

Yıldız Technical University
Faculty of Chemical and Metallurgical Engineering, Department of Bioengineering

Heat Transfer in Bioengineering

G1

Autumn 2020-2021

Lecturer: Assoc. Prof. Dr. Özgen AÇIKGÖZ, Dr. Mustafa Kemal SEVİNDİR

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Week	Subjects	Related Preparation
1	Introduction to Heat Transfer and Basic Concepts	Çengel, Y.A., "Heat and Mass Transfer", McGraw-Hill, 2011.
2	Heat Conduction Equation: Heat Conduction Equation in a Large Plane Wall	Çengel, Y.A., "Heat and Mass Transfer", McGraw-Hill, 2011.
3	Heat Conduction Equation: Heat Conduction Equation in a Long Cylinder and Sphere	Çengel, Y.A., "Heat and Mass Transfer", McGraw-Hill, 2011.
4	General Heat Conduction Equation	Çengel, Y.A., "Heat and Mass Transfer", McGraw-Hill, 2011.
5	Boundary and Initial Conditions, Solution of Heat Conduction Problems	Çengel, Y.A., "Heat and Mass Transfer", McGraw-Hill, 2011.
6	Steady Heat Conduction: Generalized Thermal Resistance Networks	Çengel, Y.A., "Heat and Mass Transfer", McGraw-Hill, 2011.
7	Transient Heat Conduction: Lumped System Analysis	Çengel, Y.A., "Heat and Mass Transfer", McGraw-Hill, 2011.
8	Unsteady state heat transfer: Multidimensional Systems	Çengel, Y.A., "Heat and Mass Transfer", McGraw-Hill, 2011.
9	Midterm 1	
10	External Forced Convection: Drag Force, Parallel Flow over Flat Plates and Flow across Cylinders and Spheres	Çengel, Y.A., "Heat and Mass Transfer", McGraw-Hill, 2011.
11	Internal Forced Convection: Laminar and Turbulent Flow in Tubes	Çengel, Y.A., "Heat and Mass Transfer", McGraw-Hill, 2011.
12	Natural convection: Natural convection on wall surface, Combination of natural and forced convection	Çengel, Y.A., "Heat and Mass Transfer", McGraw-Hill, 2011.
13	Applications of conduction, convection and radiation mechanisms in biological systems I	A.K. Data, "Biological and Bioenvironmental Heat and Mass Transfer", Marcel Dekker Inc., 2002
14	Applications of heat transfer mechanisms in biological systems II	M.A.S. Bernardes, "Bioheat Transfer: Developments in Heat Transfer", Intech, 2011
15	Final	

<i>Coursebooks:</i>	Heat and mass transfer Yunus A. Çengel, Afshin J. Ghajar, Palme Yayıncılık Fundamentals of heat and mass transfer Frank P. Incropera, David P. DeWitt, John Wiley Heat transfer J. P. Holman, Mc. Graw Hill
<i>Grading:</i>	30% Midterm exam 30% Presentation and homeworks 40% Final exam
<i>Notlar:</i>	It is mandatory one of the given coursebooks to be procured. Courses will be issued by keeping track of the coursebook, and thus participating the course after reading the chapter that will be issued is recommended. <ul style="list-style-type: none">• Dersin sunum dosyalarını ve sınav notlarınızı https://avesis.yildiz.edu.tr/oacikgoz sitesinden indirmeniz mümkündür.