Course Information

COURSE INFORMATION

Course Title	Code	Semester	L+U Hour	Credits	ECTS
Basic of Nuclear Engineering	FZK459.2	7. 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	Principles of Nuclear Engineering, nuclear engineering education with the main topics of the reactor physics, reactor technology, reactor safety, health physics, radiation physics and technology as well as all of the issues discussed as parts of a whole, is a lesson to the students formation of general nuclear engineering aims to gain them.
Course Content	Basic radiation physics, radiation technology. Nuclear reactor systems and types; basic reactor physics, criticality calculations; fuel cycles; ractivity changes; reactor kinetics. Instrumentation and control; radiation protection. Reactor materials; shielding; energy removal. Reactor safety; economics. Waste management. Reactor design.
Course Learning Outcomes	1) After completion of this course students will be able to: have general knowledge in the field of nuclear engineering 2) Understand nuclear fission. 3) Get knowledge about the basics of nuclear physics. 4) Understand nuclear reactors principles. 5) Get knowledge about applications of nuclear reactors.

WEEKLY COURSE CONTENT

Week	Topics	Teaching and Learning Methods and Techniques	Study Materials
1. Week	Fundamental and modern physics concepts	Oral lecture, questions-answers, homework	
2. Week	Atomic/nuclear models	Oral lecture, questions-answers, homework	
3. Week	Nuclear energetics	Oral lecture,	

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

		questions-answers, homework	
4. Week	Radioactivity	Oral lecture, questions-answers, homework	
5. Week	Nuclear reactions	Oral lecture, questions-answers, homework	
6. Week	Radiation interactions with matter	Oral lecture, questions-answers, homework	
7. Week	Radiation interactions with matter	Oral lecture, questions-answers, homework	
8. Week	Mid-term Exam		
9. Week	Detection and measurement of radiation	Oral lecture, questions-answers, homework	
10. Week	Radiaiton doses and hazard assessment	Oral lecture, questions-answers, homework	
11. Week	Principles of nuclear reactors	Oral lecture, questions-answers, homework	
12. Week	Nuclear power	Oral lecture, questions-answers, homework	
13. Week	Methods for converting nuclear energy to electricity	Oral lecture, questions-answers, homework	
14. Week	Nuclear technology in industry and research	Oral lecture, questions-answers, homework	
15. Week	Medical applications of nuclear technology	Oral lecture, questions-answers, homework	
16. Week	Final Exam		

RESOURCES

Recommended Sources
J.R. and Baratta, A.J., Introduction to Nuclear Engineering, Lamarsh, 3rd Edition, Prentice-Hall.
Lamarsh, J.R. , Introduction to Nuclear Engineering, Addison-Wesley Company, 2nd Edition, 1983.
Foster, A.r., R.L. Wright, Jr., Basic Nuclear Engineering, 3rd Ed., Boston, Mass: Allyn and Bacon,1977
Roland Allen Knief, Nuclear Engineering: Theory and Technology of Commercial Nuclear Power, Taylor & Francis; ISBN: 1560320893; 2nd edition, August 1992

ASSESSMENT

Measurement and Evaluation Methods and Techniques
Midterm exam, 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	DK5
PY1	5	5	4	4	5	5
PY2	4	5	4	4	5	4
PY3	1	2	1	1	2	1
PY4	1	2	1	2	1	1
PY5	1	2	1	2	1	1
PY6	3	4	3	4	3	3
PY7	1	2	1	2	1	1
PY8	1	2	1	2	1	1
PY9	3	3	4	3	3	4
PY10	3	4	3	3	3	3
PY11	1	2	1	2	1	1
PY12	1	2	1	1	2	1
PY13	1	2	1	1	2	1
PY14	1	2	1	2	1	1
PY15	3	4	3	4	3	3

*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	4	2	8
Assignment 1	4	2	8
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