

<b>Department of Civil Engineering</b>			
<b>Fluid Mechanics &amp;Hydraulic Lab. (61346)</b>			
<b>Total Credits</b>	<b>1</b>		
<b>major compulsory</b>			
<b>Prerequisites</b>	P1 : Hydraulics (61345) P11Synch. : Hydraulics (61345)		
<b>Course Contents</b>			
Principles of fluid mechanics and hydraulics through laboratory experiments. Experiments cover fluid properties, velocity variation and continuity equation, hydrostatics and pressure measurement, velocity and flow measurement, orifices, venturi meters, and weirs. Uniform and varied flow in open channels, and pumps in parallel and series.			
<b>Intended Learning Outcomes (ILO's)</b>		<b>Student Outcomes (SO's)</b>	<b>Contribution</b>
1	An ability to write a scientific report.	B	20 %
2	An ability to collect data from the lab., measure fluid and flow properties and apply fluid mechanics and hydraulic principles on this data	B	70 %
3	An ability to work in teams, and understand the responsibility of the devices in the lab.	D	10 %
<b>Textbook and/ or References</b>			
Tubeleh, H. Fluid Mechanics and Hydraulics Lab Manual, An-Najah National University , 2013.			
<b>Assessment Criteria</b>		<b>Percent (%)</b>	
Mid. Term Exam		20 %	
Laboratory Work		40 %	
Final Exam		40 %	
<b>Course Plan</b>			
<b>Week</b>	<b>Topic</b>		
1	Introduction and Safety		
2	Density and Buoyancy Test.		
3	Pressure measurement Test		
4	Hydrostatic Forces on a Plane Surface Test		
5	Stability of a Floating Body Test.		
6	Flow Measuring Test		
7	Flow through a nozzle Test		
8	Impact of a Jet Test		
9	Midterm Exam		
10	Reynolds number and turbulent Test		
11	Friction loss Test		
12	Minor loss Test		
13	Flow under a Sluice Gate (open channel application) Test		
14	Pumps in series and parallel		
15	Final Exam		