Tatyasaheb Kore Institute of Engineering & Technology, Warananagar

Second Year M.Tech Civil (Construction & Management) Semester- I

CCM (MC) 301: Research Methodology and Intellectual Property Rights

Teaching Scheme			**Examination Scheme**	
Lectures	02 Hrs/Week		ISE	30 Marks
Tutorials	--		ESE	70 Marks
Total Credits	02		TW	--
			Duration of ESE	02 Hrs.30 Min.

Course Objectives (CO):

1. To acquire basic understanding of research problem formulation.
2. To acquire complete knowledge of ethical practices.
3. To make students understand and learn about intellectual property right.
4. To acquire knowledge of economics & social benefits.

	Course Contents	**Hours**
Unit 1	**Introduction to Research:** Meaning of research, types of research, process of research, Sources of research problem, Criteria / Characteristics of a good research problem, Errors in selecting a research problem, Scope and objectives of research problem, formulation of research hypotheses. Search for causation, Approaches of investigation of solutions for research problem, data collection, analysis, interpretation, necessary instrumentations.	(07)
Unit 2	**Literature survey:** Definition of literature and literature survey, need of literature survey, sources of literature, elements and objectives of literature survey, styles of literature survey, and strategies of literature survey.	(06)
Unit 3	**Plagiarism:** Plagiarism research ethics, Effective technical writing, how to write report, Paper. Developing a Research Proposal, Format of research proposal, a presentation and assessment by a review committee	(07)
Unit 4	**Introduction to IPR:** Concepts Property and Intellectual Property, Nature and Importance of Intellectual Property Rights, Objectives and Importance of understanding Intellectual Property Rights.	(07)
Unit 5	**Understanding the types of Intellectual Property Rights:** -Patents-Indian Patent Office and its Administration, Administration of Patent System – Patenting under Indian Patent Act , Patent Rights and its Scope, Licensing and transfer of technology, Patent information and database. Provisional and Non Provisional Patent Application and Specification, Plant Patenting, Idea Patenting, Integrated Circuits, Industrial Designs, Trademarks (Registered and unregistered trademarks), Copyrights, Traditional Knowledge, Geographical Indications, Trade Secrets, Case Studies.	(08)
Unit 6	**Innovations in IPR**: New Developments in IPR, Process of Patenting and Development: technological research, innovation, patenting, development, International Scenario: WIPO, TRIPs, Patenting under PCT.	(05)

Course Outcomes (CO): At the end of course students will

1. Understand research problem formulation and approaches of investigation of solutions for research

problems.	
2. Learn ethical practices to be followed in research and apply research methodology in case studies and acquire skills required for presentation of research outcomes.	
3. Discover how IPR is regarded as a source of national wealth and mark of an economic leadership in context of global market scenario	
4. Summarize that it is an incentive for further research work and investment in R & D, leading to creation of new and better products and generation of economic and social benefits	
Text Books	
1	Aswani Kumar Bansal : Law of Trademarks in India.
2	C. R. Kothari: Research Methodology: Methodes & Techniques.
3	B L Wadehra : Law Relating to Patents, Trademarks, Copyright, Designs and Geographical Indications.
4	SatyawratPonkse: The Management of Intellectual Property.
5	Intellectual Property Rights under WTO by T. Ramappa, S. Chand.
6	Applied Statistics and Probability for Engineers
7	Probability and Statistics for Engineers –Miller, Freund
8	Applied Mathematics for Engineers and Physiscists
Reference Books	
1	Research Methodology: concepts and cases—Deepak Chawla and Neena Sondhi.
2	Research Methods forBusiness—Sekaran—Wiley.
3	Research Methodology: Methods and Trends’
4	Research Methods in Education---Louis Cohen
5	Principles of Engineering Economy by Grant Ireson/Leavenworth.
6	Resisting Intellectual Property by Halbert ,Taylor & Francis.
7	Intellectual Property in New Technological Age by Robert P. Merges, Peter S. Menell, Mark A. Lemley
Useful Links	
1	freevideolectures.com
2	http://www.youtube.com/

