SHREE DEVI INSTITUTE OF TECHNOLOGY

(Affiliated to Visvesvaraya Technological University & Recognized by AICTE)

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2018 SCHEME – CO AND PO MAPPING

Sl.No	Course Code	Subject Name	Credits
1.	18CCT11	Mathematics in Construction Technology	4
2.	18CCT12	Construction Project and Management	4
3.	18CCT13	Construction Quality and Safety	4
4.	18CCT14	Advanced Construction Materials and Green Buildings	4
5.	18CCT15	Mechanization in Construction	4
6.	18CCTL16	Advanced Material Testing Lab	2
7.	18RMI17	Research Methodology and IPR	2

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Course Name	Mathematics in Construction Technology
Course Code	18CCT11
Course Objectives	After a successful completion of the course, the student will be able to: 1. Apply the knowledge of direct methods and iterative methods for solving system of linear equations up to required accuracy. 2. Acquire the idea of significant figures, method of approximation of roots of equation. 3. Understand numerical methods/linear programming techniques to various root finding/for differential and integral equations. 4. Interpret the probability concepts in Civil engineering. 5. Learn the applications of statistical methods for the experiments and civil engineering projects

CO- PO Mapping:

CO's	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO-1	-	-	-	3	2	2	-	-	-	-	-	-
CO-2	3	-	-	3	2	2	2	2	-	-	-	-
CO-3	3	-	-	3	-	2	2	2	-	-	-	-

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CO-4	3	-	-	2	-	-	-	-	-	-	-	-
CO-5	3	-	-	2	-	-	-	-	-	-	-	-
Max.	**3**	-	-	**3**	**2**	**2**	**2**	**2**	-	-	-	-

Course Name	Construction Project and Management
Course Code	18CCT12
Course Objectives	After a successful completion of the course, the student will be able to: 1. Allocate the funds for each work and execute the same. 2. Calculate the total time required to complete the job without delay and delay in the project and also estimate the amount of additional funds may require to complete the job. 3. Apply concept of scheduling and networking. 4. Know the idea of time and cost relationship. 5. Apply the idea of line of Balance and Building Information Model.

CO and PO Mapping:

CO'S	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	-	-	-	3	2	2	-	-	-	-	-	-

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CO2	3	-	-	2	2	2	2	1	-	-	-	-
CO3	3	-	-	3	-	2	2	2	-	-	-	-
CO4	3	-	-	2	-	-	-	-	-	-	-	-
CO5	3	-	-	2	-	-	-	-	-	-	-	-
Max.	**3**	-	-	**3**	**2**	**2**	**2**	**2**	-	-	-	-

Course Name	Construction Quality and Safety
Course Code	18CCT13
Course Objectives	After a successful completion of the course, the student will be able to: 1. Gain the knowledge, Importance and necessity of quality management in construction. 2. Learn and apply the importance of safety management in construction. 3. Apply concept of safety management. 4. Know the idea of relationship between quality and safety management. 5. Apply the idea of structural safety and safety measure.

CO and PO Mapping:

CO'S	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO-1	-	-	-	3	2	2	-	-	-	-	-	-
CO-2	3	-	-	3	2	2	2	2	-	-	-	-

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CO-3	3	-	-	3	-	2	2	2	-	-	-	-
CO-4	3	-	-	2	-	-	-	-	-	-	-	-
CO-5	3	-	-	2	-	-	-	-	-	-	-	-
Max.	**3**	-	-	**3**	**2**	**2**	**2**	**2**	-	-	-	-

Course Name	Advanced Construction Materials and Green Buildings
Course Code	18CCT14
Course Objectives	After a successful completion of the course, the student will be able to: 1. Solve the problems of environmental issues concerned to building materials and cost effective building technologies. 2. Analyze different alternative building materials, which will be suitable for specific climate and in sustainable manner. 3. Recommend various types of alternative building materials, technologies and to design a energy efficient building by considering local climatic condition and building materials. 4. Conduct the various tests on fresh and hardened concrete, special concrete and the methods of manufacturing of concrete. 5. Know the idea of utilizing less carbon emission materials.

