Course Information

COURSE INFORMATION

Course Title	Code	Semester	L+U Hour	Credits	ECTS
Nuclear Reactors	FZK326	6. Semester	3 + 0	3.0	7.0

Prerequisites	None

Language of Instruction	Turkish
Course Level	Bacheclor's Degree (First Cycle)
Course Type	Elective
Mode of delivery	Face to face
Course Coordinator	Assoc. Prof. Dr. Emine Dilara AYDIN
Instructors	
Assistants	
Course Objectives	The aim of this course is to teach the fundamental aspects of Reactor Physics.
Course Content	Introduction to basic reactor physics. Neutron nuclear reactions, Neutron chain fission. Neutron diffusion theory. Neutron diffusion theory. Neutron energy distribution, Nuclear reactor dynamics, Fuel burnup, Nuclear power reactors, Reactor safety, Radioactive waste, Transportation of radioactive waste and materials
Course Learning Outcomes	1) After completion of this course students will be able to: understand nuclear fission. 2) Get knowledge about the basics of nuclear physics. 3) Understand nuclear reactors principles. 4) Get knowledge about applications of nuclear reactors.

WEEKLY COURSE CONTENT

Week	Topics	Teaching and Learning Methods and Techniques	Study Materials
1. Week	Introduction to basic reactor physics.	Oral lecture, questions-answers, homework	
2. Week	Neutron nuclear reactions	Oral lecture, questions-answers, homework	
3. Week	Neutron chain reactions.	Oral lecture, questions-answers, homework	
4. Week	Neutron diffusion theory	Oral lecture, questions-answers,	

Quick Access

Physics
- Qualification Awarded
- Level of Qualification
- Qualification Requirements and Regulations
- Specific Admission Requirements
- Recognition of Prior Learning
- Profile of the Program
- Program Key Learning Outcomes
- Occupational Profile of Graduates
- Access to Further Studies
- Course Structure & Credits
- Exam Regulations & Assessment & Grading
- Graduation Requirements
- Mode of Study
- Programme Director(or Equivalent)
- Evaluation Questionnaire
- TYYÇ

Course Information
- Course Information
- Weekly Course Content
- Resources
- Course Category
- CONTRIBUTION OF COURSE LEARNING OUTCOMES TO PROGRAMME OUTCOMES
- ECTS credits and course workload

		homework	
5. Week	Neutron diffusion theory	Oral lecture, questions-answers, homework	
6. Week	Neutron energy distribution	Oral lecture, questions-answers, homework	
7. Week	Nuclear reactor dynamics	Oral lecture, questions-answers, homework	
8. Week	Mid-term Exam		
9. Week	Fuel burnup	Oral lecture, questions-answers, homework	
10. Week	Nuclear power reactors	Oral lecture, questions-answers, homework	
11. Week	Nuclear power reactors	Oral lecture, questions-answers, homework	
12. Week	Nuclear power reactors		
13. Week	Reactor safety	Oral lecture, questions-answers, homework	
14. Week	Radioactive waste	Oral lecture, questions-answers, homework	
15. Week	Transportation of radioactive waste and materials	Oral lecture, questions-answers, homework	
16. Week	Final Exam		

RESOURCES

Recommended Sources
Nuclear Power Technology on Trial, J. J. Duderstadt, C. Kikuchi, published by The University of Michigan Press, Ann Arbor, 1983.
Nuclear Power Plant Design Analysis, A. Sesonske, published by Tecnical Information Center, Office of Information Services US ATOMIC ENERGY COMMISSION, 1973
Introduction to Nuclear Engineering, J. R. Lamarsh, 2nd edition, Addison-Wesley, Menlo Park, 1983

ASSESSMENT

Measurement and Evaluation Methods and Techniques
Mid-term Exam, Attendance, Problem Solving, Quiz, Final Exam

COURSE CATEGORY

Course Category	Percentage
Support Courses	% 100

CONTRIBUTION OF COURSE LEARNING OUTCOMES TO PROGRAMME OUTCOMES

Programme Outcomes	Contribution Level	DK1	DK2	DK3	DK4
PY1	5	5	4	4	5

PY2	4	4	4	5	5
PY3	2	2	2	2	2
PY4	1	2	1	1	1
PY5	1	2	1	1	1
PY6	3	3	3	3	3
PY7	1	1	1	2	1
PY8	4	4	4	3	4
PY9	2	1	2	2	2
PY10	3	4	3	3	3
PY11	1	1	2	1	1
PY12	1	1	1	1	1
PY13	1	1	2	1	1
PY14	1	1	1	2	1
PY15	4	4	5	4	4

*DK = Course's Contrubution.

	0	1	2	3	4	5
Level of contribution	None	Very Low	Low	Fair	High	Very High

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ECTS CREDITS AND COURSE WORKLOAD

Event	Quantity	Duration (Hour)	Total Workload (Hour)
Class Hours (14 weeks)	14	3	42
Final Exam Preparation	1	18	18
Mid Term Exam Preparation	1	15	15
Further Study	14	5	70
Quiz 1	2	2	4
Assignment 1	4	2	8
Quiz 2	2	2	4
Preliminary Study	14	1	14
Mid Term Exam 1	1	2	2
Final Exam	1	2	2
		Total Workload	179
		Total Workload / 25.5 (s)	7.02
		ECTS Credit of the Course	7