# SHREEDEVIINSTITUTEOFTECHNOLOGY

(AffiliatedtoVisvesvarayaTechnologicalUniversity&RecognizedbyAICTE)

AIRPORT ROAD, KENJAR, MANGALORE–574142

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## 2022 SCHEME–CO AND PO MAPPING

| Sl. No | Course Code | Subject Name | Credits |
|---|---|---|---|
| 1. | 22CCT11 | Statistics and Optimization Techniques | 3 |
| 2. | 22CCT12 | Sustainable Construction Materials | 4 |
| 3. | 22CCT13 | Construction Quality and Safety | 4 |
| 4. | 22CCT14 | Construction Project and Management | 3 |
| 5. | 22CCT15 | Mechanization in Construction | 3 |
| 6. | 22RMI16 | Research Methodology and IPR | 3 |
| 7. | 22CCTL17 | Advanced Material Testing Lab | 2 |

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|---|---|
| **CourseName** | Statistics and OptimizationTechniques |
| **CourseCode** | 22CCT11 |
| **Course Objectives** | Afterasuccessfulcompletion ofthecourse,thestudentwillbeable to:<br>1. Applytheknowledgeofdirectmethodsanditerativemethodsforsolvingsystemoflinearequationsuptorequired accuracy.<br>2. Acquiretheideaof significantfigures,methodofapproximationofrootsof equation.<br>3. Understandnumericalmethods/linearprogrammingtechniquestovariousrootfinding/fordifferentialandintegral equations.<br>4. InterprettheprobabilityconceptsinCivilengineering.<br>5. Learntheapplicationsofstatisticalmethodsfortheexperiments andcivilengineering projects |

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

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|---|---|
| **Course Name** | Sustainable Construction Materials |
| **Course Code** | 22CCT12 |
| **Course Objectives** | After a successful completion of the course, the student will be able to:<br>1. Solvetheproblemsofenvironmentalissuesconcernedtobuildingmaterialsandcosteffectivebuilding technologies.<br>2. Analyze different alternative building materials, which will be suitable for specific climate and in sustainable manner.<br>3. Recommend various types of alternative building materials, technologies and to design a energy efficient building by considering local climatic condition and building materials.<br>4. Conduct the various tests on fresh and hardened concrete, special concrete and the methods of manufacturing of concrete.<br>5. Know the idea of utilizing less carbon emission materials. |

**COand 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** | - | - | - | - |

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|---|---|
| **Course Name** | ConstructionQualityandSafety |
| **Course Code** | 22CCT13 |
| **Course Objectives** | Afterasuccessfulcompletion ofthecourse,thestudentwillbeable to:<br>1. Gaintheknowledge,Importanceandnecessityofqualitymanagementinconstruction.<br>2. Learn andapplytheimportanceofsafetymanagementin construction.<br>3. Applyconceptofsafetymanagement.<br>4. Knowtheideaofrelationshipbetweenquality and safetymanagement.<br>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 | - | - | - | - |
| **CO-3** | 3 | - | - | 3 | - | 2 | 2 | 2 | - | - | - | - |
| **CO-4** | 3 | - | - | 2 | - | - | - | - | - | - | - | - |
| **CO-5** | 3 | - | - | 2 | - | - | - | - | - | - | - | - |
| **Max.** | **3** | - | - | **3** | **2** | **2** | **2** | **2** | - | - | - | - |

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|---|---|
| **Course Name** | ConstructionProjectandManagement |
| **Course Code** | 22CCT14 |
| **Course Objectives** | Afterasuccessfulcompletion ofthecourse,thestudentwillbeable to:<br>1. Allocatethefundsforeach work andexecutethesame.<br>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.<br>3. Applyconcept ofscheduling and networking.<br>4. Knowthe ideaoftimeand cost relationship.<br>5. Applytheideaoflineof Balanceand BuildingInformation Model. |

**COand 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 | 1 | - | - | - | - |
| CO3 | 3 | - | - | 3 | - | 2 | 2 | 2 | - | - | - | - |
| CO4 | 3 | - | - | 2 | - | - | - | - | - | - | - | - |
| CO5 | 3 | - | - | 2 | - | - | - | - | - | - | - | - |
| **Max.** | **3** | - | - | **3** | **2** | **2** | **2** | **2** | - | - | - | - |

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|---|---|
| **CourseName** | MechanizationinConstruction |
| **CourseCode** | 22CCT15 |
| **Course Objectives** | Afterasuccessfulcompletion ofthecourse,thestudentwillbeableto:<br>1. Understandapplicationsofdifferenttypesofequipments /machineriesusedinconstruction industry.<br>2. Understanduseofmodern toolsand techniques.<br>3. Knowthemethodsofdrillingandblasting.<br>4. Impactofdifferentconstructionactivitiesonenvironment.<br>5. Applythelatest equipmenttechniquein theconstruction industry. |

| **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** | **-** | **-** | **-** | **-** |

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|---|---|
| **CourseName** | ResearchMethodologyandIPR |
| **CourseCode** | 22RMI16 |
| **Course Objectives** | Afterasuccessfulcompletion ofthecourse,thestudentwillbeable to:<br>1. Discussresearchmethodologyandthetechnique ofdefiningaresearchproblem.<br>2. Explain the functions of the literature review in research, carrying out a literature search, developing theoretical and conceptual frameworks and writing a review.<br>3. Explainvariousresearchdesigns,samplingdesigns,measurementandscalingtechniquesandalsodifferent methods of data collections.<br>4. Explainseveralparametrictestsofhypotheses,Chi-squaretest,artofinterpretationandwritingresearchrepor |