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CO and PO Mapping

CO'S	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	-	-	3	2	2	-	-	-	-	-	-
CO2	3	-	-	2	2	2	2	2	-	-	-	-
CO3	3	-	-	3	-	2	2	2	-	-	-	-
CO4	3	-	-	2	-	-	-	-	-	-	-	-
CO5	3	-	-	2	-	-	-	-	-	-	-	-
Max.	**3**	-	-	**3**	**2**	**2**	**2**	**2**	-	-	-	-

Course Name	Mechanization in Construction
Course Code	18CCT15
Course Objectives	After a successful completion of the course, the student will be able to: 1. Understand applications of different types of equipments /machineries used in construction industry. 2. Understand use of modern tools and techniques. 3. Know the methods of drilling and blasting.

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	4. Impact of different construction activities on environment. 5. Apply the latest equipment technique in the construction industry.

CO and PO Mapping:

CO'S	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	-	-	3	2	2	-	-	-	-	-	-
CO2	3	-	-	2	2	2	2	2	-	-	-	-
CO3	3	-	-	3	-	2	2	2	-	-	-	-
CO4	3	-	-	2	-	-	-	-	-	-	-	-
CO5	3	-	-	2	-	-	-	-	-	-	-	-
Max.	**3**	**-**	**-**	**3**	**2**	**2**	**2**	**2**	**-**	**-**	**-**	**-**

Course Name	Advanced Material Testing Lab
Course Code	18CCTL16
Course Objectives	After a successful completion of the course, the student will be able to: 1. Achieve the Knowledge of design and development of experimental skills.

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	2. Understand the properties fresh and hardened concrete. 3. Understand the classification of soil and safe bearing capacity of soil in construction industry.

CO and PO Mapping:

CO'S	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	-	-	3	1	-	1	-	3	3	-	1
CO2	3	-	-	3	1	-	1	-	3	3	-	1
CO3	3	-	-	3	1	-	1	-	3	3	-	1
Max.	**3**	-	-	**3**	**1**	-	**1**	**-**	**3**	**3**	**-**	**1**

Course Name	Research Methodology and IPR
Course Code	18RMI17
Course Objectives	After a successful completion of the course, the student will be able to: 1. Discuss research methodology and the technique of defining a research problem. 2. Explain the functions of the literature review in research, carrying out a literature search, developing theoretical and conceptual frameworks and writing a review. 3. Explain various research designs, sampling designs, measurement and scaling techniques and also different methods of data collections.

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	4. Explain several parametric tests of hypotheses, Chi-square test, art of interpretation and writing research repor

CO – PO Mapping:

CO'S	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	-	-	-	2	-	-	-	-	-	-	-
CO2	3	-	2	-	-	-	-	-	-	-	-	-
CO3	-	-	-	3	-	-	-	-	-	-	-	-
CO4	2	-	3	2	2	-	-	-	-	-	-	-
Max.	**3**	-	**3**	**3**	**2**	-	-	-	-	-	-	-

Sl.No	Course Code	Subject Name	Credits
8.	18CCT21	Construction Economics and Finance	4
9.	18CCT22	Pre-Engineered Construction Technology	4
10.	18CCT23	Design concepts of sub- structures	4
11.	18CCT242	Applications of Remote Sensing and GIS in Construction	4
12.	18CCT252	Pavement Design and Construction	4
13.	18CCTL26	Software Application Lab	2

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14.	18CCT27	Technical Seminar	2

Course Name	Construction Economics and Finance
Course Code	18CCT21
Course Objectives	After a successful completion of the course, the student will be able to: 6. To understand the importance of economics and finance in civil engineering projects. 7. To understand and analyze financial statements. 8. To assess profit, loss and break-even point. 9. To develop a budget, manage and regulate it. 10. To analyse different risks and uncertainties.

