

V Semester

RESEARCH METHODOLOGY & INTELLECTUAL PROPERTY RIGHTS			
Course Code:	21CV56	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1+2+0	SEE Marks	50
Total Hours of Pedagogy	25	Total Marks	100
Credits	02	Exam Hours	02
Course Objectives: CO1. To Understand the knowledge on basics of research and its types. CO2. To Learn the concept of Literature Review, Technical Reading, Attributions and Citations. CO3. To learn Ethics in Engineering Research. CO4. To Discuss the concepts of Intellectual Property Rights in engineering.			
Teaching-Learning Process (General Instructions) These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes. <div><div>1.</div><div>Lecturer methods (L) need not to be only traditional lecture method, but alternative effective teaching methods could be adopted to attain the outcomes.</div></div> <div><div>2.</div><div>Use of Video to explain various concepts on IPR.</div></div> <div><div>3.</div><div>Encourage collaborative (Group Learning) Learning in the class.</div></div> <div><div>4.</div><div>Ask at least three HOT (Higher order Thinking) questions in the class, which promotes critical thinking.</div></div> <div><div>5.</div><div>Introduce Topics in manifold representations.</div></div> <div><div>6.</div><div>Show the different ways to analyze the research problem and encourage the students to come up with their own creative ways to solve them.</div></div> <div><div>7.</div><div>Discuss how every concept can be applied to the real world - and when that's possible, it helps Improve the students' understanding.</div></div>			
Module-1			
Introduction: Meaning of Research, Objectives of Engineering Research, and Motivation in Engineering Research, Types of Engineering Research, Finding and Solving a Worthwhile Problem.			
Ethics in Engineering Research, Ethics in Engineering Research Practice, Types of Research Misconduct, Ethical Issues Related to Authorship.			
Teaching-Learning Process	Chalk and talk method / PowerPoint Presentation.		
Module-2			
Literature Review and Technical Reading, New and Existing Knowledge, Analysis and Synthesis of Prior Art Bibliographic Databases, Web of Science, Google and Google Scholar, Effective Search: The Way Forward Introduction to Technical Reading Conceptualizing Research, Critical and Creative Reading, Taking Notes While Reading, Reading Mathematics and Algorithms, Reading a Datasheet.			
Attributions and Citations: Giving Credit Wherever Due, Citations: Functions and Attributes, Impact of Title and Keywords on Citations, Knowledge Flow through Citation, Citing Datasets, Styles for Citations, Acknowledgments and Attributions, What Should Be Acknowledged, Acknowledgments in, Books Dissertations, Dedication or Acknowledgments.			
Teaching-Learning Process	Chalk and talk method / PowerPoint Presentation		
Learning Process			
Module-3			

<p>Building Intellectual Property Rights, Law of Patents, Fundamentals of Patent Law - Evolution of the patent system, Patentability Requirements; Patentable Subject Matter; Industrial Applicability/Utility; Novelty; Anticipation by publication; Anticipation by public knowledge and public use; Anticipation by public display; Anticipation by sale; Inventive Step/Non-Obviousness; Novelty Assessment; Inventive Step Assessment; Specification, Drafting of A Patent Specification - Introduction Patent Specification; Provisional Specification Complete Specification, Parts of the complete specification; Patent Procedure in India - PATENT PROCEDURE; Registration and Renewal fee payment; Patent Infringement - Infringement of a patent; Literal Infringement; Equivalence Infringement; Indirect Infringement; Defenses - Experiment - Research or Education - Bolar Exemption- Government use- Patent Exhaustion- Patent Misuse- Inequitable Conduct - Remedies- Injunction- Account of profits- Costs; International Patent Regimes - International Instruments; Paris Convention; TRIPS AGREEMENT; PCT; BUDAPEST TREATY, Patenting Biotechnology Inventions - Unique nature of Biotechnology; Patentability Requirements and Biotechnology Inventions; Patentable Subject Matter- USA- Europe- India; Patentability of Software Inventions - Patentability of Software Inventions in USA; Patentability of software inventions in Europe; Patentability of Software Inventions in India.</p>	
Teaching- Learning Process	Chalk and talk method / PowerPoint Presentation.
Module-4	
<p>Law of Copyright and Designs, Understanding Copyright Law - Historical Overview – Justification For Copyright Law - The Natural Law Justification - The Economic Rationale of Copyright Clause, Basic Concepts Underlying copyright Law - Idea – Expression Dichotomy Originality / Creativity – Fixation Term of Protection, Subject - Matter of Copyright - Literary Works - Dramatic Works - Musical Work - Artistic Works - Cinematograph Films and Sound recordings, Acquisition of Copyright in India, Rights of the Copyright Owner - Economic Rights - Moral Right or Droid Moral Right of Authorship or Paternity Rights - Rights against Distortion or Mutilation of the Original Works or Integrity Rights - Limitations - Limitations set under International Regime – Berne Convention - Rome Convention - Trips Agreement - Three Step Test, Infringement of Copyright -Transfer of copyright - License and Assignment - License and consent -Duration of a License Form and Content - Disputes in Respect of Licence -Types of Licenses - Exclusive and Non-Exclusive Licenses.</p> <p>Basic Principles of Design Rights - Justification for Protecting Designs - Historical Perspective - Features of Shape, configuration, Pattern or Ornament - or Composition of lines or colour - New or Original - Applied to an Article, Excluded Subject - Matter - Method or Principle of Construction - Features Dictated Solely by Function - Mechanical Device - Trademark, or Property Mark, or Artistic Work - immoral Designs and Designs Contrary to Public order–Rights of the Owner of Designs and Tests for Infringement. Assignment of Design Rights, Infringement of Designs.</p>	
Teaching- Learning Process	Chalk and talk method / PowerPoint Presentation
<p>Course Outcomes (Course Skill Set)</p> <p>At the end of the course the student will be able to:</p> <p>CO 1. To know the meaning of engineering research.</p> <p>CO 2. To know the procedure of Literature Review and Technical Reading.</p> <p>CO 3. To know the fundamentals of patent laws and drafting procedure.</p> <p>CO 4. Understanding the copyright laws and subject matters of copyrights and designs</p> <p>CO 5. Understanding the basic principals of design rights.</p>	
Suggested Learning Resources:	
<p>Textbook</p> <ol style="list-style-type: none"> 1. Dipankar Deb • Rajeeb Dey, Valentina E. Balas “Engineering Research Methodology”, ISSN 1868-4394 ISSN 1868-4408 (electronic), Intelligent Systems Reference Library, ISBN 978-981-13-2946-3 ISBN 978-981-13-2947-0 (eBook), https://doi.org/10.1007/978-981-13-2947-0 <p>Reference Book:</p> <ol style="list-style-type: none"> 1. David V. Thiel “Research Methods for Engineers” Cambridge University Press, 978-1-107-03488-4 - 	
<p>Activity Based Learning (Suggested Activities in Class)/ Practical Based learning</p> <ul style="list-style-type: none"> • Quizzes • Assignments • Seminars 	