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| **Course Code – CE704B** | | **Hydraulic Structure** | **3L + 0T** | **3Credits** |
| **Course Objective** | To introduce different properties of waste water and it’s purification process before it can be safely disposed to dumping land or river. | | | |
| **Course Outcome (CO)** | CO1. Identify the characteristics of various types of dams and their selection procedure.  CO 2. Perform the reconnaissance survey and, geophysical investigations necessary for selection of suitable dam site  CO3. Estimate forces acting on a gravity dams and perform stability analysis.  CO 4. Estimate the seepage loss through embankment dams and suggest necessary remedial measures.  CO 5. Calculate the discharge through the overflow section and design the appropriate energy dissipation structures.. | | | |

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| **CO Distribution** | **Assignment 1 (T1)** | **Slot Test 1 (T2)** | **Assignment 2 (T3)** | **Slot Test 2 (T4)** |
| **CO1** | Q1 | Q1,Q2 |  |  |
| **CO2** | Q2, Q3,Q4 | Q2,Q3 | Q1 |  |
| **CO3** | Q4,Q5 | Q4,Q5 | Q6 | Q1 |
| **CO4** |  |  | Q7,Q8,Q9 | Q3,Q2 |
| **CO5** |  |  | Q5 | Q4 ,Q7,Q8 |

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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** | 64% | Y(Level: 2) |
| **CO3** | 75% | Y(Level:2) |
| **CO4** | 68% | Y(Level:2) |
| **CO5** | 80% | Y(Level3) |
| **Average CO attainment for the course through CIE CE701** | 73.4% | Level:2 |

**Overall CO attainment (CE701) 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** | **CO5** | **Average CO Score**  **(CIE)** | **CO Score**  **(SEE)** | **Overall CO Attainment Score** |
| **CE502** | 3 | | 3 | 2 | 3 | 3 | 2.80 | 3 | 2.92 |

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| **CO-PO Mapping**  **Design of RC Structure**  **(Course Code – CE701)** | | | | | | | | | | | | | |
|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** |
| **CO1** | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| **CO2** | 2 | 1 | 2 | 1 | 1 | 2 | 2 | 1 | 2 | 1 | 1 | 3 |
| **CO3** | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |
| **CO4** | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 3 |
| **CO5** | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 2 |
| **Average CO** | **2.0** | **1.6** | **2.0** | **2.67** | **2.0** | **2.0** | **2.0** | **1.6** | **2.0** | **1.6** | **2.0** | **2.4** |

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| **CO-PSO Mapping**  **Design of RC Structure**  **(Course Code – CE701)** | | | |
|  | **PSO1** | **PSO2** | **PSO3** |
| **CO1** | 2 | 3 | 3 |
| **CO2** | 2 | 3 | 3 |
| **CO3** | 2 | 2 | 2 |
| **CO4** | 2 | 3 | 3 |
| **CO5** | 3 | 2 | 3 |
| **Average CO** | 2.2 | 2.6 | 2.8 |

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

For, PO1 mapping value is = 2.0

Target PO = 3

Overall CO1 attainment score = 2.92

**Therefore, contribution to PO1 attainment is 2.92 × (2.0/3) =1.94 Others are calculated accordingly**

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| **PO Articulation Matrix** | | | | | | | | | | | | |
|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** |
| **CE502** | **1.94** | **1.55** | **1.28** | **1.71** | **1.71** | **1.71** | **1.71** | **1.55** | **1.71** | **1.55** | **1.71** | **1.53** |

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

For, PSO1 mapping value is = 2.2

Target PSO = 3

Overall CO1 attainment score = 1.92

**Therefore, contribution to PSO3 attainment is 1.92 × (2.2/3) =1.41. Others are calculated accordingly**

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| **PSO Articulation Matrix** | | | |
|  | **PSO1** | **PSO2** | **PSO3** |
| **CE502** | **1.41** | **1.66** | **1.79** |