CO- PO Mapping:

CO's	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO-1	-	3	2	2	-	-	-	1	1	1	-	-
CO-2	3	2	2	2	1	1	1	1	1	1	-	-
CO-3	3	2	-	2	2	1	1	1	-	1	-	-

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CO-4	3	2	-	-	-	-	1	1	-	-	-	-
CO-5	3	2	-	-	-	-	1	1	-	-	-	-
Max.	**3**	**3**	**2**	**2**	**2**	**1**	**1**	**1**	**1**	**1**	-	-

Course Name	Pre-Engineered Construction Technology
Course Code	18CCT22
Course Objectives	After a successful completion of the course, the student will be able to: 6. To design the pre-engineered structures and execute the same for a given structure. 7. To know the different types of stresses acting on the structures while lifting the prefabricated structures and type of equipment required to support such stresses. 8. Know Production and Hoisting Technology. 9. Impact of different Precast sandwich Panels, Pre-stressed concrete in construction industry. 10. Apply the latest Pre-Engineered Buildings equipment technique in the construction industry.

CO and PO Mapping:

CO'S	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	-	-	3	2	1	-	-	-	-	-	-

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CO2	3	-	-	3	2	1	1	1	-	-	-	-
CO3	3	-	-	2	-	1	1	1	-	-	-	-
CO4	3	-	-	2	-	-	-	-	-	-	-	-
CO5	3	-	-	2	-	-	-	-	-	-	-	-
Max.	**3**	-	-	**3**	**2**	**1**	**1**	**1**	-	-	-	-
Course Name		Design concepts of sub- structures										
Course Code		18CCT23										
Course Objectives		After a successful completion of the course, the student will be able to: 6. Understand the importance of soil exploration; determine the Bearing capacity of the soil in various field conditions. 7. Design the shallow foundations and raft foundation. 8. Understand and solve the problems associated with pile foundations. 9. Understand importance of geo-synthetics as soil reinforcement. 10. Understand deep foundation and necessity of soil Reinforcement.										

CO and PO Mapping:

CO'S	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO-1	-	-	-	3	2	1	-	-	-	-	-	-
CO-2	3	-	-	3	2	1	1	1	-	-	-	-

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CO-3	3	-	-	2	-	1	1	1	-	-	-	-
CO-4	3	-	-	2	-	-	-	-	-	-	-	-
CO-5	3	-	-	2	-	-	-	-	-	-	-	-
Max.	**3**	**-**	**-**	**3**	**2**	**1**	**1**	**1**	-	-	-	-

Course Name	Applications of Remote Sensing and GIS in Construction
Course Code	18CCT242
Course Objectives	After a successful completion of the course, the student will be able to: 6. Collect data and delineate various elements from the satellite imagery. 7. Analyze different features of ground information to create raster or vector data. 8. Perform digital classification and create different thematic maps for solving specific problems. 9. Make decision based on the GIS analysis on thematic maps. 10. Application of BIM and GIS in Construction Management.

CO'S	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	-	-	-	3	2	2	-	-	-	-	-	-

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CO2	3	-	-	2	2	2	1	1	-	-	-	-
CO3	3	-	-	3	-	2		1	-	-	-	-
CO4	3	-	-	2	-	-	-	-	-	-	-	-
CO5	3	-	-	2	-	-	-	-	-	-	-	-
Max.	**3**	-	-	**3**	**2**	**2**	**1**	**1**	-	-	-	-

CO and PO Mapping

Course Name	Pavement Design and Construction
Course Code	18CCT252
Course Objectives	After a successful completion of the course, the student will be able to: 6. Explain the various factors affecting design and performance of pavements. 7. Calculate the stresses and deflection in flexible and rigid pavements. 8. Select suitable equipment for preparation of sub grade and preparation stages for base and sub base layers. 9. Design the thickness of flexible pavements by different methods under different exposure conditions and materials. 10. Design the thickness of concrete pavements and joints associated with CC pavements in addition to the computation of stresses in CC pavements.

