the inventor also controls access, thus providing enduring protection. Trade secrets remain in force only if the

holder takes reasonable precautions to prevent them from being revealed to people outside the firm, except through a legal mechanism such as a license. Trade secrets are governed by state rather than federal law.

The second step in technology transfer is finding a suitable recipient for that technology—one that can use the technology and has something of value to offer in return. Firms are now studying more systematically the process of licensing and technology transfer. There are five information activities needed to support technology transfer:

- technology scouting—searching for specific technologies to buy or license.
- technology marketing—searching for buyers for a technology, the inverse of tech scouting; also searching for collaborators, joint venture or development partners, or for investors or venture capital to fund a specific technology.
- technology assessment—evaluating technology, aimed at answering the question "what is this technology worth?" Includes research of any intellectual properties, and market and competitor assessments.
- transfer-related activities—information about the transfer process itself, such as licensing terms and practices, contracts, conducting negotiations, and how to do the transfer most successfully.
- finding experts—to assist in any of the above areas. A common saying in the field is, "technology transfer is a contact sport."

These information needs are often supported by service companies, such as licensing consultants, and by electronic media, including databases and online networks. Some new online networks use the Internet to help firms in these information activities.

The information-transfer process is one of the most critical steps in technology transfer. New licensing practices are designed to address this process. For example, many licenses now bundle both the basic technology and the equipment needed to utilize that technology in a single agreement. A license may also include a "know-how" agreement, which exchanges relevant trade secrets (with appropriate protections) to the licensee to help in exploiting technology. In some industries, such as petroleum exploration, firms even practice wet licensing, whereby employees of the licensor are loaned out to the licensee to teach how a technology should be properly used.

The major barrier to the increase in technology transfer among firms is organizational behavior. In the past, cultural blocks such as the "not invented here" syndrome prevented firms from even

showing interest in technology transfer. New concepts along the lines of knowledge management are changing behaviors and beliefs, leading firms to realize the enormous gains to be made through the active pursuit of licensing.

Once the organization has at least started to establish ownership of the technology, there are several possible legal and/or contractual mechanisms for transferring technology from one organization to another:

- Licensing—the exchange of access to a technology and perhaps associated skills from one company for a regular stream of cash flows from another.
- Cross-licensing—an agreement between two firms to allow each other use of or access to specific technologies owned by the firms.
- Strategic supplier agreement—a long-term supply contract, including guarantees of future purchases and greater integration of activity than a casual market relationship. One prominent example is the second-source agreements signed between [semiconductor chip](#) manufacturers.
- contract R&D—an agreement under which one company or organization, which generally specializes in research, conducts research in a specific area on behalf of a sponsoring firm.
- joint or cooperative R&D agreement—an agreement under which two or more companies agree to cooperate in a specific area of R&D or a specific project, coordinating research tasks across the partner firms and with sharing of research results.
- R&D corporation or research joint venture—the establishment of a separate organization, jointly owned by two or more companies, which conducts research on behalf of its owners. A notable example is Bellcore, which originally was established by the seven Regional Bell Holding Companies of the United States and which would conduct research and set standards for the local telephone system.
- research consortium—any organization with multiple members formed to conduct joint research in a broad area, often in its own facilities and using personnel on loan from member firms and/or direct hires. The [Microelectronics and Computer Technology Corporation](#) (MCC) and [Semiconductor Manufacturing Technology](#) ([SEMATECH](#)) are examples of such organizations.

The choice of which mechanism to use in a particular technology transaction depends on many factors, including the stage of development for that technology, what the company receiving the technology is willing or able to pay, what technology or other assets it might be able to offer in place of money, the likely benefits of establishing a longer-lasting partnership between the organizations instead of a onetime transfer; and the exact legal status of ownership over that technology. For example, if a small firm simply wants to sell its technology to a large firm in exchange for money, it will probably choose to license the technology. If the small firm also wants access to the large firm's complementary assets, such as its production facilities and distribution network, it will try to negotiate a more substantial and permanent relationship, such as an R&D contract or a cooperative R&D agreement.

Private technology transfer

Technology transfer between private companies is most commonly accomplished through licensing, although other mechanisms such as joint ventures, research consortia, and research partnerships are also quite popular. Licensing is a big business by itself. In 2002 U.S. companies received over \$66 billion in payments on technology licenses from other organizations, of which \$58 billion was from domestic sources. Data from the U.S. Department of Commerce compiled in the mid-1990s indicated that international technology licensing was rising at approximately 18 percent per year, and domestic technology licensing was rising at 10 percent per year.

Another growing mode of private technology transfer is the formation of research joint ventures (RJVs) between companies in the United States. For years, such joint ventures were rare, mostly due to fears among companies that joint ventures would provoke antitrust litigation from the government. Passage of the National Cooperative Research Act (NCRA) in 1984 and the National Cooperative Research and Production Act in 1993 relaxed antitrust regulation of such partnerships, leading to a substantial increase in RJVs.

Studies of the filings of RJVs registered with the Department of Justice under the NCRA shows some interesting trends:

- Although multi-firm consortia such as SEMATECH and the Microelectronics and Computer Corporation (MCC) attract the most interest, about 85 percent of RJVs involve only two firms.
- Most RJVs focus on developing process technologies rather than product technologies, as processes are viewed as pre-competitive technologies in many industries.

- The largest concentration of RJVs focuses on Telecommunications, while software and computer hardware are also leading industries for RJV activity. These industries have significant impact on technological advances in other industries, and therefore attract much interest for partnering firms. Not surprisingly, RJVs are less common in the chemical and pharmaceutical industries, probably because process technologies have greater competitive impact in those industries than in others.

Research joint ventures are an advantageous means of acquiring high-risk technologies, for several reasons. First, joint ventures enable the risks and costs involved in early research in technology to be shared across multiple firms, reducing the burden on each individual company. Second, the resources and expertise needed to develop certain technologies may be distributed across multiple firms, so RJVs are the only way to combine those resources in one effort. Third, in industries where technology advances quickly, RJVs are an effective way to keep up with new developments. Finally, RJVs are often used to develop and set critical technical standards in certain industries, especially telecommunications. These reasons indicate that RJVs will continue to increase in significance as a tool for technology transfer.

Technology transfer from government to industry

In an effort to increase the application of government research results to industry technology problems (and therefore fuel technology-based economic growth), the United States government has passed a series of laws since 1980 to encourage the transfer of technologies from government laboratories to industry. Technology licensing was the earliest focus of activity, based on the notion that government laboratories were like treasure chests of available technologies that could easily be applied to corporate needs. In fact, government technology licensing activity is extremely limited, except in the [National Institutes of Health](#). The NIH has been the source of several groundbreaking therapies and other medical technologies and enjoys close relations with the pharmaceutical industry, enabling the agency to gain large amounts of licensing revenue.

