

<b>Discipline:</b> <b><u>MECHANICAL</u></b>	<b>Semester:</b> <b><u>4th</u></b>	<b>Name of the Teaching Faculty:</b> <b>NISITH KUMAR GOSWAMI, LECTURER (GF)</b>
<b>Subject:</b> <b>FM</b>	<b>No. of days/per week class allotted:</b> <b>4</b>	<b>Semester From date: 04.02.2025</b> <b>To date: 17.05.2025</b> <b>No of weeks: 15</b>
<b>Week</b>	<b>Class Day</b>	<b>Theory Topics:</b>
<b>1<sup>st</sup></b>	<b>1<sup>st</sup></b>	<b>Properties of Fluid</b> Define fluid
	<b>2<sup>nd</sup></b>	Description of fluid properties like Density, Specific weight, specific gravity, specific volume and solve simple problems.
	<b>3<sup>rd</sup></b>	Description of fluid properties like Density, Specific weight, specific gravity, specific volume and solve simple problems.
	<b>4<sup>th</sup></b>	Definitions and Units of Dynamic viscosity, kinematic viscosity, surface tension Capillary phenomenon
<b>2<sup>nd</sup></b>	<b>1<sup>st</sup></b>	Definitions and Units of Dynamic viscosity, kinematic viscosity, surface tension Capillary phenomenon
	<b>2<sup>nd</sup></b>	<b>Fluid Pressure and its measurements</b> Definitions and units of fluid pressure, pressure intensity and pressure head.
	<b>3<sup>rd</sup></b>	Definitions and units of fluid pressure, pressure intensity and pressure head.
	<b>4<sup>th</sup></b>	Definitions and units of fluid pressure, pressure intensity and pressure head.
<b>3<sup>rd</sup></b>	<b>1<sup>st</sup></b>	Concept of atmospheric pressure, gauge pressure, vacuum pressure and absolute pressure
	<b>2<sup>nd</sup></b>	Concept of atmospheric pressure, gauge pressure, vacuum pressure and absolute pressure
	<b>3<sup>rd</sup></b>	Pressure measuring instruments Manometers (Simple and Differential)
	<b>4<sup>th</sup></b>	Pressure measuring instruments Manometers (Simple and Differential)
<b>4<sup>th</sup></b>	<b>1<sup>st</sup></b>	Bourdon tube pressure gauge (Simple Numerical)
	<b>2<sup>nd</sup></b>	Solve simple problems on Manometer.
	<b>3<sup>rd</sup></b>	Solve simple problems on Manometer.
	<b>4<sup>th</sup></b>	<b>Hydrostatics</b> Definition of hydrostatic pressure
<b>5<sup>th</sup></b>	<b>1<sup>st</sup></b>	Total pressure and centre of pressure on immersed bodies (Horizontal and Vertical Bodies)
	<b>2<sup>nd</sup></b>	Total pressure and centre of pressure on immersed bodies (Horizontal and Vertical Bodies)
	<b>3<sup>rd</sup></b>	Solve Simple problems.
	<b>4<sup>th</sup></b>	Solve Simple problems.

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6 <sup>th</sup>	1 <sup>st</sup>	Archimedes 'principle, concept of buoyancy, meta center and meta centric height (Definition only)
	2 <sup>nd</sup>	Concept of floatation
	3 <sup>rd</sup>	<b>Kinematics of Flow</b> Types of fluid flow
	4 <sup>th</sup>	Continuity equation(Statement and proof for one dimensional flow)
7 <sup>th</sup>	1 <sup>st</sup>	Bernoulli's theorem(Statement and proof) Applications and limitations of Bernoulli's theorem (Venturimeter, pitot tube)
	2 <sup>nd</sup>	Bernoulli's theorem(Statement and proof) Applications and limitations of Bernoulli's theorem (Venturimeter, pitot tube)
	3 <sup>rd</sup>	Solve simple problems
	4 <sup>th</sup>	<b>Orifices, notches &amp; weirs</b> Define orifice
8 <sup>th</sup>	1 <sup>st</sup>	Flow through orifice
	2 <sup>nd</sup>	Orifices coefficient & the relation between the orifice coefficients
	3 <sup>rd</sup>	Orifices coefficient & the relation between the orifice coefficients
	4 <sup>th</sup>	Classifications of notches & weirs
9 <sup>th</sup>	1 <sup>st</sup>	Classifications of notches & weirs
	2 <sup>nd</sup>	Discharge over a rectangular notch or weir
	3 <sup>rd</sup>	Discharge over a rectangular notch or weir
	4 <sup>th</sup>	Discharge over a triangular notch or weir
10 <sup>th</sup>	1 <sup>st</sup>	Discharge over a triangular notch or weir
	2 <sup>nd</sup>	Simple problems on above
	3 <sup>rd</sup>	<b>Flow through pipe</b> Definition of pipe.
	4 <sup>th</sup>	Loss of energy in pipes.
11 <sup>th</sup>	1 <sup>st</sup>	Loss of energy in pipes.
	2 <sup>nd</sup>	Head loss due to friction: Darcy's and Chezy's formula (Expression only)
	3 <sup>rd</sup>	Head loss due to friction: Darcy's and Chezy's formula (Expression only)
	4 <sup>th</sup>	Class Test-I
12 <sup>th</sup>	1 <sup>st</sup>	Solve Problems using Darcy's and Chezy's formula.
	2 <sup>nd</sup>	Solve Problems using Darcy's and Chezy's formula.
	3 <sup>rd</sup>	Hydraulic gradient and total gradient line
	4 <sup>th</sup>	<b>Impact of jets</b> Impact of jet on fixed and moving vertical flat plates
13 <sup>th</sup>	1 <sup>st</sup>	Impact of jet on fixed and moving vertical flat plates
	2 <sup>nd</sup>	Derivation of work done on series of vanes and condition for maximum efficiency.
	3 <sup>rd</sup>	Derivation of work done on series of vanes and condition for maximum efficiency.

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	4 <sup>th</sup>	Impact of jet on moving curved vanes, illustration using velocity triangles, derivation of work done, efficiency.
14 <sup>th</sup>	1 <sup>st</sup>	Impact of jet on moving curved vanes, illustration using velocity triangles, derivation of work done, efficiency.
	2 <sup>nd</sup>	Class Test-II
	3 <sup>rd</sup>	Discussion of PYQ
	4 <sup>th</sup>	Discussion of PYQ
15 <sup>th</sup>	1 <sup>st</sup>	Discussion of PYQ
	2 <sup>nd</sup>	Doubt clearing class
	3 <sup>rd</sup>	Doubt clearing class
	4 <sup>th</sup>	Doubt clearing class

  
**H.O.D. Mechanical**

Nishith Kerosoo  
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