

**Research Methodology & Intellectual Property Rights**
**01SL1209**
**Objective of the Course:**

- To understand the fundamental of research and its types
- To impart the knowledge of various techniques of research
- To impart the knowledge for writing various statements and research paper
- To understand how to conduct literature review and organize references
- To impart the knowledge about copyright, IPR patent and plagiarism

**Credit Earned: 2**
**Learning Outcomes:**

After studying this subject student will be able to:

- To understand the research and its types
- To differentiate between journal/proceeding and books and its authenticity
- To identify the quality indices for Journal & Authors
- To differentiate the forms of IPR and its application to the civil engineering

**Teaching and Examination Scheme**

Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/ Practical Marks		Total Marks
Theory	Tutorial	Practical		ESE (E)	CSE (I)	IA (M)	Viva (V)	Term Work (TW)	
02	00	00	02	00	00	00	25	25	50

**Details of the syllabus**

Sr No.	Title of the unit	Number ofhours
<b>1</b>	<b>Research Methodology and skills</b>	<b>14</b>
	Definition, types, various methods to identify research problem, skills for research, Review of Research Literature: Purpose and use of literature review, locating relevant information, use of library & electronic databases, preparation & presentation of literature review, research article reviews, theoretical models and frame work. Identification of gaps in research, formulation of research problem, definition of research objectives.	

**Structural Engineering**

<b>2</b>	<b>Quality indices &amp; Ethics in research</b>	<b>06</b>
	Journal quality indices: Impact factor, Immediacy index, Eigen factor, Scimago journal rank indicator. Author quality indices: H index, G-Index, i10 index, HB index,	
<b>3</b>	<b>Thesis writing</b>	<b>04</b>
	Details and sequence of the chapters, Reference, Bibliography their styles in writing. Use of computer programs like MS word or Latex for thesis writing.	
<b>4</b>	<b>Intellectual Property Rights and plagiarism</b>	<b>06</b>
	Fundamentals, Forms of IPR: copyright, patents, trademarks, copyright. Patent filing procedure in India. Plagiarism, use of software to evaluate the plagiarism for the report written, how to do citation for copyrighted material in the report.	

**Suggested Theory Distribution**

The suggested theory distribution as per Bloom's taxonomy is as per follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation					
Remember	Understand	Apply	Analyze	Evaluate	Create
5%	5%	20%	25%	25%	20%

**Instructional Method and Pedagogy:**

1. Use of Learning Management system like canvas
2. Demonstration through power point presentation and videos and lectures
3. Brainstorming and group discussion sessions
4. Collaborative learning

**Recommended Study Material:**
**Reference Book:**

1. Research Methodology: Methods and Techniques, by C.R. Kothari, New age Publishers
2. Essentials of Research Design and methodology by Geoffrey R. Marczyk, David DeMatteo, David Festinge, John Wiley & Sons

**Web Resources**

1. <http://www.elsevier.com/online-tools/scopus>
2. <http://computationalengineering.mit.edu/research/methodology>
3. <https://www.ieee.org/index.html>
4. <http://www.asce.org/>
5. <http://www.asme.org/>