Other agencies face substantial difficulties in licensing technologies. Often, their technologies require substantial development before commercialization, reducing their value to firms. Also, most government laboratories do research in areas where there is no clear, consistent path to commercialization as exists in the pharmaceutical industry. The uncertainty of commercialization also diminishes the willingness of firms to purchase technology licenses from laboratories.

Instead, most agencies have focused on signing Cooperative Research and Development Agreements (CRADAs), a mechanism developed under the 1986 Federal Technology Transfer Act. CRADAs are contracts to conduct joint R&D projects, where the government laboratory contributes personnel and equipment, while the partner contributes these assets and funding as well. The number of CRADAs signed by government agencies has increased steadily in recent years.

There are several potential benefits and potential difficulties involved in CRADA research relationships:

- Transfer of product and process technologies can have a significant impact on recipient firms' business performance. For example, the invention of an improved method for delivering the medication [paclitaxel](#) was licensed by the National Institutes of Health to Bristol-Myers-Squibb as the product Taxol, which has since become a leading treatment for breast and ovarian cancer. However, there is no data to show what portion of transfers are successful versus those which are not.
- Technology transfer may or may not result in commercial products. A survey of 229 technology transfer projects at 29 federal laboratories, conducted by the Georgia Institute of Technology, found that 22 percent of the projects resulted in new commercial products, while 38 percent contributed to products under development. Interestingly, in 13 percent of the projects, new product development or product improvement was never a goal.
- Laboratories' views on technology transfer can affect success. Now that most of the legal barriers to technology transfer have apparently been eliminated by congressional legislation, the true barriers are generated by the culture of the laboratories and the attitudes of researchers and laboratory administrators. For example, in several cases firms have complained that laboratory researchers were not used to meeting the strict timetables on project completion that private sector researchers must observe.
- Technology transfer, especially in joint research, can aid the government laboratory as well. A report by the GAO examining ten CRADA projects found that the laboratories can also benefit from technology transfer, for example, through enhanced expertise for researchers, development of technologies that also support the laboratory's mission, acquisition of sophisticated equipment and infrastructure, and increased laboratory revenues from industrial sources.

University-industry technology transfer

One of the original pieces of U.S. technology-transfer legislation, the Bayh-Dole Act, directed government agencies to encourage universities and other research organizations to license out technologies developed with federal funding. Since 1980, this activity has become a small but growing source of revenue for universities. Technology transfer from academia and other research institutions to industry continues to grow, according to the annual survey of the Association of University Technology Managers. The 2003 survey shows that increasing numbers of research institutions are forging licensing agreements with commercial entities to bring newly developed technology and products to the market. In 2003, the 165 institutions of higher education responding to the survey reported receiving close to \$1 billion in licensing revenue in 2003, a 1 percent increase over 2002.

Commercial institutions pay royalties for the right to put inventions and discoveries from universities to commercial use in products such as computer-imaging technology, medical diagnostic testing, and treatment of disease. Institutions of higher education, in turn, can use the revenue to increase investments in research and development. This technology transfer also leads to sponsored research agreements between firms and universities, often to undertake additional research needed to commercialize technologies. Universities now receive approximately 7 percent of all research funding from industry, compared to about 3 percent in the 1970s. Institutions of higher education also reported spinning off nearly 350 companies and receiving 3,450 U.S. patents for new technologies and inventions. Since fiscal year 1998 when the question was first asked, 178 U.S. survey respondents have reported a total of 2,230 new products introduced to the market place.

For industry, universities offer the best way to acquire basic technological research as those activities are curtailed within firms. Universities also house experts in very focused fields of study that are likely to have benefits to a small number of firms. Finally, joint industry-university research is viewed as an important recruiting tool in today's competition for scientific talent, since industry-funded projects are often carried out by graduate students who later go to work for their former sponsors.

Technology transfer is a valuable mechanism by which industry can accelerate its innovation activities and gain competitive advantage through cooperation. Technology transfer can also boost overall economic growth and regional economic development. While further study is needed to estimate the exact benefits gained from technology transfer and ways to achieve those benefits, it is clear that this is an activity that is becoming a central feature of the U.S. research and development system.

Patent information and data base:

Patent information is the name we give to the technical **information** you find in **patent** documents, plus legal and business-relevant **information** about them. **Patent** documents consist of. a first page comprising basic **information**, such as the title of the invention and the name of the inventor MBA

Patent document holds wealth of information in itself. A brief detail of Indian patent application information is published as eighteen month publication by Indian patent Office, in electronic gazette weekly. To date, a proper database of Indian patents specifically for research determination has not been available, making it complicated for researcher to use this data for measuring any kind of research activities in terms of patents in India. To facilitate this, we constructed a comprehensive patent database which incorporates the information presented in the electronic gazette. This database includes information such as technology class, applicant, inventor, country of origin etc., of the patent submitted. We present the methodology for the creation of this database; its basic features along with its accuracy and reliability in this research paper. Patent based database has been developed and can be used for various innovation researches and activities.

Patent Searching Process

The need for a search:

- Patentability requires novelty and non-obviousness.
- The patentability search, sometimes called a novelty search
- A search is recommended to determine the feasibility of obtaining a patent.
- A novelty search is somewhat limited in scope and is designed to disclose whether an application will be rejected on the basis of lack of novelty or obviousness.
-

- A novelty search can usually be completed for less than \$1,000.
- If an invention is intended for immediate commercial use or sale, an additional search, call an infringement search or investigation, is often conducted concurrently with the novelty search.
- This novelty search is thus more expensive

Searching Methods:

- The PTO provides public search facilities for patent searching.
- Searching is free and the PTO allows searchers to review issued patents, complete withdrawals.
- Searching can be done either in the main public search room or in the examiners' search areas where examiners will assist in searching. (The patent search room contains copies of all U.S. issued patents from 1790 to present as well as many foreign patents).
- The PTO employs a classification system that provides for the storage and retrieval of patent documents
- The patent examiners in the course of examining patent applications, the system is also used by searchers, and classification files are divided into subclasses.
- Most classes have approximately three hundred subclasses

Searching tools:

1) In-Depth Patent Data Search Tool at a Reasonable Price

- Access the comprehensive full-text of a patent with the most accurate and up-to-date status collected from the USPTO, EPO, CNIPA, JPO, and WIPO.
- A one-stop patent search tool with global coverage of 100+ countries.
- Advanced data availability that goes beyond a simple patent number, including current patent assignees and patent transfer histories, legal status and remaining life, Patentcloud's exclusive and insightful **Patent Quality and Value Rankings**, and more.

