|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Image result for nit meghalaya logo | | | **National Institute of Technology Meghalaya**  An Institute of National Importance | | | | | | | | | | | **CURRICULUM** | | | |
| Programme | | | **Master of Technology** | | | | | Year of Regulation | | | | | | **2018-19** | | | |
| Department | | | **Civil Engineering** | | | | | Semester | | | | | | **II** | | | |
| Course  Code | | Course Name | | Pre requisites | | Credit Structure | | | | | Marks Distribution | | | | | | |
| L | T | | P | C | INT | | MID | | END | | Total |
| **CE510** | | **Advance Hydraulic Engineering** | | **None** | | **3** | **0** | | **0** | **3** | **50** | | **50** | | **100** | | **100** |
| Course  Objectives | | 1. To comprehend concepts of open channel flow with special reference to different types of open channel flows in compound and non prismatic channels 2. To understand various sediment transport theories along with a brief description of various river training works.. | | | Course Outcomes | | CO1 | | Able get a view of the open channel flows related to complex flow domain | | | | | | | | |
| CO2 | | Able have detail ideas about working of different river training works | | | | | | | | |
| CO3 | |  | | | | | | | | |
| CO4 | |  | | | | | | | | |
| CO5 | |  | | | | | | | | |
| SYLLABUS | | | | | | | | | | | | | | | | | |
| **No.** | **Content** | | | | | | | | | | | **Hours** | | | | **COs** | |
| I | **Introduction**  Open channel hydraulics. | | | | | | | | | | | 06 | | | | CO1 | |
| II | **Flow in compound channels**  Uniform flow, Critical flow and GVF with special reference to compound channel, Rapidly varied flow in prismatic and  non-prismatic channel | | | | | | | | | | | 06 | | | | CO2 | |
| III | **Channel design**  Erodible and non-erodible channels, their design principles and various design methods. | | | | | | | | | | | 06 | | | | CO1 | |
| IV | **Silt theories**  Sediment transport theories and modeling | | | | | | | | | | | 08 | | | | CO2 | |
| V | **River mechanics and river management**  River erosion, River training works, Concept of hydraulic models, Introduction to Dam Engineering | | | | | | | | | | | 10 | | | | CO1 | |
| **Total Hours** | | | | | | | | | | | | **36** | | | |  | |
| **Essential Readings** | | | | | | | | | | | | | | | | | |
| 1. RangaRaju, K.G., “Flow Through Open Channels”, Tata McGraw Hill. | | | | | | | | | | | | | | | | | |
| 1. Chow, V.T., “Open Channel Hydraulics”, McGraw Hill. | | | | | | | | | | | | | | | | | |
| 1. Henderson, F. M., “Open Channel Flow”, McGraw Hill. | | | | | | | | | | | | | | | | | |
| **Supplementary Readings** | | | | | | | | | | | | | | | | | |
| 1. Chaudhry, M. H., “Open Channel Flow”, Prentice Hall. | | | | | | | | | | | | | | | | | |
| 1. Rober, A., “River processes: An Introduction to Alluvial dynamics”, Arnold Publications. | | | | | | | | | | | | | | | | | |