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| **Course Code – CE891** | | **Structural Engineering Design Practice** | **6P** | **4 Credits** |
| **Course Objective** | Transportation engineering applies scientific and technical knowledge to provide economical and efficient transportation service that meets societal needs while maintaining compatibility with environmental, energy, and safety goals. | | | |
| **Course Outcome (CO)** | The student will be able to   1. Understand material properties and design methodologies for reinforced concrete structures. 2. Assess different type of loads and prepare layout for reinforced concrete structures 3. Identify and apply the applicable industrial design codes relevant to the design of Structures 4. Analyze and design various structural elements of different sturectures 5. Prepare structural drawings and detailing and produce design calculations and drawing in appropriate professional format | | | |

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| **CO Distribution** | **Test 1 (T1)** | **Test 2 (T2)** | **Test 3 (T3)** | **Test 4 (T4)** |
| **CO1** | Q1, Q2 | Q1 |  |  |
| **CO2** | Q3, Q4 | Q2,Q3 | Q1 |  |
| **CO3** |  | Q4 | Q2,Q3 | Q1 |
| **CO4** |  |  | Q4 | Q2 |
| **CO5** |  |  |  | Q3,Q4 |

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| **Course outcomes** | **% of students achieved CO** | **Decision on CO result (achieved) (Y/N) with level** |
| **CO1** | 80% | Y (Level: 3) |
| **CO2** | 76% | Y(Level: 2) |
| **CO3** | 78% | Y(Level:2) |
| **CO4** | 76% | Y(Level:2) |
| **CO4** | 72% | Y(Level:2) |
| **Average CO attainment for the course through CIE CE891** | 77.4% | Level: 2 |

**Overall CO attainment (CE891) in the scale of 3**

= (40% of target level of average CO attainment through CIE) +(60% of target level of CO attainment through SEE)

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| **Subject Code** | **CO1** | **CO2** | **CO3** | **CO4** | **Average CO Score**  **(CIE)** | **CO Score**  **(SEE)** | **Overall CO Attainment Score** |
| **CE891** | 2 | 2 | 3 | 2 | 2 | 3 | 2.6 |

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| **CO-PO Mapping**  **Design of RC Structure**  **(Course Code – CE891)** | | | | | | | | | | | | | |
|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** |
| **CO1** | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 3 |
| **CO2** | 2 | 2 | 1 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 1 | 3 |
| **CO3** | 1 | 2 | 1 | 3 | 1 | 1 | 3 | 3 | 3 | 1 | 3 | 3 |
| **CO4** | 2 | 3 | 3 | 2 | 2 | 2 | 3 | 3 | 2 | 2 | 2 | 3 |
| **Average CO** | **1.5** | **2.25** | **1.5** | **2** | **1.75** | **1.25** | **2.25** | **2.25** | **2.0** | **1.5** | **2** | **3** |

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| **CO-PSO Mapping**  **Design of RC Structure**  **(Course Code – CE691)** | | | |
|  | **PSO1** | **PSO2** | **PSO3** |
| **CO1** | 3 | 2 | 1 |
| **CO2** | 2 | 2 | 3 |
| **CO3** | 3 | 2 | 2 |
| **CO4** | 3 | 2 | 2 |
| **Average CO** | 2.75 | 2 | 2.0 |

Following table has been generated considering mapping of CO-PO and CO attainment.

For, PO1 mapping value is = 1.5

Target PO = 3

Overall CO1 attainment score = 2.6

**Therefore, contribution to PO3 attainment is 2.6 × (1.5/3) =1.3. Others are calculated accordingly**

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| **PO Articulation Matrix** | | | | | | | | | | | | |
|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** |
| **CE891** | **1.3**  (1.5/3)\*2.6 | **1.95**  (2.25/3)\*2.6 | **1.3**  (1.5/3)\*2.6 | **1.73**  (2.0/3)\*2.6 | **1.52**  (1.75/3)\*2.6 | **1.08**  (1.25/3)\*2.6 | **1.95**  (2.25/3)\*2.6 | **1.95**  (2.25/3)\*2.6 | **1.73**  (2.0/3)\*2.6 | **1.3**  (1.5/3)\*2.6 | **1.74**  (2.0/3)\*2.6 | **2.6**  (3/3)\*2.6 |

Following table has been generated considering mapping of CO-PSO and CO attainment.

For, PSO1 mapping value is = 2.75

Target PSO = 3

Overall CO1 attainment score = 2.6

**Therefore, contribution to PO3 attainment is 2.6 × (2.75/3) =2.38 Others are calculated accordingly**

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| **PSO Articulation Matrix** | | | |
|  | **PSO1** | **PSO2** | **PSO3** |
| **CE891** | **2.38**  (2.75/3)\*2.6 | **1.73**  (2.0/3)\*2.6 | **1.73**  (2.0/3)\*2.6 |