



Çanakkale Onsekiz Mart University

Education Information System

DEGREE PROGRAMMES

BOLOGNA

THE INSTITUTION

INFO FOR STUDENTS

You are here : [Home](#) [Master's Degree& Doctorate Degree](#) [Physics \(PhD\)](#) [Alternative Fuel Technologies](#) **Course Information**

Course Information

COURSE INFORMATION

Course Title	Code	Semester	L+U Hour	Credits	ECTS
Alternative Fuel Technologies	FZ 6038		3 + 0	3.0	7.5

Prerequisites	None
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Language of Instruction	Turkish
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Course Level	Third Cycle
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Course Type	Elective
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Mode of delivery	Face to face
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Course Coordinator	Prof. Dr. İsmail TARHAN
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Instructors	Prof. Dr. İsmail TARHAN
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Assistants	
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Course Objectives	The main objective of this course is to provide informations on energy generation, clean fuel sources, clean fuels technologies, energy technologies utilization, liquid fuels from natural gas, liquid fuels from oil sand, shale oil from oil shale, methanol synthesis from syngas, ethanol from corn, ethanol from lignocellulosics, biomass energy, energy generation from waste sources, geothermal energy, nuclear energy, hydrogen energy, fuel cells.
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Course Content	The main topics of the course intent are an overview of global energy production, clean fuels, natural gas-based liquid fuels, liquid fuels, oil sand, bituminous schist shale oil, gasification and methanol synthesis, ethanol production from corn, ethanol production from cellulose composite plants, biomass energy, waste power generation, geothermal energy, nuclear energy, hydrogen energy, fuel cells.
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Course Learning Outcomes	<ol style="list-style-type: none"> 1) Describe fundamentals of energy and fuel generation. 2) Evaluate clean energy and fuel sources. 3) Analyze clean energy and fuel technologies, and their efficiency. 4) Interpret knowledge about utilization of alternatives fuel technology. 5) Explain the developments on alternatives fuel technologies.
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Quick Access

Physics (PhD)

[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](#)

WEEKLY COURSE CONTENT

Week	Topics	Teaching and Learning Methods and Techniques	Study Materials
1. Week	Overview Of Global Energy Production		
2. Week	Clean Fuels		
3. Week	Liquid Fuels from Natural Gas		
4. Week	Liquid Fuels from Oil Sand		

5. Week	Shale Oil from Oil Shale		
6. Week	Methanol Synthesis from Syngas		
7. Week	Ethanol from Corn		
8. Week	Midterm examination		
9. Week	Ethanol from Lignocellulosics		
10. Week	Biomass Energy		
11. Week	Energy Generation from Waste Sources		
12. Week	Geothermal Energy		
13. Week	Nuclear Energy		
14. Week	Hydrogen Energy		
15. Week	Fuel Cells		
16. Week	Final examination	Exam	

RESOURCES

Recommended Sources
S. L.lee, J.G. Speight, S.K. Loyalka(2007), Handbook of Alternatives Fuel Technologies, CRC. Press.Taylor &Francis Group.
M.F. Hordeski (2008), Alternative Fuels: The Future of Hydrogen, The Fairmont Press

ASSESSMENT

Measurement and Evaluation Methods and Techniques
Mid-term exam + Assignment + Research & Project and Presentation 40%, Final Exam 60%

COURSE CATEGORY

Course Category	Percentage
Support Courses	% 50
Core Courses	% 50

CONTRIBUTION OF COURSE LEARNING OUTCOMES TO PROGRAMME OUTCOMES

Programme Outcomes	Contribution Level	DK1	DK2	DK3	DK4	DK5
<u>PY1</u>	4	4	4	4	4	4
<u>PY2</u>	5	5	5	4	4	4
<u>PY3</u>	4	4	4	4	4	4
<u>PY4</u>	5	5	4	4	5	5
<u>PY5</u>	4	4	4	5	5	5
<u>PY6</u>	4	4	4	4	4	4
<u>PY7</u>	5	5	5	5	4	4
<u>PY8</u>	5	5	5	5	4	4
<u>PY9</u>	5	5	5	5	4	4
<u>PY10</u>	4	4	4	4	4	4
<u>PY11</u>	4	4	5	4	3	4
<u>PY12</u>	4	4	4	3	4	4
<u>PY13</u>	4	4	4	4	4	4

<u>PY14</u>	5	5	5	4	5	4
<u>PY15</u>	4	4	4	3	4	3

*DK = Course's Contribution.

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

ECTS CREDITS AND COURSE WORKLOAD

Event	Quantity	Duration (Hour)	Total Workload (Hour)
Class Hours (14 weeks)	14	3	42
Presentation/Seminar	2	6	12
Final Exam Preparation	1	10	10
Mid Term Exam Preparation	1	9	9
Further Study	3	8	24
Assignment 1	6	6	36
Final Exam	1	5	5
Mid Term Exam 1	1	4	4
Preliminary Study	10	3	30
Research&Project	1	20	20
Total Workload			192
Total Workload / 25.5 (s)			7.53
ECTS Credit of the Course			8

