



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 \(Master\)](#) [Relativistic Field Theory I](#) **Course Information**

Course Information

COURSE INFORMATION

Course Title	Code	Semester	L+U Hour	Credits	ECTS
Relativistic Field Theory I	FZ5025		3 + 0	3.0	7.5

Prerequisites	None
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Language of Instruction	Turkish
Course Level	Second Cycle
Course Type	Elective
Mode of delivery	Face to face
Course Coordinator	Assist. Prof. Dr. Sezgin AYGÜN
Instructors	Prof. Dr. İsmail TARHAN Assist. Prof. Dr. Melis ULU DOĞRU Assist. Prof. Dr. Sezgin AYGÜN
Assistants	
Course Objectives	To learn the concepts of relativity and field is the primary objective of this lesson.
Course Content	Principle of relativity, relativistic mechanics, motion of charges in electromagnetic field, uniform electromagnetic field, electromagnetic field tensor, Maxwell equations, propagation of light.
Course Learning Outcomes	1) to grasp the basics of Relativity. 2) to able to gain knowledge about relativistic mechanics. 3) to able to describe the charges in electromagnetic fields. 4) to able to understand concept of electromagnetic field tensor.

WEEKLY COURSE CONTENT

Week	Topics	Teaching and Learning Methods and Techniques	Study Materials
1. Week	Relativity principle	Oral lectures, practice	
2. Week	Lorentz transformations	Oral lectures, practice	
3. Week	Electromagnetic field tensor, continuity equation,	Oral lectures, practice	
4. Week	I. and II. pairs of Maxwell equations	Oral lectures, practice	
5. Week	Poynting vector	Oral lectures,	

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

		practice	
6. Week	Energy-momentum tensor	Oral lectures, practice	
7. Week	Energy-momentum tensor	Oral lectures, practice	
8. Week	Static electromagnetic field	Oral lectures, practice	
9. Week	Electromagnetic waves, plane waves	Oral lectures, practice	
10. Week	Frensel and Fraunhofer diffractions	Oral lectures, practice	
11. Week	Lienard-Wiechert potentials	Oral lectures, practice	
12. Week	Dipol radiation	Oral lectures, practice	
13. Week	Quadrupole and magnetic dipole radiations	Oral lectures, practice	
14. Week	Quadrupole and magnetic dipole radiations	Oral lectures, practice	
15. Week	general review	Oral lectures, practice	
16. Week	general review	Oral lectures, practice	

RESOURCES

Recommended Sources
Peacock, J.A., (2000). Cosmological Physics. Cambridge Univ. Pres
Weinberg, S., (1972). Gravitation and Cosmology: Principles and Applications of The General Theory of Relativity. Jhon Wiley & Sons Publishing.
Kolb,E.W., Turner, M.S. (1990) The early universe; Addison Wesley Publishing Company
Wang Rong, Chen Yue, (1998) An introduction to differential geometry and topology in mathematical physics,

ASSESSMENT

Measurement and Evaluation Methods and Techniques
midterm exam, assignments, final exam

COURSE CATEGORY

Course Category	Percentage
Core Courses	% 100

CONTRIBUTION OF COURSE LEARNING OUTCOMES TO PROGRAMME OUTCOMES

Programme Outcomes	Contribution Level	DK1	DK2	DK3	DK4
<u>PY1</u>	5	5	5	5	5
<u>PY2</u>	5	5	5	5	5
<u>PY3</u>	5	5	5	5	5
<u>PY4</u>	5	5	5	5	5
<u>PY5</u>	5	5	5	5	5
<u>PY6</u>	5	5	5	5	5

<u>PY7</u>	5	5	5	5	5
<u>PY8</u>	5	5	5	5	5
<u>PY9</u>	5	5	5	5	5
<u>PY10</u>	4	4	4	4	4
<u>PY11</u>	5	5	5	5	5
<u>PY12</u>	5	5	5	5	5
<u>PY13</u>	5	5	5	5	5
<u>PY14</u>	5	5	5	5	5
<u>PY15</u>	5	5	5	5	5

*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	6	2	12
Final Exam Preparation	1	18	18
Mid Term Exam Preparation	1	18	18
Further Study	6	2	12
Preliminary Study	16	2	32
Assignment 1	16	3	48
Assignment 2	6	1	6
Mid Term Exam 1	1	2	2
Final Exam	1	2	2
Total Workload			192
Total Workload / 25.5 (s)			7.53
ECTS Credit of the Course			8