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|  | **National Institute of Technology Meghalaya**An Institute of National Importance | **CURRICULUM** |
| Programme | **Bachelor of Technology in Civil Engineering** | Year of Regulation | **2019-20** |
| Department | **Civil Engineering** | Semester | **VI** |
| Course Code |  Course Name | Pre-Requisite | Credit Structure | Marks Distribution |
| **CE 352** | **Hydraulics and Hydraulic Structures Laboratory** | **NIL** | L | T | P | C | Continuous Assessment | Total |
| **0** | **1** | **2** | **2** | **01 Experiment** | **10** | **100** |
| Course Objectives | To develop the student’s knowledge on basics of open channel flow. | Course Outcomes | CO1 | Student will be able to understand the basics of open channel flow including types, velocity distribution and pressure distribution. |
| To provide some knowledge about various methods for calculating critical flow depths in open channel flow. | CO2 | Student will demonstrate the ability to perform analysis of critical flow. |
| To develop understanding of uniform flow concept in hydraulics. | CO3 | Student will be able to understand the concept the uniform flow. |
| To make the student understand about the practical problems related with gradually varied flow. | CO4 | Student will be able to compute gradually varied flow. |
|  | CO5 | Student will be able to formulate and solve rapidly varied flow problems. |
|  | CO6 | Student will be able to understand the concept of working and design principles of various hydraulic structures. |
| No. | COs | Mapping with Program Outcomes (POs) | Mapping with PSOs |
| PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
| 1 | CO1 | **3** | **3** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| 2 | CO2 | **3** | **3** | **3** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **3** |
| 3 | CO3 | **3** | **3** | **3** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **3** |
| 4 | CO4 | **3** | **3** | **3** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **3** |
| 5 | CO5 | **3** | **3** | **3** | **0** | **0** | **0** | **3** | **0** | **0** | **0** | **0** | **0** | **0** | **3** | **3** |
| 6 | CO6 | **3** | **3** | **3** | **0** | **0** | **0** | **3** | **0** | **0** | **0** | **0** | **0** | **0** | **3** | **3** |
| SYLLABUS |
| No. | Content | Hours | COs |
| 1 | **Calibration of flow channel** | **02** | **CO1 CO2 CO3 CO4 CO5****CO6** |
| 2 | **Determination of roughness coefficient of an experimental flume** | **04** |
| 3 | **To determine the specific energy, Critical depth and plot the specific energy curve** | **04** |
| 4 | **To determine the coefficient of a crump weir & broad crested weir** | **04** |
| 5 | **To determine the coefficient of a sharp crested weir & ogee weir** | **04** |
| 6 | **Determination of sequent depths in a hydraulic jump** | **04** |
| 7 | **Comparison of experimental and computed Gradually Varied flow profile** | **04** |
| 8 | **To determine the coefficient of discharge of a Venturi flume** | **04** |
| 9 | **Flow under a sluice gate** | **04** |
| 10 | **Viva-voce and exam** | **02** |
| Total Hours | **36** |  |
| **Essential Readings** |
| 1. M. H. Chaudhry, “Open Channel Flow”, Prentice Hall, 2nd Edition, 2008
 |
| 1. K. G., RangaRaju, “Flow Through Open Channels”, Tata McGraw Hill, 2nd Edition 1993.
 |
| **Supplementary Readings** |
| 1. F. M. Henderson, “Open Channel Flow”, Tata McGraw Hill, 1st Edition, 1992.
 |
| 1. V.T. Chow, “Open Channel Hydraulics”, Tata McGraw Hill, 3rd Edition, 2009.
 |
| 1. F. M. Henderson, “Open Channel Flow”, Tata McGraw Hill, 1st Edition, 1992.
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