

UNIVERSITY OF JORDAN
FACULTY OF ENGINEERING & TECHNOLOGY
MECHANICAL ENGINEERING DEPARTMENT

Course plan :

Course Title : Heat Transfer (Advanced; for MSc. Level)

Course No. : 0904722

Credit Hours : 3

Semester :

Instructor :

Textbook : Heat and Mass Transfer, by A.F. Mills
 Publisher: R.D.Irwin, 1995

References:

1. Heat, Mass and Momentum Transfer, by Rohsenow and Choi, Prentice – Hall , Latest Edition.
2. A Heat Transfer Textbook, by J.H.Lienhard, Latest edition, Prentice-Hall
3. Viscous Fluid Flow, by F. White, and Edition, 1991
4. Convective Heat and Mass Transfer, by Kays and Crawford ,3rd. ed.,1993
5. Analytical Methods in Conduction Heat Transfer, by Glen E. Myers, McGraw-Hill, Latest edition.
6. Convection Heat Transfer, by Adrian Bejan, John Wiley, 1984
7. Radiation Heat Transfer, by Siegel and Howell, Mc Graw-Hill, Latest edition.

Objectives :

To upgrade the level of understanding of the student to a higher level which can qualify him to handle analytical research problems in heat transfer. A unified approach to the subject matter, which emphasizes the analogy between heat, mass and momentum transfer will be adopted.

<i>Topics</i>	<i>Readings</i>
Introduction	R&C: Ch.1
Conservation Equations	Lienhard: 2.1, 7.3 White 1.3-1.4, Ch.2 Mills: 5.7
Conduction	Mills : 2.4.4 , 3.1-3.2 Lienhard: Chapter 5
Conduction (cont.)	Mayers
Laminar Boundary Layers	Mills: 4.2, 4.3.2, 5.2.1, 5.4, 5.8.1 Lienhard: 7.1-7.5 White: 3.5, 3.8,4.1-4.3, 4.10-4.10.1,4.12, 7.1-7.3 K&C: Ch.8,10
1st. Exam	

<i>Topics</i>	<i>Readings</i>
Laminar Internal Flows	Mills: 4.3.1, 5.3 Lienhard: 8.1-8.2 White: 3.1-3.4,4.9 K& C:Ch.7,9
Natural Convection	Mills: 4.4, 5.4.5, 5.8.2 Lienhard 9.1-9.4 Bejan: Ch.4 R&C,7.4,7.6,8.12,8.13
Turbulence	Mills: 5.5 (all) White: 6.1-6.7,6.10 K&C: Ch.5,11-14
Condensation	Mills:7.2 Lenhard: 9.5 R&C: Ch.10
2nd Exam	
Boiling	Mills:7.4 Lienhard:10.1-10.4
Boiling	R&C; Ch.9
Radiation	Mills:Ch.6 Lienhard: Ch.11
Radiation	Siegel & Howel
Mass Transfer	R&C, Ch.14
Mass Transfer	R&C,Ch.15&16
Mass Transfer	Mills: 9.2.1, 9.2.2, 9.2.3, 9.3.2, 9.4.1, 9.4.2 9.4.3, 9.4.4, 9.5.1, 9.5.2

Grades:

HW	10%
1 st . Exam:	25%
2 nd . Exam.	25%
Final Exam.	40%