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Second Year M.Tech Civil (Construction & Management) Semester- I

CCM (MP/IT) 302: Mini Project/Industrial Training

Teaching Scheme			**Examination Scheme**	
Lectures	--		ISE	--
Practicals	04 Hrs/Week		ESE	--
Total Credits	02		Term Work	50 Marks
			--	--

Course Objectives (CO):

1. To expose the students to work on actual construction project environment and enhance their knowledge, technical skills and correlate the things learnt in the college.
2. To understand, learn to write technical reports, develop skills to present and defend their work in front of technically qualified audience.
3. To understand application of using software/analytical/computational tools for selected project.

	Course Contents	**Hours**
	• The students are required to complete Mini project/Industrial training in any area related to Construction Management infrastructure projects (like, Housing development, Industrial unit, Power plant, Dam, Bridge, Highway, Tunnel etc) as mentioned in the syllabus for minimum (03 weeks) **OR** 25 working days beyond the academic schedule during third semester (after the completion of IInd semester and before end of IIIrd Semester). • Students can choose project started within last two years from respective academic year of admission and submit the report of the Mini project/Industrial Training undertaken and necessary training certificate from that organization. • Assessment will be done at the end of IIIrd semester by the project guide along with Assessment Committee appointed by Programme Head.	(--)

Course Outcomes (CO): At the end of course students will

1. Get opportunity to work in actual project environment
2. Ability to analyze a given engineering problem identifies an appropriate problem solving methodology, implement the methodology and propose a meaningful solution.
3. Able to Learn Develop, Preset skills for defending work in front of their technically qualified audience.
4. Able to use software/analytical/computational tools for selected project.

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Second Year M.Tech Civil (Construction & Management) Semester- I

CCM (SLC/AC) 303: Massive Open Online Course (MOOC)/E-Learning/Swayam

Teaching Scheme			**Examination Scheme**	
Lectures	--		ISE	--
Practicals	--		ESE	--
Total Credits	--		Term Work	50 Marks
			--	--

Course Objectives (CO):

1. To learn use of Moodle/Swayam/NPTEL as learning platform designed to provide educators, administrators and learners.
2. To create personalized learning environment.

	Course Contents	**Hours**
	• Students are required to choose course from Moodle/Swayam/NPTEL and to be acquaintance with recent developments in Civil Engineering (Construction management) beyond syllabus. **OR** He/She has to complete certified course/STTPs of minimum one week. • Submission of the certificate for the course completed from Moodle/Swayam **OR** STTPs to the respective guide. • Assessment will be done at the end of of IIIrd semester by the project guide along with Assessment Committee appointed by Programme Head. ***Note**:- Candidate who has unable to get passing marks in the certification course has to reappear for the improvement at Institute level test/Moodle/Swayam /NPTEL	(--)

Course Outcomes (CO): At the end of course students will

1. Learn use of Moodle/Swayam/NPTEL platform designed for educators, administrators and learners.
2. Able to perform personalized learning environment in the specialized field

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Second Year M.Tech Civil (Construction & Management) Semester- I

CCM (PC) 304: Dissertation Phase - I

Teaching Scheme			**Examination Scheme**	
Lectures	--		ISE	--
Practicals	16 Hrs/Week		ESE	--
Total Credits	08		Term Work	50 Marks
			Oral Exam	50 Marks

Course Objectives (CO):

1. To identify self learning topics in the field of construction and management.
2. Explore the literature survey and contact with resource person for selected research topic.
3. Identify problem statement & decide methodologies for the research work.
4. To develop oral and written communication skills and to present, defend their work in front of technically qualified audience.