2) An AI-Powered Patent Search Tool with Great Searchability

- Besides performing patent search by number, inventor, company or date, our **Search Editor** empowers you to search by current assignee, assignment history, status data and more.
- Immediately get the most relevant prior art for your prior art search needs with Semantic Search.
- Get corrected and correlated corporate tree data with a Corporate Affiliation Search to ensure comprehensive results in a due-diligence search.

- Extend your search results and avoid missing keywords with **Keyword Expansion**, and conveniently obtain equivalent results with **Smart Search** when navigating a patent document.

3). A Powerful and Interactive Patent Analytics Dashboard

- Uncover the unlimited potential of Patentcloud’s proprietary **Patent Matrix** for your patent landscape analysis, with an interactive pivot table for insights gained from correlating patent data with your self-defined tags.
- Interact with the intuitive Statistical Charts to conveniently navigate and manipulate data fields and scopes to conduct further analysis and gain real actionable insights.

Geographical Indications:

A **geographical indication** (GI): Geographical indication is a sign used on products that have a specific **geographical** origin and possess qualities or a reputation that are due to that origin. In order to function as a GI, a sign must identify a product as originating in a given place.

In addition, the qualities, characteristics or reputation of the product should be essentially due to the place of origin. Since the qualities depend on the geographical place of production, there is a clear link between the product and its original place of production.

What rights does a geographical indication provide?

A geographical indication right enables those who have the right to use the indication to prevent its use by a third party whose product does not conform to the applicable standards. For example, in the jurisdictions in which the Darjeeling geographical indication is protected, producers of Darjeeling tea can exclude use of the term “Darjeeling” for tea not grown in their tea gardens or not produced according to the standards set out in the code of practice for the geographical indication.

However, a protected geographical indication does not enable the holder to prevent someone from making a product using the same techniques as those set out in the standards for that indication. Protection for a geographical indication is usually obtained by acquiring a right over the sign that constitutes the indication.

For what type of products can geographical indications be used?

Geographical indications are typically used for agricultural products, foodstuffs, wine and spirit drinks, handicrafts, and industrial products.

How are geographical indications protected?

There are three main ways to protect a geographical indication:

- so-called *sui generis* systems (i.e. special regimes of protection);
 - using **collective** or **certification marks**; and
 - methods focusing on business practices, including administrative product approval schemes.
- These approaches involve differences with respect to important questions, such as the conditions for protection or the scope of protection. On the other hand, two of the modes of protection —

namely *sui generis* systems and collective or certification mark systems — share some common features, such as the fact that they set up rights for collective use by those who comply with defined standards.

Broadly speaking geographical indications are protected in different countries and regional systems through a wide variety of approaches and often using a combination of two or more of the approaches outlined above. These approaches have been developed in accordance with different legal traditions and within a framework of individual historical and economic conditions.

Patent Application Process

Overview of the Application Process

- The process of preparing, filing, and shepherding a patent application through the PTO towards issuance is called “prosecution”.
- An application may be filed by the inventor himself or herself or, as is more usual, by a patent attorney.
- Only 20% of all applications are filed by inventors without the assistance of attorneys.
- The application is filed with PTO, it will be assigned to one of more than 3500 patent examiners having experience in the area of technology related to the invention who will review the application and conduct a search of patent records to ensure the application complies with the statutory requirements for patents.
- The process may continue for several rounds.
- A Notice of Allowance will be sent to the applicant, which specifies an issue fee that must be paid to the PTO in order for the patent to be granted.
- Until 2000 all patent applications were maintained in confidence, but after November 2000 they were publicized.

- It takes one to three years to prosecute a patent, and costs and fees can range from \$5000 to more than \$30000 with fees generally ranging from \$10000 to \$12000.

Patent Practice

- While preparing trademark and copyright applications is relatively straightforward, preparing a patent application requires skillful drafting as well as knowledge in the relevant fields, whether that is biotechnology, chemistry, mechanical engineering, physics, computers, pharmacology, electrical engineering, and so forth.
- They are divided into different groups, such as a mechanical group, a biotech group, and an electrical group.
- Many patent attorneys possess both a law degree and an advanced degree in

engineering, physics, chemistry, or the like.

- To represent patent applicants before the PTO, an attorney must be registered to practice with the PTO.
- An attorney must pass the Patent Bar, which requires the attorney to demonstrate background in science or engineering.
- The examination is very difficult it is a multiple choice questions, and the pass rate tends to hover around one-third.
- A list of attorneys and agents registered to practice before the PTO is available from the Government Printing Office located in Washington, DC, Alternatively, the PTO web site (<http://www.uspto.gov/web/offices/dcom/olia/oed/roster/>) provides an index to the more than 18000 attorneys and agents who are licensed to practice before the PTO.

Confidentiality of Application Process and Publication of Patent Application

- More than 200 years, all patent applications filed with the PTO were maintained in strict confidence throughout the entire application process.
- Only when the patent issued was the file wrapper open to public inspection.
- Under the American Inventors Protection Act (AIPA) of 1999, however, which took effect in November of 2000, the PTO now publishes utility and plant applications eighteen months after their filing
- If the applicant later decides to apply for a patent in a foreign country, the applicant must provide notice of this foreign filing to the PTO within forty-five days or the application will be regarded as abandoned.
- The intent of the new law is to harmonize U.S. patent procedures with those of other countries, almost all of which publish patent applications after an initial period of confidentiality.
- The new act protects inventors from having their inventions infringed by providing that patentees can obtain reasonable royalties if others make, used, or sell the invention during the period between publication and actual grant of the patent.

Types of application

1. Provisional application
2. Utility application
3. Design application
4. Plant application
5. Continuation application
6. PCT (Patent Cooperation Treaty) Application
7. Divisional application

Preparing the application

- Title

- Cross-references to related applications
- Background
- Summary of invention
- Brief description of drawing
- Detailed description of the invention
- Claims

Patent Prosecution flowchart

Ownership Rights

- Patents are items of personal property and thus may be owned, sold, licensed, or devised by will.
- Applications for patent must be filed by the actual inventor of the article, process, design, or plant.
- If there is more than one inventor, the application must be signed by all inventors.
- In many instances, employees are required to sign agreements with their employers whereby they agree that any invention or discovery invented by them while on the job will belong to the employer and that they will agree to assist and cooperate in any manner, including signing applications for patents, to ensure the employer's rights are protected
- Although the oath in the patent application is signed by the individual inventor, when the application is filed, a simultaneous assignment is also filed identifying the employer as the "true" owner of the application and the invention.

