



# 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 \(Master\)](#) [Advanced Nuclear Physics I](#) **Course Information**

## Course Information

### COURSE INFORMATION

Course Title	Code	Semester	L+U Hour	Credits	ECTS
Advanced Nuclear Physics I	FZ5011		3 + 0	3.0	7.5

<b>Prerequisites</b>	None
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<b>Language of Instruction</b>	Turkish
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<b>Course Level</b>	Second Cycle
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<b>Course Type</b>	Elective
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<b>Mode of delivery</b>	Face to face
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<b>Course Coordinator</b>	Assist. Prof. Dr. Sibel ŞEN
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<b>Instructors</b>	Assist. Prof. Dr. Sibel ŞEN Assoc. Prof. Dr. Emine Dilara AYDIN Assist. Prof. Dr. Ayşe KÜÇÜKARSLAN
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<b>Assistants</b>	
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<b>Course Objectives</b>	Learning of Nuclear physics topics and ability to comment on these issues can be acquired
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<b>Course Content</b>	Classical collisions in nuclear physics, scattering problems, elastic and inelastic scattering, optical model of the nucleus, binding energies, alpha, beta, gamma decays interactions, dating,
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<b>Course Learning Outcomes</b>	1) To gain knowledge about Nucleon-nucleon interactions 2) To understand atomic nucleus 3) To understand the details of the shell model 4) To learn the methods in Nuclear Physics 5) To learn scattering of nuclei
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### WEEKLY COURSE CONTENT

Week	Topics	Teaching and Learning Methods and Techniques	Study Materials
1. Week	The theory of the nucleon-nucleon interaction		
2. Week	The theory of the nucleon nucleon interaction		
3. Week	The nuclear shell model		
4. Week	The nuclear collective motion		
5. Week	The interacting boson model		
6. Week	The limits of the mean field		

### Quick Access

### Physics (Master)

- 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
- Assessment
- Course Category
- CONTRIBUTION OF COURSE LEARNING OUTCOMES TO PROGRAMME OUTCOMES
- ECTS credits and course workload

7. Week	Average field limits		
8. Week	Midterm exam		
9. Week	Semi-Classical methods in nuclear physics		
10. Week	Scattering and reactions of nuclei		
11. Week	Scattering and reactions of nuclei		
12. Week	Structure of vacuum and elementary matter		
13. Week	Structure of vacuum and elementary matter		
14. Week	The microscopic treatment of the nuclear system		
15. Week	General review		
16. Week	Final		

## RESOURCES

Recommended Sources
Bertulani, C.A., Schechter, H., Nuclear Fiziğe Giriş 2002 ISBN:1-59033-358-6
J.M.Arias, M.Lozano An Advanced Course in Modern Nuclear Physics

## ASSESSMENT

Measurement and Evaluation Methods and Techniques		
Midterm exam, Homework, Final exam		
In-Term Studies	Quantity	Percentage
Mid Term Exam 1	1	37
Assignment 1	1	3
<b>Total</b>	2	40
End-Term Studies	Quantity	Percentage
Final Exam	1	60
<b>Total</b>	1	60
<b>Contribution Of In-Term Studies To Overall Grade</b>		40
<b>End-Term Studies</b>		60
<b>Total</b>		100

## COURSE CATEGORY

Course Category	Percentage
Core Courses	% 100

## CONTRIBUTION OF COURSE LEARNING OUTCOMES TO PROGRAMME OUTCOMES

Programme Outcomes	Contribution Level	DK1	DK2	DK3	DK4	DK5
<u>PY1</u>	5	5	5	5	5	5
<u>PY2</u>	5	5	5	5	5	5
<u>PY3</u>	5	5	5	5	5	5
<u>PY4</u>	5	5	5	5	5	5
<u>PY5</u>	5	5	5	5	5	5

<u>PY6</u>	5	0	0	0	0	0
<u>PY7</u>	5	5	5	5	5	5
<u>PY8</u>	5	5	5	5	5	5
<u>PY9</u>	5	5	5	5	5	5
<u>PY10</u>	0	0	0	0	0	0
<u>PY11</u>	5	5	5	5	5	5
<u>PY12</u>	5	5	5	5	5	5
<u>PY13</u>	5	5	5	5	5	5
<u>PY14</u>	0	0	0	0	0	0
<u>PY15</u>	0	0	0	0	0	0

\*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)
Final Exam	1	3	3
Lecture	16	3	48
Assignment 2	6	7	42
Assignment 1	5	7	35
Mid Term Exam 1	1	3	3
Class Hours (14 weeks)	16	3	48
Final Exam Preparation	1	3	3
Presentation/Seminar	2	1	2
Research&Project	1	10	10
<b>Total Workload</b>			194
<b>Total Workload / 25.5 (s)</b>			7.61
<b>ECTS Credit of the Course</b>			8