	Course Contents	**Hours**
	• The project work undertaken should be a problem with research potential involving scientific research, design, generation, collection, analysis of data and determining solution. • The synopsis preparation on project undertaken containing covering page, Relevance, Literature review, Objectives, Methodology, A detailed problem statement and preliminary results (if available) are to be mentioned in it. Also Facilities available & approximate project expenditure. • Synopsis presentation in front of the examiners panel set by Head and PG coordinator. It is mandatory that the candidate has to be in regular contact with his guide and topic of dissertation must be mutually decided by guide and candidate. • The dissertation report submitted by the candidate on topic already approved by Universities/Institute authorities on the basis of synopsis submitted by the candidate shall according to following guidelines. **Format of Dissertation Phase-I Report Guidelines: (Phase-I: July to December)** • The dissertation work report shall be typed on A4 size bond paper. The total No. of minimum pages shall not be less than 40. Containing Introduction, Literature reviews, Questionnaire surveys, and construction site visits details, methods, calculations, graphs, and annexure etc be as per the requirement. The report should be written in the standard format. 1. Title sheet 2. Certificate 3. Acknowledgement 4. List of figures, Photographs/Graphs/Tables 5. Abbreviations. 6. Abstract 7. Contents. 8. Text with usual scheme of chapters. 9. Discussion of the results and conclusions • Bibliography (the source of illustrative matter be acknowledged clearly at appropriate place IEEE/ASME/Elsevier Format)	16

Course Outcomes (CO): At the end of course students will
1. Able to decide topics in the field of construction and management
2. Able to perform extensive literature survey and contact with resource person for selected research topic.
3. Systematically identify relevant theory concepts, relate this to appropriate methodologies and evidence, apply suitable methods/ techniques for selected problem statement and draw suitable conclusions.
4. Involve in systematic finding and critical reviews of appropriate and relevant information sources.
5. Able to understand and apply ethical standards of conduct in the collection and evaluation of data and other resources.
6. Able to present research concepts, develop oral and written communication skills and defend their work clearly and effectively both in writing and orally.

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Second Year M.Tech Civil (Construction & Management) Semester- II

CCM (PC) 401: Dissertation Phase - II

Teaching Scheme			**Examination Scheme**	
Lectures	--		ISE	--
Practicals	32 Hrs/week		ESE	--
Total Credits	16		Term Work	100 Marks
			Oral Exam	100 Marks

Course Objectives (CO):

1. To identify self learning topics in construction and management.
2. Explore the literature survey and contact with resource person for selected research topic.
3. To develop oral and written communication skills and to present , defend their work in front of technically qualified audience.

	Course Contents	**Hours**
	• The dissertation submitted by candidate on topic already approved by University/Institute authorities on the basis of initial synopsis submitted by candidate shall be according to the following guidelines. **Format of Dissertation Phase-II Report Guidelines: (Phase-I: January to June)** • The dissertation work report shall be typed on A4 size bond paper. The total No. of minimum pages shall not less than 60. Introduction, Literature reviews, Questionnaire surveys, construction site visits details, methods, calculations, graphs, and annexure etc be as per the requirement. The report should be written in the standard format. 1. Title sheet 2. Certificate 3. Acknowledgement 4. List of figures, Photographs/Graphs/Tables 5. Abbreviations. 6. Abstract 7. Contents. 8. Text with usual scheme of chapters. 9. Discussion of the results, conclusions and future scope for the research topic. • Bibliography (the source of illustrative matter be acknowledged clearly at appropriate place IEEE/ASME/Elsevier Format) **Note:** The candidates should publish at least two international journal papers (UGC approved/SCOPUS index etc.) • **The candidate has to present the research work in front of the examiners panel consisting of an approved external examiner, guide, co-guide etc. as decided by the department head.**	32

Course Outcomes (CO): At the end of course students will
1. Able to identify self learning topics in construction and management.
2. Explore the literature survey and contact with resource person for selected research topic.
3. Able to develop oral and written communication skills and to present , defend their work in front of technically qualified audience.