Ownership transfer

- As objects of intellectual property or intangible assets, **patents** and patent applications may be **transferred**.
- A transfer of patent or patent application can be the result of a financial transaction, such as an assignment, a merger, a takeover or a demerger, or the result of an operation of law, such as in an inheritance process, or in a bankruptcy.
- The rationale behind the transferability of patents and patent applications is that it enables inventors to sell their rights and to let other people manage these intellectual property assets both on the valuation and enforcement fronts. As The Economist put it, *"Patents are transferable assets, and by the early 20th century they had made it possible to separate the person who makes an invention from the one who commercialises it. This recognised the fact that someone who is good at coming up with ideas is not necessarily the best person to bring those ideas to market."*

TRADE SECRETS LAW

INTRODUCTION:

- ❖ The type of information that must be kept confidential in order to retain its competitive advantage is generally called a “Trade Secret”
- ❖ A trade secret is any information that can be used in the operation of a business or other enterprise that is sufficiently valuable and secret to afford an actual or potential economic advantage over others.
- ❖ Restatement (Third) of Unfair Competition § 39(1995).
- ❖ A recipe, a formula, a method of conducting business, a customer list, a price list, marketing plans, financial projection, and a list of targets for a potential acquisition can all constitute trade secrets.
- ❖ Generally, to qualify for trade secret protection, information must
 - ✓ be valuable;
 - ✓ not be publicly known; and
 - ✓ be the subject of reasonable efforts to maintain its secrecy
- ❖ The rapid pace of technology advances the ease with which information can now be rapidly disseminated and the mobility of employees require businesses to devote significant effort to protecting their trade secrets.
- ❖ If trade secrets were not legally protectable, companies would have no incentive for investing time money and effort in research and development that ultimately benefits the public at large.
- ❖ Trade secrets law not only provides an incentive for companies to develop new methods and processes of doing business but also, by punishing wrongdoers, discourages improper conduct in the business environment.

The Law Governing Trade Secrets:

- ❖ Trademarks, copyrights, and patents are all subject to extensive federal statutory schemes for their protection, there is no federal law relating to trade secrets, and no registration is required to obtain trade secret protection.
- ❖ Most trade secret law arises from common law principles, namely, judge-made case law.
- ❖ The first reported trade secret case in the United States was decided in 1837 and involved manufacturing methods for making chocolate.
- ❖ In 1939, the Restatement of Torts (a wrongful act or an infringement of a right) adopted a definition of a trade secret, and many states relied on that in developing their body of case law, leading to greater consistency in the development of trade secrets law.

- ❖ Additionally 1979, the National Conference of Commissioners on Uniform State laws drafted the uniform Trade Secrets Act (UTSA) to promote uniformity among the states with regard to trade secrets law.
- ❖ The UTSA was amended in 1985.
- ❖ The following definition of trade secret has been adopted by the UTSA:

Trade secret means information, including a formula, pattern, compilation, program, device, method, technique or process that:

- ✓ Derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use, and
- ✓ Is the subject of efforts that are reasonable under the circumstance to maintain its secrecy.

DETERMINATION OF TRADE SECRET STATUS:

Restatement of Torts (a wrongful act or an infringement of a right) § 757 cmt. b lists six factors to be considered in determining whether information qualifies as a trade secret. Courts routinely examine these factors to determine whether a company's information constitutes a trade secret.

The extent to which the information is known outside the company:

- ❖ Although information may be known to other outside the company and still qualify as a trade secret, the greater the number of people who know the information, the less likely it is to qualify as a trade secret.
- ❖ Secrecy need not be absolute.

The extent to which the information is known within the company:

- ❖ Although an employer or company is permitted to disclose confidential information to those with a demonstrated "need to know" the information.
- ❖ If the information is widely known within the company, especially among those who have no business need to know the information, it may not qualify as a trade secret.

The extent of the measures taken by the company to maintain the secrecy of the information:

- ❖ One claiming trade secret protection must take reasonable precautions to protect the information.
- ❖ Courts are unlikely to protect information a company has not bothered to protect.
- ❖ A company is not obligated to undertake extreme efforts to protect information, but

reasonable precautions are required.

- ❖ Some experts predict that courts will likely require advanced security measures to protect trade secrets transmitted via e-mail, including encryption and protocols to ensure confidentiality.

The extent of the value of the information to the company and its competitors:

- ❖ If information has little value either to its owner or to the owner's competitors, it is less likely to qualify as a trade secret.
- ❖ Conversely, information that is valuable to a company, such as the recipe for its key menu product, and that would be of great value to the company's competitors is more likely to be protectable trade secret.

The extent of the expenditure of time, effort, and money by the company in developing the information:

- ❖ The greater the amount of time, effort, and money the company has expended in developing or acquiring the information, the more likely it is to be held to be a protectable trade secret.

The extent of the ease or difficult with which the information could be acquired or duplicated by other:

- ❖ If information is easy to acquire or duplicate, it is less likely to qualify a trade secret.
- ❖ Similarly if the information is readily ascertainable from observation or can be easily reproduced, it is less likely to be a trade secret.
- ❖ On the other hand, if it can be reverse engineered only with significant expenditures of time, effort, and money, the product may retain its status as a trade secret.

LIABILITY FOR MISAPPROPRIATION OF TRADE SECRETS:

Misappropriation of a trade secret occurs when a person possesses, discloses, or uses a trade secret owned by another without express or implied consent and when the person

- ✓ used improper means to gain knowledge of the trade secret;
- ✓ knew or should have known that the trade secret was acquired by improper means; or
- ✓ Knew or should have known that the trade secret was acquired under circumstances giving rise to a duty to maintain its secrecy.

The term *improper* means includes bribery, theft, and misrepresentation, breach of duty to maintain secrecy, or espionage (the practice of spying or of using spies, typically by governments to obtain political and military information) or other means.

Thus, misappropriation occurs either when a trade secret is lawfully acquired but then improperly used or when the trade secret is acquired by improper means.

Absence of Written Agreement:

- ❖ A written agreement prohibiting misappropriation of trade secrets can be enforced through an action for breach of contract; a company's trade secrets can be protected against misappropriation even in the absence of any written agreement between the parties.
- ❖ A party owning trade secrets can bring an action in tort for breach of the duty of confidentiality, which duty can arise even without an express agreement.
- ❖ Courts will impose a duty of confidentiality when parties stand in a special relationship with each other, such as an agent-principal relationship (which includes employer-employee relationship) or other fiduciary (involving trust, especially with regard to the relationship between a trustee and a beneficiary) or good faith relationship.
- ❖ Courts have consistently held that employees owe a duty of loyalty, fidelity, and responsibility to their employers.
- ❖ In fact, more trade secret cases are brought in tort for breach of confidentiality than in contract for breach of written agreements.

For example: If XYZ company is attempting to make a sale to Jones and informs Jones that the XYZ product is superior to that of competitors because it involves a new breakthrough in technology and explains the trade secret, courts would likely find that Jones is subject to a duty not to disclose the information. Similarly, if XYZ co., explains its trade secrets to its bankers in an attempt to obtain financing, the bankers would likely be precluded from disclosing or using the information. Such implied contracts to protect the information generally arise when the parties' conduct indicates they intended the information to be kept confidential or impliedly agreed to keep it confidential.

