Course: Fluid Mechanics   credits: 3

Course code	WBVP17FM	**Modes of delivery**	Education
Name	Fluid Mechanics	**Assessments**	Fluid Mechanics - Written, organised by STAD examinations
Study year	2022-2023		
ECTS credits	3		
Language	English		
Coordinator	T. Munuswamy		

Learning outcomes

After finishing this module the student:

- calculates pressure differences and flows in a given hydraulic system using Bernoulli's law and the continuity equation
- determines the operating point based on the systems curve and pump performance curve, evaluates if it meets the requirements, and calculates the power of the pump and NPSH
- interprets a given Process Flow Diagram (PFD) and Piping & Instrument Diagram (P&ID) that contains series and parallel circuits, hydraulic shortcuts and four basic circuits for the regulation of temperature and pressure and describes and explains its behavior
- selects the appropriate displacement pump or centrifugal pump and knows how to interpret and apply the parameters and characteristics of these pumps

Content

In this course we will consider fluid carrying systems of pumps and pipes from a designers' perspective: What specifications do we need the system to have and how can we make sure the systems behavior is in alignment with the requirements? We will need the Bernoulli equation, Darcy-Weissbach equation and Moody diagrams to solve it. The Reynolds number and its relation to laminar and turbulent flow is investigated. We will consider PFD's and P&ID's containing series and parallel circuits. The NPSH (nett positive suction head) in relation to the phenomenon of cavitation is treated.

Included in programme(s)

Mechanical Engineering VWO a 3-year variant

School(s)

Institute of Engineering

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