

**Jagadambha College of Engineering and Technology ,Yavatmal**  
**Department of Civil Engineering(PG-Structural Engineering)**

| Year: First Year  | Semester: First   |
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| <b>Course Name: Introduction To Earthquake And Retrofitting Of Structures</b> | <b>Course Code: CO11SFSE1</b>   |
| <b>CO11SFSE1.1</b>  | Demonstrate the knowledge of differential equations to solve engineering problems of analog systems.              |
| <b>CO11SFSE1.2</b>  | Apply Laplace transform to solve differential equations.  |
| <b>CO11SFSE1.3</b>  | Identify and solve certain forms of partial difference equations as applied to discrete systems.                  |
| <b>CO11SFSE1.4</b>  | Apply numerical methods to obtain approximate solutions to mathematical problems.                                 |
| <b>CO11SFSE1.5</b>  | Comprehend knowledge of complex analysis in terms of complex variables, harmonic functions and conformal mapping. |

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| <b>Course Name: Theory Of Elasticity And Elastic Stability</b> | <b>Course Code: CO11SFSE2</b>  |
| <b>CO11SFSE2.1</b>   | It would able to study the effect of different loading under different circumstances on 3D structure.  |
| <b>CO11SFSE2.2</b>   | It would able to study the effect of different loading under different circumstances on 2D structure.. |
| <b>CO11SFSE2.3</b>   | Understand the behavior of plates with small circular hole under the effect of loading                 |
| <b>CO11SFSE2.4</b>   | Understand the concept of stability and method of analysis   |
| <b>CO11SFSE2.5</b>   | It would be able to study of buckling different component of structure under various loading.          |

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| <b>Course Name: Matrix Method of Structural Analysis</b> | <b>Course Code: CO11SFSE3</b>   |
| <b>CO11SFSE3.1</b>                                       | It would be able to study of Flexibility method by structural approach              |
| <b>CO11SFSE3.2</b>                                       | It would be able to study of Stiffness method by structural approach                |
| <b>CO11SFSE3.3</b>                                       | It would be able to study of Stiffness method by member approach                    |
| <b>CO11SFSE3.4</b>                                       | Understand the assembly of stiffness matrix in different types of formation.        |
| <b>CO11SFSE3.5</b>                                       | It would be able to data preparation for solution of structures by stiffness method |

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| <b>Course Name: : Structural Dynamics</b> | <b>Course Code: CO11SFSE4</b>  |
| <b>CO11SFSE4.1</b>                        | Understand the concept of free vibration and damping system under different dynamic loading    |
| <b>CO11SFSE4.2</b>                        | It would be able to study of single degree of freedom system                                   |
| <b>CO11SFSE4.3</b>                        | It would be able to study of multi-degree of freedom system                                    |
| <b>CO11SFSE4.4</b>                        | Understand the concept of Vibration of Continuous Systems.                                     |
| <b>CO11SFSE4.5</b>                        | Understand the structural response of earthquake to assign response spectrum to the structure. |

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| <b>Course Name: : Earthquake Resistant Design Of Reinforced Concrete Structures</b> | <b>Course Code: CO11SFSE5</b>  |
| <b>CO11SFSE5.1</b>  | Understand the concept of Limit State Design of RC members.  |
| <b>CO11SFSE5.2</b>  | It would be able to study of mathematical modeling of buildings with different structural systems with different combination of load |
| <b>CO11SFSE5.3</b>  | Understand the concept of Special aspects in Multi-storied buildings due to effect of earthquake                                     |

| Year: First Year                            | Semester: Second  |
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| <b>Course Name: : Finite Element Method</b> | <b>Course Code: CO12SFSE1</b>   |
| <b>CO12SFSE1.1</b>                          | Understand the concept of finite element method with respect to nodes and Element of the structure                                    |
| <b>CO12SFSE1.2</b>                          | It would be able to study of two dimensional plane stress and strain analysis.  |
| <b>CO12SFSE1.3</b>                          | It would be able to study of plane stress and strain analysis of Isoperimetric elements and three dimensional stress analysis system. |
| <b>CO12SFSE1.4</b>                          | It would able study of thin plate and shell with different nodel and degree of freedom system.  |
| <b>CO12SFSE1.5</b>                          | Understand the different types of convergence trends and programming aspect.  |

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| <b>Course Name: : Advanced Steel Design</b>       | <b>Course Code: CO12SFSE2</b>  |
| <b>CO12SFSE2.1</b>                                | It Understand the concept of IS800-2007 code as applicable to various steel structure.           |
| <b>CO12SFSE2.2</b>                                | It would be study of welded and bolted connection of steel structure.                            |
| <b>CO12SFSE2.3</b>                                | It would able to design of different structural component and Industrial building                |
| <b>CO12SFSE2.4</b>                                | It would be able to design foot bridge and composite structure.                                  |
| <b>CO12SFSE2.5</b>                                | It would be able to design and analysis of multistory building .                                 |
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| <b>Course Name: : Theory of plates and Shells</b> | <b>Course Code: CO12SFSE3</b>  |
| <b>CO12SFSE3.1</b>                                | It would able to study of thin rectangular Plates with various boundary conditions and loadings. |
| <b>CO12SFSE3.2</b>                                | It would be able to basic concept of bending of different size and shape of plates.              |

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| <b>CO12SFSE3.3</b> | Understand the behavior of plates under sinusoidal loading, Navier's solution with different boundary and support conditions. |
| <b>CO12SFSE3.4</b> | Able to recognize knowledge of different method and equation to bent surface of anisotropic plate and application to grid.    |
| <b>CO12SFSE3.5</b> | It would be able to study membrane theory of shell and analysis and design of shell.  |

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| <b>Course Name: Design Of Prestressed Concrete Structures</b> | <b>Course Code: CO12SFSE4</b>  |
| <b>CO12SFSE4.1</b>  | Understand the concept of pre-stressing system under the different loading condition.          |
| <b>CO12SFSE4.2</b>  | It would able to basic design for flexural system according to Limit state method.             |
| <b>CO12SFSE4.3</b>  | It would be able to design different shapes of structural system like pole, piles, tanks etc.. |
| <b>CO12SFSE4.4</b>  | It would be able to design of post tension girder.   |
| <b>CO12SFSE4.5</b>  | It would be able to design and analysis of continuous structural element and frame system.     |

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| <b>Course Name: Substructure and Foundation</b> | <b>Course Code: CO12SFSE5</b>   |
| <b>CO12SFSE5.1</b>                              | It would be able to analysis and design of different component of substructure. |
| <b>CO12SFSE5.2</b>                              | It would able to design of shallow foundation.                                  |
| <b>CO12SFSE5.3</b>                              | It would be able to design raft, rigid, flexible and elastic foundation.        |
| <b>CO12SFSE5.4</b>                              | It would be able to design of deep foundation.                                  |
| <b>CO12SFSE5.5</b>                              | It would be able to design of machine foundation.                               |