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| Image result for nit meghalaya logo | **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 | **IV** |
| CourseCode | Course Name | **Pre requisite** | Credit Structure | Marks Distribution |
| L | T | P | C | Continuous Assessment | Total |
| **CE 254** | **Fluid Mechanics Lab** | **Nil** | **0** | **1** | **2** | **2** | **10 experiment** | **10** | **100** |
| CourseObjectives | 1. To provide practical knowledge in verification of principle of fluid flow and measuring pressure, discharge, velocity and understanding frictional loss in pipe flow domain.
 | Course Outcomes | CO1 | Student will be able to describe the various physical properties of fluids. |
| 1. To develop understanding about hydrostatic law, principle of buoyancy and stability of a floating body and application of mass, momentum and energy equation in fluid flow.
 | CO2 | Student will be able to explain the fluid behaviour at rest. |
| 1. To give fundamental knowledge of fluid, its properties and behavior under various conditions of internal and external flows.
 | CO3 | Student will be able to understand the concepts of fluid behaviour in motion. |
| 1. To inculcate the importance of fluid flow measurement and its applications in Industries.
 | CO4 | Student will be able to understand the applications of various flow measuring devices to measure the flow. |
|  | CO5 | Student will be able to calculate and analyze the flow through pipes. |
| 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 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| 2 | CO2 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| 3 | CO3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| 4 | CO4 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| 5 | CO5 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| SYLLABUS |
| No. | Syllabus (List of Experiments) | Hours | COs |
|  | Introduction | 02 |  |
|  | To determine the metacentric height of a ship model. | 02 | **CO1,****CO2,****CO3****CO4,****CO5** |
|  | Verification of Bernoulli’s theorem. | 02 |
|  | To calibrate a venturimeter and to determine its coefficient of discharge. | 02 |
|  | To calibrate an orifice meter and study the variation of coefficient of discharge. | 02 |
|  | To study the flow over V-notch (weir) and Rectangular notch and to find their coefficient of discharge. | 02 |
|  | To determine the velocity using pitot tube. | 02 |
|  | To study the variation of coefficient of discharge with the Reynolds number. | 02 |
|  | To determine the coefficient of friction of pipes of different diameters. | 02 |
|  | To obtain the surface profile on the total heads distribution of a vortex. | 02 |
|  | Revision and doubt clearing sessions | 04 |
| **Total Hours** | **24** |  |
| **Essential Readings** |
| 1. SK Som, Gautam Biswas, Suman Chakraborty, :Introduction to Fluid Mechanics and Fluid Machines” McGraw Hill Publications, Third Edition, 2010
 |
| 1. Dr. R K Bansal, “A text book of Fluid mechanics & Hydraulics machines”, Laxmi Publications, Revised Ninth Edition, 2010
 |
| 1. Modi P.N. and Seth S.M., “Hydraulics and Fluid Mechanics”, Standard Book House, 21st Edition, 2017
 |
| 1. Er. R K Rajput, “A text book of Fluid Mechanics”, S Chand publications, 9th Edition, 2017
 |
| **Supplementary Readings** |
| 1. Streeter, V.L. and Wylie E.B., “Fluid Mechanics”, McGraw Hill.9 th Edition 2017
 |
| 1. Modi P.N. and Seth S.M., “Hydraulics and Fluid Mechanics”, Standard Book House.21st Edition.2017.
 |
| 1. Kumar K.L., “Fluid Mechanics”, S. Chand & Co.22nd Edition 2016.
 |
| 1. Jain A.K., “Fluid Mechanics”, Khanna Publisher.23rd Edition 2010.
 |
| 1. White B.F., “Fluid Mechanics”, McGraw Hill.7 th Edition 2010.
 |
| 1. Frabzini J., “Fluid Mechanics with Engineering Applications”, McGraw Hill.10th Edition 2001.
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