

Department of Mechanical Engineering				
Heat Transfer I (67420)				
Total Credits	3			
major compulsory				
Prerequisites	P1 : Thermodynamics I (67220) OR Thermodynamics I (67312)			
Course Contents				
One dimensional conduction; steady and transient analysis. Introduction to convection heat transfer. Forced convection heat transfer in external flows. Radiation heat transfer; radiation properties, and radiation heat exchange between ideal surfaces.				
Intended Learning Outcomes (ILO's)			Student Outcomes (SO's)	
			Contribution	
1	Identify heat transfer through conduction.		E	60 %
2	Identify heat transfer through convection		E	30 %
3	Give students a real hand on experiences that are involved in a real life applications, designs, and performances of heat exchangers and related calculations.		C	10 %
Textbook and/ or References				
Textbook:F. P. Incropera &D. P. Dewitt, Fundamentals of heat and masstransfer, 7th Edition.John Wiley &Sons 2011.References:M. C. potter &E. P. Sott, Thermal Sciences, 6th Edition.John Wiley &Sons 2010.T. D. Klaus, ' A Few Fundamental Concepts and Applications of Cryogenic Heat Transfer', John Wiley &Sons 2010.. A. Cenge, Heat and Mass Transfer, 7th Edition.John Wiley &Sons 2011.J. P. Holman. Heat Transfer, 6th Edition 2010.J. Welty, C. E. Wicks, R. E. Wilson, and G. L. Rorrer, Fundamentals of Momentum, Heat, and MaTransfer, 6th 2011.				
Assessment Criteria		Percent (%)		
First Exam		20 %		
Second Exam		20 %		
Quizzes		10 %		
Final Exam		50 %		
Course Plan				
Week	Topic			
1	Heat transfer modes			
2	Introduction to conduction			
3,4	One-Dimensional, steady-state conduction			
5,6	Transient conduction			
7	First Exam			
8	Introduction to convection			
9,10	External flow			
11,12	Internal flow			
13	Second Exam			
14,15	Heat exchangers			
16	Final Exam			