Misappropriation by Third-party:

A number of other parties may also have liability for misappropriation of trade secrets if they knew or should have known they were the recipients of protected information.

For example:

1. Assume Lee is employed by XYZ co., In course of time Mr. Lee learns valuable trade secret information. If Mr. Lee resigns jobs and begins working for new company and it prohibited for both in using the information. He may not misappropriate the information because he was in an employee-employer relationship with XYZ

Company. New company should not use the information if Mr Lee reveals, if it happen so, then XYZ Company would generally prefer to sue New Company inasmuch as it is far likelier to have deep pockets, meaning it is more able to pay money damages than is an individual such as Lee.

2. If New Company has no reason to know the information was secret or that Mr. Lee may not reveal it, New Company would not have liability for such innocent use of the information. Similarly, if trade secret information were innocently obtained by New Company by mistake, New Company would have no liability for subsequent use or disclosure of the information.

Written Agreement:

Employers are generally free to require employee, independent contractors, and consultants to sign express agreements relating to the confidentiality of information. These agreements are usually enforced by courts as long as they are reasonable. The agreements usually include four specific topics:

- ❖ Ownership of Inventions
- ❖ Non-disclosure Provisions
- ❖ Non-solicitation Provisions
- ❖ Non-competition Provisions
 - ✓ Purpose
 - ✓ Reasonableness
 - ✓ Consideration

PROTECTION FOR SUBMISSION:

Submission to Private Parties:

- ❖ In many instances individuals wish to submit an idea for an invention, process, game, or entertainment show to a company or business in the hope that the company or business

he hope that the company will market and develop the idea and the individual will be compensated for the idea?

- ❖ Idea submission disputes frequently arise in the entertainment industry. In one case an individual claimed that the producers of the Cosby Show (American comedian)

misappropriated her idea for a television program portraying a wholesome and loving African American family. A court held there were no people and the idea was so general as to lack the element of concreteness to be protectable.

- ❖ The solution to such a dilemma is for the “inventor” to submit the idea pursuant to an evaluation agreement, or submission agreement, whereby the other party agrees to evaluate the idea only for the purpose of considering a future transaction between the parties and further agrees not to circumvent the submitter or to disclose the idea to others.

Submission to Government Agencies:

- ❖ Private companies that present bids to government agencies in the hope of obtaining a government contract are often required to disclose confidential or trade secret information to the agency.
- ❖ Under freedom of information act (both at the state and federal levels), the proposal might later be released to any member of the public requesting the document, thus resulting in loss of confidential information to possible competitors.
- ❖ The protected information is usually blocked out.
- ❖ If a government agency discloses trade secret information, the owner may have a cause of action for an unconstitutional taking of private property and may be awarded compensation if the owner had a reasonable expectation of confidentiality.

REMEDIES FOR MISAPPROPRIATION:

A trade secret owner may request a variety of remedies from a court. Among them are the following:

- ❖ **Injunctive relief:** In many cases, a trade secret owner is more interested in ensuring the defendant cease use of the trade secret (or is precluded from commencing use) than in recovering damages. In cases in which money damages are not sufficient to protect a trade secret owner, a court may issue an injunction. A court may also issue an injunction to compel the defendant to surrender or destroy trade secret information. In fact, courts may issue injunctions to prevent inevitable disclosure, reasoning that even if a former employer cannot show a particular secret has been taken, it is inevitable that key employees will eventually disclose what they know to a new employer.

- ❖ **Money damages:** A trade secret owner whose information has been misappropriated may recover money damages from the defendant. The Plaintiff may recover its lost profits as well as the profits made by the defendant. Alternatively, the plaintiff may seek and recover a reasonable royalty arising from defendant's use of the trade secret. Punitive damages may also be awarded in cases in which the defendant's conduct is reckless, willful, and intentional. The UTSA provides that punitive damages not exceed more than twice the compensatory damages awarded.
- ❖ **Attorneys' fees and costs:** In most cases, the parties bear their own attorneys' fees and costs. The UTSA, however, provides that reasonable attorneys' fees and costs may be awarded to the prevailing party if bad faith or willfulness is shown.

TRADE SECRET LITIGATION:

- ❖ If a trade secret is disclosed in violation of a written confidentiality agreement, and the parties cannot resolve the dispute themselves, an action for breach of contract may be brought, similar to any other breach of contract action.
- ❖ The plaintiff may add other causes of action as well, for example, for misappropriation in violation of a state trade secret law. If no written agreement exists, the plaintiff must rely upon case law or state statutes protecting trade secrets, or both.
- ❖ To protect itself against a lawsuit by another alleging trade secret violation, companies should require new employees who will have access to confidential information to acknowledge in writing that accepting employment with the new company does not violate any other agreement or violate any other obligation of confidentiality to which the employee may be subject.
- ❖ If grounds for federal jurisdiction exist (the parties have diverse citizenship and the claim exceeds \$75,000), the action may be brought in federal court.
- ❖ The UTSA [Uniform Trade Secrets Act] provides that an action for misappropriation

must be brought within three years after misappropriation is discovered or reasonably should have been discovered.

- ❖ In federal court, the action will be governed by the Federal Rules of Civil Procedure relating to federal civil actions generally.
- ❖ Most states have rules relating to civil procedure that are modeled substantially after the Federal Rules of Civil Procedure and likewise govern the litigation.
- ❖ If the defendant has a cause of action to assert against the plaintiff relating to the trade secret, it must be asserted by way of a counterclaim in the litigation so that all disputes between the parties relating to the information can be resolved at the same time.
- ❖ After the complaint, answer, and counterclaim have been filed, various motions may be made. Discovery will commence. The plaintiff and defendant will take depositions to obtain testimony from those who may have information about the case.
- ❖ Ultimately, if the matter cannot be resolved by private agreement, it will proceed to trial. The trade secret owner must prove misappropriation by a preponderance of the evidence. Either party may request a jury trial; otherwise, a judge will render the decision. Appeals may follow.
- ❖ One of the difficult issues in trade secret litigation arises from the fact that the trade secret sought to be protected often must be disclosed in the litigation so the judge or jury can evaluate whether the information is sufficiently valuable that it affords its owner a competitive advantage.
- ❖ Similarly, the owner's methods of protecting the information often must be disclosed so the fact-finder can determine whether the owner has taken reasonable measures to protect the alleged trade secrets.
- ❖ The dilemma faced by trade secrets owner is that they must disclose the very information they seek to protect.

- ❖ As technology progresses and the value of certain communication and entertainment inventions increases, trade secret litigation is becoming an increasingly common and high-stakes occupation.

