King Saud University
Mechanical Engineering Department
ME 476 Solar Energy
Second Semester – 1434/1435H

Instructor: Dr. Hany Al-Ansary

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Course Description:
Introduction; Solar radiation; Solar collectors: Flat plate, Concentrating parabolic, Photovoltaic; Thermal analysis and performance of solar collectors; Solar energy applications: Water heating, Desalination, Refrigeration.

Credit hours 3

Textbook: "Solar Engineering of Thermal Processes" J. A. Duffie, W. A. Beckman, Wiley, 4th Edition, 2013.

Course Content

List of Topics	Weeks
Introduction	0.5
Revision of Thermal Radiation	1.5
Solar Radiation	3.0
Solar collectors: Flat plate, Concentrating parabolic, Photovoltaic panels	4.0
Thermal analysis and performance of solar collectors	2.0
Solar energy applications: Water heating, Desalination, Refrigeration, Power generation	3.0

Design Content: 20%
Lectures: 100 %
Laboratory Portion: None

Assessment Tools:
2 Midterm Exams: 35 %
Quizzes: 10%
Term Project: 15%
Final Exam: 40 %

Estimated ABET Category Content:
Mathematics and Basic Science: 0 credit units (0%)
Engineering Science: 2.4 credit units (80%)
Engineering Design: 0.6 credit units (20%)

Prepared by
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