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CO and PO Mapping:

CO'S	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	-	-	3	2	2	-	-	-	-	-	-
CO2	3	-	-	2	2	2	2	2	-	-	-	-
CO3	3	-	-	3	-	2	2	1	-	-	-	-
CO4	3	-	-	2	-	-	-	-	-	-	-	-
CO5	3	-	-	2	-	-	-	-	-	-	-	-
Max.	**3**	**-**	**-**	**3**	**2**	**2**	**2**	**2**	**-**	**-**	**-**	**-**

Course Name	Software Application Laboratory
Course Code	18CCTL26
Course Objectives	After a successful completion of the course, the student will be able to: 4. Achieve Knowledge of Design and development of soft skills. 5. Understand the application of planning and scheduling techniques to construction project. 6. Optimize time and cost for the construction project.

CO and PO Mapping:

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CO'S	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	2	3	-	-	-	-	-	-	2
CO2	3	3	3	2	3	-	-	-	-	-	-	2
CO3	3	3	3	2	3	-	-	-	-	-	-	2
Max.	**3**	**3**	**3**	**2**	**3**	-	-	**-**	**-**	**-**	**-**	**2**

Course Name	Technical Seminar
Course Code	18CCT27
Course Objectives	After a successful completion of the course, the student will be able to: 5. Develop knowledge in the field of Civil Engineering and other disciplines through independent learning and collaborative study. 6. Identify and discuss the current, real-time issues and challenges in engineering & technology. 7. Develop written and oral communication skills. 8. Explore concepts in larger diverse social and academic contexts. 9. Apply principles of ethics and respect in interaction with others

CO – PO Mapping:

CO'S	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12

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CO1	3	-	-	2	-	-	-	-	3	-	-	-
CO2	3	-	-		-	3	-	3	-	-	-	-
CO3	3	-	-	2	-	-	-	-	-	-	3	3
CO4	3	-	-	2	-	3	-	-	3	3	3	3
Average	**3**	-	-	**2**	-	**3**	-	**3**	**3**	**3**	**3**	**3**

Sl.No	Course Code	Subject Name	Credits
15.	18CCT31	Construction Contracts, Specifications and Estimation	4
16.	18CCT322	Construction Demolition and Waste Management	4
17.	18CCT332	Disaster Management Techniques	4
18.	18CCT34	Project phase I	2
19.	18CCTI35	Internship	6

Course Name	Construction Contracts, Specifications and Estimation
Course Code	18CCT31
Course Objectives	After a successful completion of the course, the student will be able to:

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	11. Attain the knowledge on estimates, Develop and present rate analysis and specifications. 12. Develop and present the tender documents for the project. 13. Attain the knowledge on tendering procedure, claims and dispute mechanisms. 14. Attain the knowledge on BOT, PPP, Concession contracts. 15. Attain the knowledge on laws affecting engineers, relational contracts

CO- PO Mapping:

CO's	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO-1	-	-	-	3	2	2	-	-	-	-	-	-
CO-2	3	-	-	2	2	2	1	1	-	-	-	-
CO-3	3	-	-	2	-	2	1	1	-	-	-	-
CO-4	3	-	-	2	-	-	-	-	-	-	-	-
CO-5	3	-	-	2	-	-	-	-	-	-	-	-
Max.	**3**	-	-	**3**	**2**	**2**	**1**	**1**	-	-	-	-

Course Name	Construction Demolition and Waste Management

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Course Code	18CCT322
Course Objectives	After a successful completion of the course, the student will be able to: 11. Formulate, design, evaluate and review pre−construction and construction phase resource efficient waste management plans. 12. Evaluate, assess and recommend potential reuse/recycling/disposal options considering existing and potential future markets/use.

