

Subject Description Form

Subject Code	CSE29202
Subject Title	Fluid Mechanics
Credit Value	3
Level	2
Exclusion	CSE29207 Introduction to Fluid Mechanics for EESD
Objectives	This subject aims to: (1) familiarize students with the basic principles of fluid mechanics; (2) enable students to acquire basic laboratory techniques of fluid mechanics; and (3) To train students to apply the basic principles to explain fluid mechanics related phenomena and solve practical engineering problems.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. Understand the fundamentals of fluid mechanics, i.e., the fluid mechanics background, basic fluid properties, hydrostatics, conservations of mass, momentum and energy, dimensional analysis, and operations of pipe networks and pumps; b. Apply the laws of similitude and identify the important dimensionless parameters in designing fluid flow models to predict the performance of the prototype; c. Apply the basic knowledge of vector algebra and calculus to solve both integral and differential forms of conservation of mass, momentum and energy equations in steady or quasi-steady flow situations; d. Evaluate the correct applications of basic fluid statics and dynamics to different situations critically and independently; e. Apply basic laboratory techniques to study fluid mechanics problems; f. Actively engage in group discussion and group work.
Subject Synopsis/ Indicative Syllabus	1. <u>Fundamental Concepts Relating to Fluids</u> (2 weeks) The nature of the problem, including a brief outline of the history of the subject and some typical engineering problems. Definitions and properties, including density, specific volume, relative density, pressure, compressibility, bulk modulus, surface tension, capillarity, and state, units and dimensions, ideal fluid, viscosity, Newton's equations for viscous shear, real fluid. 2. <u>Fluids at Rest</u> (2 weeks) Hydrostatic pressure distribution. Thrust on surface. Pressure measurement. Elementary treatment of the equilibrium of

