

**COURSE OBJECTIVES:**

1. To develop the skills required for defining research problems.
2. To develop skills required for effective literature studies.
3. To develop technical thesis writing skills.
4. To impact knowledge about IPR.

**UNIT I INTRODUCTION TO RESEARCH****6 + 0**

Meaning of research problem -Sources of research problem - Criteria and 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 AND ANALYSIS****6 + 0**

Developing the theoretical frame work of the research - Developing operational statements of the problem - Criteria for evaluating research approach – Hypotheses - Parametric and non-parametric testing - Establishing the reliability and validity of findings with literature review and experiments – documentation – **Plagiarism** - **Research ethics**.

**UNIT III EFFECTIVE TECHNICAL WRITING****6 + 0**

Developing a Research Proposal - Format of research proposal - Presentation - Assessment by a review committee

**UNIT IV NATURE OF INTELLECTUAL PROPERTY****6 + 0**

Patents – Designs - Trade and copyright - Process of patenting and development - Technological research – Innovation and patenting - International scenario: International cooperation on Intellectual property - Procedure for grants of patents - Patenting under PCT.

**UNIT V PATENT RIGHTS AND IPR****6 + 0**

Scope of patent rights - Licensing and transfer of technology - Patent information and databases - Geographical Indications - Administration of patent system - New developments in IPR - IPR of Biological Systems - Computer software etc - Traditional knowledge and Case Studies - IPR.

**Total (30+0)= 30 Periods****COURSE OUTCOMES:**

Upon completion of this course, the students will be able to:

- CO1 : acquire the skills required for defining research problems.  
 CO2 : acquire the skills required for effective literature studies.  
 CO3 : acquire the technical thesis writing skills.  
 CO4 : understand the concept of patent and IPR

**Principal**

**PRINCIPAL**  
**GOVT. COLLEGE OF ENGG.,**  
**SALEM-636 011**

**TEXT BOOKS:**

1. Stuart Melville and Wayne Goddard, "Research methodology: an introduction for science & engineering students"
2. Wayne Goddard and Stuart Melville, "Research Methodology: An Introduction"
3. Ranjit Kumar, 2 nd Edition, "Research Methodology: A Step by Step Guide for beginners"
4. Halbert, "Resisting Intellectual Property", Taylor & Francis Ltd ,2007.

**REFERENCE BOOKS:**

1. Mayall , "Industrial Design", McGraw Hill, 1992.
2. Niebel , "Product Design", McGraw Hill, 1974.
3. Asimov, "Introduction to Design", Prentice Hall, 1962.
4. Robert P. Merges, Peter S. Menell, Mark A. Lemley, " Intellectual Property in New Technological Age", 2016.
5. T. Ramappa, "Intellectual Property Rights Under WTO", S. Chand, 2008

**CO-PO MAPPING**

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1	2	3	2	2	2	1	1	-	-	-	2	1	3	-
CO2	2	3	3	2	2	1	1	1	-	-	2	1	3	-
CO3	-	-	-	-	-	2	1	-	3	3	2	1	3	1
CO4	1	-	-	-	2	2	2	-	2	-	2	2	2	3
CO5	2	1	-	-	2	2	2	-	2	-	2	-	1	2

- 1- Faintly
- 2- Moderately
- 3- Strongly