

MM 563 Radiation Heat Transfer				MECHANICAL ENGINEERING DEPARTMENT					
Semester	Methods of Education							Credits	
	Lecture	Recit.	Lab.	Project/Field Study	Homework	Other	Total	Credit	ECTS credit
1,2	32	10				146	188	3	7.5
Language	Turkish								
Compulsory / Elective	Optional								
Prerequisites	-								
Course Contents	Fundamentals of thermal radiation, radiative properties of real surfaces, view factors, radiative exchange between gray, diffuse surfaces, radiative exchange between nonideal surfaces, equation of radiative transfer in participating media, the equation of radiative transfer in participating media, radiative properties of molecular gases, particulate and semitransparent media. Approximate and exact solutions for one dimensional media.								
Course Objectives	The basic laws of thermal radiation, and the solution of complex thermal radiation problems. The radiative properties of surfaces. Radiative heat exchange between the surfaces.								
Learning Outcomes and Competences	Learning the fundamentals of thermal radiation, and complex behavior of radiative surfaces. To learn the approximate and exact solution of one dimensional systems.								
Textbook and /or Reference	Modest, M. F., Radiative Heat Transfer, McGraw Hill Book Co., 1993.								
Assessment Criteria					If any, mark as (X)		Percentage (%)		
	Midterm Exams				X		40		
	Quizzes								
	Homeworks								
	Projects								
	Term Paper								
	Laboratory Work								
	Other								
	Final Exam				X		60		
Instructors									
Week	Subject								
1	Fundamentals of thermal radiation.								
2	Radiation properties and electromagnetic wave theory.								
3	Radiative properties of real surfaces and view factors.								
4	Radiative exchange between grey, diffuse surfaces.								
5	Radiative exchange between nonideal surfaces.								
6	1st Midterm Examination.								
7	Radiative properties of molecular gases.								
8	Exact solutions for one-dimensional grey media.								
9	Approximate solution methods for one-dimensional media.								
10	Radiative properties of semitransparent media.								
11	The Zonal method.								
12	2nd Midterm Examination.								
13	Radiation combined with conduction and convection.								
14	The method of spherical harmonics.								