1. Course Description

COURSE DESCRIPTION FORM	
Course Code and Title	CHE487 THORIUM TECHNOLOGY
Course Semester	7
Catalog Description (Content) of the Course	The acquisition of thorium from ore and various sources, enrichment, purification, preparation and characterization of various compounds of uranium and thorium; thorium indication; reactor types and fuel cycles, development of thorium-based fuel cycle and thorium fuel-powered nuclear reactors
Main Textbook	Baratta A.J.,IntroductiontoNuclearEngineering (3rd Edition) PrenticeHall, 2001 IAEA-TECDOC-1155:
Supporting Textbooks	ThoriumBasedFuelOptionsForTheGeneration of ElectricityDevelopments in 1990s, IAEA, Wien, 200
Course Credit (ECTS)	4
Prerequisites of the Course (Compulsory attendance should be indicated here.)	No
Type of the Course	Elective
Instruction Language of the Course	English
Object and Target of the Course	Thorium production principles and use in nuclear technology
Learning Outcomes of the Course	To give information about nuclear technology using thorium in the future To give information about principles of thorium production and its use in nuclear technology
Mode of Delivery	Face to face education
Weekly Schedule of the Course	**COURSE CONTENT** 1. week Nationalandinternational legal responsibilitiesresultingfromhealthandenvironmentalsecurityeffects of chemicalprocesses in universalandsocialdimensions. 2. week Nationalandinternational legal responsibilitiesresultingfromhealthandenvironmentalsecurityeffects of chemicalprocesses in universalandsocialdimensions. 3. week Acquisition, concentration and purification of thorium from ore and various sources 4. week Preparation of various compounds of uranium and thorium 5. week Preparation of various compounds of uranium and thorium 6. week Reactortypesandfuelcycles 7. week Reactortypesandfuelcycles 8. week Reactortypesandfuelcycles

	9. week Reactortypesandfuelcycles 10.week Development of thorium-based fuel cycle and thorium fuel-powered nuclear reactors 11.week Development of thorium-based fuel cycle and thorium fuel-powered nuclear reactors 12.week Development of thorium-based fuel cycle and thorium fuel-powered nuclear reactors 13.week Presentations 14.week Presentations .
Educative Activities *(Credit will be determined based on the time given for these activities. Should be filled carefully.)*	Theoretical Study Hours of Course Per Week Reading Searching in Internet and Library Preparing Reports Preparing Presentation Presentation Mid-Term and Studying for Mid-Term Final and Studying for Final

Assessment Criteria

	Quantity	Total Contribution (%)
Midterm	2	40
Homework	-	-
Assignment	-	-
Projects	1	20
Practice	-	-
Quiz	-	-
Contribution of In-term Studies to Overall Grade		60
Contribution of Final Examination to Overall Grade		40
Attendance		

Workload of the Course

Activity	Total Week Count	Weekly Duration (in hour)	Total Workload in Semester
Theoretical Study Hours of Course Per Week	14	3	42
Practicing Hours of Course Per Week			
Reading	8	2	16
Searching in Internet and Library	8	2	16
Designing and Applying Materials			
Preparing Reports	3	3	9
Preparing Presentation	1	3	3
Presentation	1	1	1
Preparing Homework			

		Mid-Term and Studying for Mid-Term	2	4	8
		Final and Studying for Final	1	5	5
		Other			
		Total work load			100
		Total work load/25			4.0
		ECTS of the course			4

Course's Contribution To Program

Number	Program Outcomes	1	2	3	4	5
1	Adequate knowledge in mathematics, science and engineering subjects pertaining to the relevant discipline; ability to use theoretical and applied information in these areas to model and solve engineering problems.	x				
2	Ability to identify, formulate, and solve complex engineering problems; ability to select and apply proper analysis and modeling methods for this purpose.	x				
3	Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way as to meet the desired result; ability to apply modern design methods for this purpose.	x				
4	Ability to devise, select, and use modern techniques and tools needed for engineering practice; ability to employ information technologies effectively.	x				
5	Ability to design and conduct experiments, gather data, analyze and interpret results for investigating engineering problems.	x				
6	Ability to work efficiently in intra-disciplinary teams.				x	
7	Ability to work efficiently in multi-disciplinary teams;	x				
8	Ability to work individually.				x	
9	Ability to communicate effectively in Turkish/English, both orally and in writing; Ability to write effective reports and comprehend written reports, make effective presentations,				x	
10	prepare design and production reports, give and receive clear and intelligible instructions.	x				
11	Recognition of the need for lifelong learning; ability to access information, to follow developments in science and technology, and to continue to educate him/herself.		x			
12	Awareness of professional and ethical responsibility.				x	
13	Information about business life practices such as project management, risk management, and change management.			x		
14	Information about awareness of entrepreneurship, innovation, and sustainable development.		x			
15	Knowledge about contemporary issues and the global and societal effects of engineering practices on health, environment, and safety.				x	
16	Knowledge about awareness of the legal consequences of engineering solutions.			x		
17	Knowledge on standards used in engineering practice.			x		

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