TRADE SECRET PROTECTION PROGRAMS:

Trade secrets are legally fragile and may be lost by inadvertent disclosure or failure to reasonably protect them, companies should implement trade secret protection programs to safeguard valuable information. Because trade secret protection can last indefinitely, businesses should devote proper attention to the methods used to ensure confidentiality of information. Developing programs and measure to protect trade secrets is an easy way to demonstrate to a court that a company values its information and takes appropriate measures to maintain its secrecy.

Physical protection

There are a variety of tangible measures a company can implement to protect trade secrets, including the following:

- ❖ Safeguarding information under lock and key;
- ❖ Protecting the information from unauthorized access;
- ❖ Forbidding removal of protected information from the company premises or certain rooms;
- ❖ Retaining adequate security during evening and weekends either through alarm systems or security services;
- ❖ Ensuring tours of the company premises do not expose outsiders to valuable processes or information;
- ❖ Using check-out lists when valuable equipment or information is removed from its normal location;
- ❖ Monitoring employees' use of e-mail and the Internet to ensure confidential information is not being disseminated;
- ❖ Using encryption technology and antivirus protection programs to protect information stored on computers;
- ❖ Educate employees on trade secrets and protection of trade secrets;
- ❖ Ensuring information retained on computers is available only on company networks so that access can be easily tracked.

Most companies will not need to implement all of the measures described above. Courts do not require absolute secrecy or that extreme measure be taken to protect information. Rather, reasonable measures will be sufficient to protect the status of information as trade secrets.

Contractual Protection

- ❖ Another method of protecting trade secrets is by contract, namely, requiring those with access to the information to agree in writing not to disclose the information to other or use it to the owner's detriment.
- ❖ Similarly, in licensing arrangements, trade secret owners should ensure the license agreements contain sufficient protection for trade secret information.
- ❖ Employers should use noncompetition agreements to ensure former employees do not use material gained on the job to later compete against the employer.
- ❖ With the advent of the Internet and the increased ease of electronic communications, employers have become concerned about the loss of trade secrets through dissemination over the Internet.
- ❖ It has been held that *"once a trade secret is posted on the Internet, it is effectively part of the public domain, impossible to retrieve"*.

Contractual Protection

Companies can also rely on other complementary methods of protection to safeguard trade secrets. Any material that qualifies for copyright protection should be protected by registration, or at a minimum, by ensuring a copyright notice is placed on the material or document to afford notice to other of the owner's right and internet in the material.

UNFAIR COMPETITION

INTRODUCTION:

The law of unfair competition is based upon the notion that individuals should be protected from deceptive (looking down) and improper conduct in the marketplace. The law of unfair competition is found in case law, in state statutes prohibiting unfair business practices, in specific federal statutes, and in regulations promulgated by the FTC (Federal Trade

Commission), the federal regulatory agency charged with protecting consumers from unfair or deceptive acts and practices.

The law of unfair competition continues to evolve as new methods of conducting business arise, such as electronic offers and sales through telemarketing, television infomercials, and the Internet. There are a number of theories and actions that can be used by injured parties to protect against unfair competition. In many instances, actions for unfair competition will be combined with other actions (such as those alleging trademark, copyright, or patent infringement) to provide a plaintiff a wide array of possible remedies.

For Example: a designer of scarves imprinted with fanciful designs may decide against applying for a design patent due to the expense involved and the short life cycle of fashion products. Protection against copying of the design may thus be available under the umbrella of unfair competition rather than under design patent law.

Section 43 of the Lanham Act (15 U.S.C § 1125) provides a federal cause of action to protect consumers against unfair competitive business practices. Moreover, section 43(a) protects unregistered marks and names, such as those that do not qualify for federal trademark registration because they are descriptive or perhaps used only in intrastate commerce.

The most common types of unfair competition are discussed more fully in this chapter but can be briefly summarized as follows:

- Passing off (or palming off), “Passing off” occurs when one party attempts to pass off or sell his or her goods or services as those of another.
- Misappropriation
- Right of Publicity
- False advertising
- Dilution, Either tarnishing another’s mark or causing it to lose its distinctiveness through “blurring” is actionable as dilution
- Infringement of trade dress, adopting the overall concept of another’s distinctive packaging or product image, generally called its “trade dress”, so as to deceive consumers is an infringement of trade dress.

Generally, injured parties notify the wrongdoer prior to initiating litigation.

MISAPPROPRIATION:

- The doctrine of misappropriation first arose in *International News Service V. Associated Press*, 248 U.S. 215 (1918), in which the Supreme Court held that an unauthorized taking of another's property, in that case, news information, that it invested time and money in creating was actionable as misappropriation of property.
- In INS, news information originally gathered by the Associated Press relating to World War I was pirated by International News Service and sold to its customers.
- Because the news itself, as factual matter, could not be copyrighted, the plaintiff could not sue for copyright infringement.
- Instead it alleged that its valuable property right had been taken or misappropriated by the defendant.
- The Supreme Court agreed, noting that the defendant was "endeavoring to reap where it has not sown, and is appropriating to itself the harvest of those who have sown." *Id.* At 239-40. Because the defendant was not attempting to convince its subscribers that its news reports were from the plaintiff, an action for passing off would not lie. The defendant was misappropriating rather than misrepresenting.

RIGHT OF PUBLICITY:

- The right of publicity gives individuals, not merely celebrities, the right to control commercial use of their identities or personas.
- The right of publicity protects a commercial interest, the vast majority of cases involve celebrities inasmuch as they can readily show economic harm when their names, photographs, or identities are used to sell products or suggest a sponsorship of merchandise.
- Publicity rights are governed by state law.
- The right of publicity has evolved from the right of privacy, which protected against unreasonable invasions upon another person's solitude and provided remedies for the disclosure of private information.
- The right of publicity allows individuals to protect the marketability of their identities and punishes those who would unjustly enrich themselves by appropriating another's fame for profit-making purposes.
- Unpermitted commercial exploitation of an individual's persona would dilute the value of the persona, making it more difficult for the individual to commercialize his or her identity. Thus, remedies for infringement include injunctions to prevent further exploitation and monetary relief to compensate the individual whose right of publicity

has been appropriated (including damages for injury to reputation recovery of the defendant's profits, and punitive damages in extreme cases)

- Courts have articulated a number of reasons for upholding an individual's right to publicity, including the need to protect against confusion that would arise if consumers were led to believe individuals sponsor or approve products when they do not, the need to incentivize performers who provide entertainment and benefit to society and should thus be provided with a protectable proper right in their identities.
- The right of publicity does not apply to noncommercial uses; using another's name, likeness, or identity for news reporting, scholarship, or research is permissible.