**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** | - | - | - | - | - | - | - |

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|---|---|
| **CourseName** | AdvancedMaterialTestingLab |
| **CourseCode** | 22CCTL17 |
| **Course Objectives** | Afterasuccessfulcompletion ofthecourse,thestudentwillbeable to:<br>1.Achievethe Knowledgeofdesignanddevelopmentofexperimentalskills.<br>2.Understandthepropertiesfreshandhardenedconcrete.<br>**3.** Understandthe classificationofsoil andsafebearingcapacity ofsoilinconstruction 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** |

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| Sl.No | CourseCode | SubjectName | Credits |
|---|---|---|---|
| 1. | 22CCT21 | ConstructionEconomicsand Finance | 3 |
| 2. | 22CCT22 | Pre-EngineeredConstructionTechnology | 4 |
| 3. | 22CCT232 | GroundImprovementTechniques | 3 |
| 4. | 22CCT242 | PavementDesignandConstruction | 3 |
| 5. | 22CCTL25 | MiniProject withSeminar | 3 |
| 6. | 22CCTL26 | SoftwareApplicationLaboratory | 3 |

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|---|---|
| **CourseName** | ConstructionEconomicsand Finance |
| **CourseCode** | 22CCT21 |
| **Course Objectives** | Afterasuccessfulcompletion ofthecourse,thestudentwillbeable to:<br>1. Tounderstandtheimportanceofeconomicsandfinanceincivilengineering projects.<br>2. Tounderstandandanalyzefinancialstatements.<br>3. Toassessprofit,lossandbreak-evenpoint.<br>4. Todevelopabudget,manageandregulateit.<br>5. Toanalysedifferentrisksanduncertainties. |

**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 | - | - |
| **CO-4** | 3 | 2 | - | - | - | - | 1 | 1 | - | - | - | - |
| **CO-5** | 3 | 2 | - | - | - | - | 1 | 1 | - | - | - | - |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Max.** | **3** | **3** | **2** | **2** | **2** | **1** | **1** | **1** | **1** | **1** | **-** | **-** |

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|---|---|
| **CourseName** | Pre-EngineeredConstructionTechnology |
| **CourseCode** | 22CCT22 |
| **Course Objectives** | Afterasuccessfulcompletion ofthecourse,thestudentwillbeable to:<br>1. Todesignthepre-engineeredstructuresand executethesameforagiven structure.<br>2. To know the different types ofstresses acting on the structures while lifting the prefabricated structures and type of equipment required to support such stresses.<br>3. KnowProductionandHoistingTechnology.<br>4. ImpactofdifferentPrecastsandwichPanels,Pre-stressedconcretein constructionindustry.<br>5. ApplythelatestPre-EngineeredBuildingsequipmenttechniqueintheconstructionindustry. |

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**COand PO Mapping:**

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

| | |
|---|---|
| **CourseName** | GroundImprovementTechniques |
| **CourseCode** | 22CCT232 |
| **Course Objectives** | Afterasuccessfulcompletion ofthecourse,thestudentwillbeable to:<br>1. Givedifferentsolutionstosolvevariousproblemsassociatedwithsoilformationshavinglessstrength.<br>2. Useeffectivelythevariousmethodsofgroundimprovementtechniques dependinguponthe requirements.<br>3. Utilize properly the locally available materials and techniques for ground improvement so that economy in thedesign of foundations of various civil engineering structures Program.<br>4. Selecttheappropriatetypeof DewateringtechniqueandapplicationofGeosynthetics.<br>5. ApplyGroutingtechniquefordifferentsiteconduction |

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**COand 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** | - | - | - | - |

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|---|---|
| **CourseName** | PavementDesignandConstruction |
| **CourseCode** | 22CCT242 |
| **Course Objectives** | Afterasuccessful completionofthe course,thestudent willbe able to:<br>1. Explainthevariousfactorsaffectingdesignandperformanceofpavements.<br>2. Calculatethestresses anddeflectioninflexibleandrigidpavements.<br>3. Selectsuitableequipmentforpreparation ofsub gradeandpreparation stagesforbaseandsub baselayers.<br>4. Designthethicknessofflexiblepavementsbydifferentmethodsunderdifferentexposureconditionsandmaterials.<br>5. DesignthethicknessofconcretepavementsandjointsassociatedwithCCpavementsinadditiontothe computation of stresses in CC pavements. |

**CO-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 | - | - | - | - | - | - | - | - |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CO5** | 3 | - | - | 2 | - | - | - | - | - | - | - | - |
| **Max.** | **3** | **-** | **-** | **3** | **2** | **2** | **2** | **2** | **-** | **-** | **-** | **-** |

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|---|---|
| **CourseName** | MiniProject withSeminar |
| **CourseCode** | 22CCTL25 |
| **Course Objectives** | After a successful completion of the course,thestudent willbe able to:<br>1. Describetheprojectandbeabletodefend it.<br>2. Developcriticalthinkingandproblem-solvingskills.<br>3. Learntousemoderntoolsandtechniques.<br>4. Communicateeffectively andtopresentideasclearlyandcoherentlybothinwrittenandoralforms.<br>5. Develop skills to work in a team to achieve common goal, develop skills of project management and finance and Developskillsofself-learning,evaluatetheirlearningandtakeappropriateactionstoimproveit. Preparethemfor life-long learning to face the challenges and support the technological changes to meet the societal needs. |

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**CO-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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|---|---|
| **CourseName** | SoftwareApplicationLaboratory |
| **CourseCode** | 18CCTL26 |
| **Course Objectives** | Afterasuccessfulcompletion ofthecourse,thestudentwillbeable to:<br>1. AchieveKnowledgeofDesignanddevelopment ofsoft skills.<br>2. Understandthe applicationofplanningandschedulingtechniquestoconstructionproject.<br>3. Optimizetimeand costfor theconstruction project. |

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**CO-PO Mapping:**

| 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** |

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