

<b>Course Code</b>	CP410			
<b>Course Title</b>	Industrial Fluid Mechanics			
<b>No. of Credits</b>	3			
<b>Pre-requisites</b>	CE202			
<b>Compulsory/Optional</b>	Compulsory			
<b>Aim(s):</b> To provide students with knowledge and skills on selected topics of fluid mechanics for a practicing chemical engineer.				
<b>Intended Learning Outcomes:</b> On successful completion of the course, the students should be able to; ILO1: Describe industrial applications related to flow through porous media and pneumatic transportation ILO2: Describe the different mechanisms of lubrication and their application. ILO3: Derive governing equations of processes such as fluidization, filtration from basic equations in fluid mechanics. ILO4: Develop design specifications for process units such as fluidized beds, filters, and pneumatic and slurry transport systems.				
Topics	Time Allocation/Hours			
	L	T	P	A
<ul style="list-style-type: none"> <li><b>Flow through porous media</b> Introduction to particle fluid mechanics; Derivation of governing equations; Design of Fluidisation, and Filtration units</li> </ul>	10	01	04	06
<ul style="list-style-type: none"> <li><b>Pneumatic transportation &amp; Transport of slurries</b> Applications of pneumatic and slurry transport systems, Design of pneumatic transport systems</li> </ul>	05			06
<ul style="list-style-type: none"> <li><b>Lubrication</b> Tribology, hydrodynamic, elasto-hydrodynamic and boundary lubrication.</li> </ul>	06		02	
<ul style="list-style-type: none"> <li><b>Hydraulic/Pneumatic power principles</b> Fluid power symbols and diagrams, actuators, control valves, fluid preparation systems, contamination control, directional and pressure controls and applications.</li> </ul>	08	01	02	08
<b>Total equivalent hours</b>	<b>29</b>	<b>02</b>	<b>04</b>	<b>10</b>
<b>Recommended Texts:</b>				
<ul style="list-style-type: none"> <li>Richardson, J. F., Harker, J. H., Coulson and Richardson's Chemical Engineering Design, (5 Ed), Butterworth-Heinemann, 2002.</li> <li>Mills, D., Pneumatic Conveying Design Guide, (2 Ed), Butterworth-Heinemann, 2004.</li> </ul>				
Assessment	Percentage Mark			
<b>In-course</b>				50
Design/Assignments/ Laboratory work	25			
Mid-semester examination	25			

<b>End semester</b>		50
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