NEW DEVELOPMENTS IN THE RIGHT OF PUBLICITY

- As is common with intellectual property rights in today's society, some of the new issues relating to the rights of publicity stem from increasing technological advances.
- Without prior permission one should not appear in the digital technology used in movie.
- The International Trademark Association has proposed amending the U.S. Trademark Act to create a federal right of publicity with postmortem rights (although such rights would be limited to some specific period of duration after death).
- *Similarly, names, gestures, and likenesses are unprotectable under copyright law because they are titles or ideas rather than expressions.*
- Thus, in some instances, federal copyright law may control a plaintiff's rights, while in other instances; only the right to publicity will provide protection.
- **California recently passed** the Astore Celebrity Image Protection Act (Cal.Civ.Code § § 3344-3346) to allow heirs of celebrities to block commercial uses of deceased celebrities' likenesses while allowing a "safe harbor exemption" to artistic uses, such as the digital insertion of President Kennedy's image into the movie Forrest Gump, or uses for news, public affairs, and so forth.

FALSE ADVERTISING:

- In 1943, the federal trademark law, the Lanham Act, was passed.
- Section 43(a) of the act (15 U.S.C. § 1125) prohibited false designations of origin, namely, descriptions or representations tending falsely to describe or represent goods or services.

- It was not an effective vehicle to use when a party made misrepresentations relating to the nature or quality of goods or services.
- Moreover, until the passage of the Lanham Act, Plaintiffs, an element that was often difficult to demonstrate.
- Although the individual states enacted statutes prohibiting false advertising, these statutes varied from state to state and were often ineffective to prohibit false advertising that was national in scope.
- The expansive language of section 43 of the Lanham Act, however, soon began to be used to protect not only against unregistered trademarks but also against nearly all forms of false advertising.
- In 1989 Congress amended the Lanham Act and broadened the scope of section 43 for infringement of trademarks (both registered and unregistered marks) and trade dress, while the other portion of the statute allows the assertion of claims for false advertising and trade libel.
-

Under section 43(a), whoever uses a false or misleading description or representation of fact or false designation of origin in commercial advertising or promotion or misrepresents the nature, qualities, or geographic origin of his or her or another person's goods, services, or commercial activities is liable to any person likely to be injured by such act (if the act is committed in interstate commerce)

For Example:

- a failure to disclose that advertised prices did not include additional charges;
- a statement that a pregnancy test kit would disclose results in "as fast as ten minutes" when a positive result would appear in ten minutes but a negative result might take thirty minutes;
- a claim that a certain motor oil provided longer life and better engine protection than a competitor's product when that claim could not be substantiated;
- a false claim that automobile antifreeze met an automobile manufacturer's standards;
- covering up a label stating "Made in Taiwan" that appeared on goods

INTERNATIONAL PROTECTION AGAINST UNFAIR COMPETITION:

- The United States has assumed certain obligations under international agreements in the arena of unfair completion, chiefly under the Paris Convention.
- The Paris Convention seeks to afford citizens of each of the more than 160 member nation's protection against unfair competition and trademark infringement and requires that member nations provide the same level of protection against unfair competition to citizens of other member nations as they do for their own citizens.
- The Paris Convention expressly prohibits acts that create confusion by any means with a competitor, false allegations that discredit a competitor, and indications that mislead the public in regard to the nature or characteristics of goods.
- Section 44 of the Lanham Act (15 U.S.C. § 1126) implements the Paris Convention and expressly provides that any person whose country of origin is a party to any convention or treaty relating to the repression of unfair competition, to which the United States is also a party, is entitled to effective protection against unfair completion.

NEW DEVELOPMENTS OF INTELLECTUAL PROPERTY

NEW DEVELOPMENT IN TRADE MARKS LAW:

The Internet:

- ❖ Trademark owners throughout the world are struggling with new issues presented by increased electronic communication, primarily that occurring through the Internet.
- ❖ The Internet derives from a network set up in the 1970s by the Department of Defense to connect military and research sites that could continue to communicate even in the event of nuclear attack.
- ❖ In the 1980s, the National Science Foundation expanded on the system, and its first significant users were government agencies and universities.
- ❖ In the early 1990s, however, it became apparent that the system could provide a global communication network, allowing people from all over the world to talk with each other; send written messages, pictures, and text to each other; and establish web pages to advertise their ware and provide information to their customers.

Assignment of Domain names:

- A company's presence on the internet begins with its address or domain name not only serves as a locator for a company but also functions as a designation of origin and a symbol of goodwill---atrademark.
- There are two portions to a domain name: the generic top-level domain, which is the portion of the name to the right of a period (such as .gov or .com) and the secondary level domain, which is the portion of the name to the left of a period (such as "kraft" in Kraft.com").
- Disputes frequently arise between owners of registered mark and owners of domain names whose domain names similar or identical to the registeredmarks.

Internet Corporation for Assigned Names and Numbers[ICANN]:

- To help resolve the problems in the domain names registration and useprocess
- The government created theICANN
- It is a nonprofitcorporation
- It is governed by a board of directors elected in part by various members of the Internet community.
- ICANN are authorized to register domain names ending with .com, .org and.net
- Registrations usually last one year, at which time they can be removed or willexpire.
- Registration requires a representation that the person seeing to register the name is not doing so far an unlawful purpose and does not know of anyinfringement
- ICANN recently added seven new top-level domains, including .biz and.info

PROTECTING A DOMAINNAME:

- People register well-known marks as domain names to prey on consumer confusion by misusing the domain name to divert customers from the legitimate mark owner's site. This practice is commonly calledcybersquatting.
- There are three approaches for againstcybersquatter:
 - ✓ An action can be brought under the Federal Trademark dilutionAct
 - ✓ A civil suit can be instituted under the recent Anticybersquatting consumer protection Act,or
 - ✓ An arbitration proceeding can be instituted through ICANN's disputes resolutions process
- Cybersqutter and the dilution doctrine: Federal trademark dilution Act (15 U.S.C § 1125 (C))
- Cybersquatters and Anticybersquatting consumer protection Act (15 U.S.C § 1125 (d))
[ACPA: Antcybersquatting consumer Protection Act]

- ✓ To prevail in a civil action under ACPA, a plaintiff must prove three things:
 1. The plaintiff's mark is a distinctive or famous mark deserving of protection
 2. The alleged cyber squatter's infringing domain name is identical to or confusingly similar to the plaintiff's mark
 3. The cyber squatter registered the domain name in bad faith
- Resolving Disputes through the Uniform Domain Name Dispute Resolution Policy: [UDRP] 1999
 - ✓ The allegedly wrongful domain name is identical or confusingly similar to the complainant's trademark;
 - ✓ The domain name registrant has no legitimate interest in the domain name and
 - ✓ The domain name is being used in bad faith

NEW DEVELOPMENT IN COPYRIGHT LAW:

