

Professor J. J. Lee

## Fluid Mechanics

COURSE OBJECTIVES AND OUTCOMES		How well did you learn?				
		Not at all → Very Well				
		1	2	3	4	5
<b>Goal.</b> To provide the basic concepts; viscosity, fluid statics; relative velocity field; total acceleration; divergence theorem; conservation of mass, energy, and momentum applied to engineering problems in laminar and turbulent flow.		<b>PLEASE CIRCLE YOUR RATINGS</b> ↓ BELOW ↓				
<b>Objective.</b> To study and analyze fluid problems in static condition.						
<b>Outcome:</b> The student will be able to						
1	Determine the pressure at any points in the fluid domain					
2	Determine the static forces on any surfaces or body					
3	Analyze the stability of a floating body					
<b>Objective.</b> To study and analyze fluid problems in motion.		<b>PLEASE CIRCLE YOUR RATINGS</b> ↓ BELOW ↓				
<b>Outcome.</b> The student will be able to						
4	Use continuity principle to analyze fluid flow problems					
5	Use momentum principle to analyze fluid flow problems					
6	Use energy principle to analyze fluid flow problems					
7	Distinguish flow behavior between laminar and turbulent flows and use the correct principles for analysis					
<b>Objective.</b> To apply the governing principles and equations for different fluid flow problem involving real fluids.		<b>PLEASE CIRCLE YOUR RATINGS</b> ↓ BELOW ↓				
<b>Outcome:</b> The student will be able to						
8	Compute and analyze flow in conduits with piping problems in series, in parallel and in closed loops.					
9	Compute and analyze flows in channels involving uniform and non-uniform flows					
10	Analyze flow with compressible fluids					
RELATIONSHIP OF CIVIL ENGINEERING PROGRAM COURSE OBJECTIVES TO OUTCOMES						
<b>Objective.</b> The Civil Engineering program is designed to teach beyond the technical content of the curriculum and prepare the students to utilize what they learn in a professional setting. Engineering projects and research activities enlist skills and demonstrate ability to understand the subject matter and communicate in a proficient manner. This course contributes to the overall program goals in the following ways.						
<b>Outcome.</b> Engineering programs must demonstrate that their students attain						
a	An ability to apply knowledge of mathematics, science, and engineering	1	2	3	4	5
b	An ability to design and conduct experiments, as well as to analyze and interpret data	1	2	3	4	5
c	An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	1	2	3	4	5
d	An ability to function on multi-disciplinary teams	1	2	3	4	5
e	An ability to identify, formulate, and solve simple engineering problems	1	2	3	4	5
f	An understanding of professional and ethical responsibility	1	2	3	4	5
g	An ability to communicate effectively	1	2	3	4	5
h	The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context	1	2	3	4	5
i	A recognition of the need for, and an ability to engage in life-long learning	1	2	3	4	5
j	A knowledge of contemporary issues	1	2	3	4	5
k	An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	1	2	3	4	5