CO and PO Mapping:

CO'S	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	-	-	3	2	2	-	-	-	-	-	-
CO2	3	-	-	2	2	2	1	1	-	-	-	-
CO3	3	-	-	2	-	2	1	1	-	-	-	-
CO4	3	-	-	2	-	-	-	-	-	-	-	-
CO5	3	-	-	2	-	-	-	-	-	-	-	-
Max.	**3**	-	-	**3**	**2**	**2**	**1**	**1**	-	-	-	-

Course Name	Disaster Management Techniques

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Course Code	18CCT332
Course Objectives	After a successful completion of the course, the student will be able to: 11. Analyze the existing data of the natural calamities and prediction of the disaster. 12. Develop an appropriate method to identify and rectify the disaster.

CO and PO Mapping:

CO'S	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO-1	-	-	-	3	2	1	-	-	-	-	-	-
CO-2	3	-	-	3	2	1	1	1	-	-	-	-
CO-3	3	-	-	2	-	1	1	1	-	-	-	-
CO-4	3	-	-	2	-	-	-	-	-	-	-	-
CO-5	3	-	-	2	-	-	-	-	-	-	-	-
Max.	**3**	**-**	**-**	**3**	**2**	**1**	**1**	**1**	-	-	-	-

Course Name	Project phase I
Course Code	18CCT34
Course Objectives	After a successful completion of the course, the student will be able to: 11. Describe the project and be able to defend it. 12. Develop critical thinking and problem-solving skills.

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	13. Learn to use modern tools and techniques. 14. Communicate effectively and to present ideas clearly and coherently both in written and oral forms. 15. Develop skills to work in a team to achieve common goal, develop skills of project management and finance and Develop skills of self-learning, evaluate their learning and take appropriate actions to improve it. Prepare them for life-long learning to face the challenges and support the technological changes to meet the societal needs.

CO and PO Mapping

CO'S	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	-	-	-	2	-	2	2	-	-	-
CO2	3	3	3	-	-	2	-	-	-	-	-	-
CO3	3	3	3	-	-	2	-	-	2	-	-	-
CO4	3	3	3	-	-	2	-	-	-	-	-	-
CO5	3	3	3	-	-	-	-	2	2	2	2	2
Max.	**3**	**3**	**3**	-	-	**2**	-	**2**	**2**	**2**	**2**	**2**

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Course Name	Internship
Course Code	18CCTI35
Course Objectives	After a successful completion of the course, the student will be able to: 11. Understand domain knowledge 12. Learn Skills required as per real practical applications 13. Preparation of Report based on exposure to industry 14. Presentation of Internship.

CO and PO Mapping:

CO'S	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	1	-	-	2	-	2	2	2	2	2
CO2	3	2	1	-	2	2	-	2	2	2	2	2
CO3	3	3	2	-	-	2	-	-	2	-	2	-
CO4	3	3	2	-	-	2	-	-	-	-	-	-
Max.	**3**	**3**	**2**	**-**	**2**	**2**	**-**	**2**	**2**	**2**	**2**	**2**

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Sl.No	Course Code	Subject Name	Credits
20.	18CCT34	Project phase 2	20

Course Name	Project phase 2
Course Code	18CCT41
Course Objectives	After a successful completion of the course, the student will be able to: 16. Describe the project and be able to defend it. 17. Develop critical thinking and problem-solving skills. 18. Learn to use modern tools and techniques. 19. Communicate effectively and to present ideas clearly and coherently both in written and oral forms. 20. Develop skills to work in a team to achieve common goal, develop skills of project management and finance and Develop skills of self-learning, evaluate their learning and take appropriate actions to improve it. Prepare them for life-long learning to face the challenges and support the technological changes to meet the societal needs.

CO'S	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	-	-	-	2	-	2	2	-	-	-

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CO2	3	3	3	-	-	2	-	-	-	-	-	-
CO3	3	3	3	-	-	2	-	-	2	-	-	-
CO4	3	3	3	-	-	2	-	-	-	-	-	-
CO5	3	3	3	-	-	-	-	2	2	2	2	2
Max.	**3**	**3**	**3**	-	-	**2**	-	**2**	**2**	**2**	**2**	**2**

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