- While acknowledging that clothing is a useful article and thus not subject to copyright protection, a New York Federal court ruled that lace design, copyrighted as writing and incorporated into wedding dresses, were protectable and enjoined another maker of wedding dresses from making or marketing copies. Similarly, detailed embroideries or some other two dimensional drawing or graphic work affixed to a portion of a garment may be copyrightable.
- A federal court in California recently held that while type fonts themselves are not protectable under copyright law, a software program that generated and created the typefaces was protectable.
- As soon as Stephen King sold his book *The Bullet* exclusively in an Internet format, an individual cracked the copyright protection software and posted free copies of the book on the Internet. The publishers responded by adopting stronger encryption technology. Similarly, in 2000, Mr. King suspended online publication of a serial novel because too many individuals were downloading the work without paying it.
- In late 1997 President Clinton signed into law the No Electronic Theft [NET] Act [amending 18 U.S.C §2319] to enhance criminal penalties for copyright infringement, even if the infringer does not profit from the transaction. The act also extends the statutes of limitations for criminal copyright infringement from three to five years, and allows law enforcement officers to use federal copyright law against online copyright violation, thereby extending the same copyright protection to the Internet that is provided to other media.
- In September 1999, the Clinton administration relaxed government restrictions on the export of encryption products and simultaneously introduced new legislation to give law enforcement agencies greater authority to combat the use of computers by terrorists and criminals and to create a new code cracking unit within the FBI [Foreign Bureau of Investigation].
- In mid-2000, president Clinton signed the Electronic Signatures in Global and National

Commerce Act, making digital execution, called e-signatures, as legally binding as their paper counterparts.

- In 2000, federal prosecutors in Chicago indicted seventeen people who called themselves “Pirates with Attitude” for pirating thousands of software program. The case was brought under the NET Act. Some of the individuals were former employees of Intel and Microsoft.
- The copyright office has recommended that congress amend section 110 of the copyright Act to grant educators the right to transmit copyrighted works for distance learning if certain conditions are met.

NEW DEVELOPMENT IN PATENT LAW:

The patent Act has proven remarkably flexible in accommodating changes and development in technology. Thus advisement in technology generally has not necessitated changes in the statute governing patent protection.

Business method and software patent:

Many of the cutting-edge issues in patent law related to patents for computer software. For several years, the conventional wisdom has been that unless a computer program had significant commercial value and application patent protection was often counterproductive or ineffective in that the PTO often took two years to issue a patent, roughly the same time it took for the software program to become absolute.

Biotechnology patent:

Medicines, Science, agricultural and pharmacology present the other cutting-edge issues in patent law. Research into genes may hold the key to curing disease throughout the world. Agricultural research may hold the key to providing sufficient food for the world's ever-increasing population.

The development of strains of plants and crops that are resistant to drought and disease has also led to an increasing number of patents issued, and attendant litigation. In the field of “agbiotech”.

American Investors Protection Act of 1999[AIPA]:

The AIPA was signed into law in 1999 and represents the most significant changes to patent law in twenty years. Although some of the provisions of AIPA have been discussed earlier, its key subtitles are as follows:

- Inventors' Right Act of 1999
- The First Inventor Defense Act of 1999
- The patent term guarantee act of 1999
- The domestic publication of Foreign filed patent application act of 1999
- The optional Inter parts reexamination procedure Act of 1999

Introduction of International Patent protection:

The rights granted by a U.S Patent extend only throughout the U.S and have no effect in a foreign country. Therefore, an inventor who desires patent protection in other countries must apply for a patent in each of the other countries or in regional patent office.

- The Paris convention (already it is in previous units)
- The European patent organization
- Agreement on Trade-Related Aspects of IPR (already it is in previous units)
- The patent Law Treaty
- Foreign Filing Licenses
- Applications for United States Patents by Foreign applicants

The European patent organization:

The European Patent Organization (EPO) was founded in 1973 to provide a uniform patent system in Europe. A European patent can be obtained by filing a single application with the EPO headquartered in Munich (or its subbranches in The Hague or Berlin or with the national offices in the contracting nations). Once granted, the patent is valid in any of the EPO A country designated in the application and has the same force as patent granted in any one of the contracting nations.

INTELLECTUAL PROPERTY AUDITS:

Many companies believe that copyright extends only to important literary works and therefore fail to secure protection for their marketing brochures or other written materials. Similarly, companies often fail to implement measures to ensure valuable trade secrets maintain their protect ability. Because clients are often unaware of the great potential and value of this property, law firms often offer their clients an intellectual property audit to uncover a company's protectable intellectual property. The IP audit is analogous to the accounting audit most companies conduct on an annual basis to review their financial status.

Another type of IP investigation is usually conducted when a company acquires another entity. At that time, a thorough investigation should be conducted of the intellectual property of the target company to ensure the acquiring company will obtain the benefits of what it is paying for and will not inherit infringement suits and other problems stemming from the targets' failure to protect its IP. This type of IP investigation is generally called a due diligence review inasmuch as the acquiring company and its counsel have an obligation to duly and diligently investigate the target's assets.

Conducting the Audit:

- The first step in the audit should be a face-to-face meeting of the legal team and company managers.
- The legal team should make a brief presentation on what Intellectual Property is, why it is important to the company, and why and how the audit will be conducted.
- Managers will be more likely to cooperate if they fully understand the importance of the audit.
- Obtaining this kind of “buy in” from the client’s managers and employees will speed the audit and reduce costs.
- Moreover, education about the importance of intellectual property helps ensure that managers consider ways to further protect a company’s valuable assets and remain alert to possible infringements of the company’s Intellectual capital or infringements by the computer of other’s right.
- Finally, having, outside counsel involved in the process will ensure that communications related to the audit are protected by the attorney-client privilege.
- Once the company’s managers have been advised of the need for the audit, the legal team should provide a work-sheet or questionnaire to the company specifying the type of information that the firm is looking for so that company files can be reviewed and materials assembled for inspection by the firm and its representatives.



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COURSE COMPLETION STATUS

Academic Year: 2022-2023

Year : I

Semester: I

Name of the Program: M.Tech

Course/Subject: RM&IPR

Course Code: GR22D5011

Name of the Faculty: Dr Pakkiraiah B

Dept.: Electrical & Electronics Engineering

Designation: Associate Professor

Actual Date of Completion & Remarks, if any

Units	Remarks	No. of Objectives Achieved	No. of Outcomes Achieved
Unit 1	Completed in due time	1	1
Unit 2	Completed in due time	1	1
Unit 3	Completed in due time	1	1
Unit 4	Completed in due time	1	1
Unit 5	Completed in due time	1	1

Signature of HOD

Signature of faculty

Date:

Date:

Note: After the completion of each unit mention the number of Objectives & Outcomes Achieved.