



# Çanakkale Onsekiz Mart University

Education Information System

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## Course Information

### COURSE INFORMATION

Course Title	Code	Semester	L+U Hour	Credits	ECTS
Astronomical Instruments And Observational Techniques	FZ5008		3 + 0	3.0	7.5

<b>Prerequisites</b>	None
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<b>Language of Instruction</b>	Turkish
<b>Course Level</b>	Second Cycle
<b>Course Type</b>	Elective
<b>Mode of delivery</b>	Face to face
<b>Course Coordinator</b>	Assoc. Prof. Dr. Faruk SOYDUGAN
<b>Instructors</b>	Prof. Dr. Caner ÇIÇEK
<b>Assistants</b>	
<b>Course Objectives</b>	Topics to be covered in the course will include instruments and observing technics in astronomy, theoretically and practically usage of them.
<b>Course Content</b>	Introduction to Astronomical Instruments and Observational Techniques, Spectra of astronomical objects, Demonstrate the necessity of observations at all wavelengths, Optical telescopes, Photometric dedectors – CCD Cameras ve their properties, Spectrographs and their properties, Saving the photometric and spectral data on CCDs and related problems, Radio telescopes, Infrared observations and dedectors, Observations in UV region, X-and Gamma Ray observations and dedectors, Telescopes and dedectors in ÇOMÜ Observatory, Observational practice at ÇOMÜ Observatory, CCD data and data reduction process for photometric data, Some basic calculations using astronomical images.
<b>Course Learning Outcomes</b>	<ol style="list-style-type: none"> <li>1) Interpret the basic properties of electromagnetic spectrum.</li> <li>2) Examine the astronomical detectors and their operating principles.</li> <li>3) Specify observational potentials of the observing objects and select proper instruments for this situations.</li> <li>4) Use astronomical instruments.</li> <li>5) Make observation.</li> <li>6) Prepare tha astronomical data for the analysis.</li> </ol>

### 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

### WEEKLY COURSE CONTENT

Week	Topics	Teaching and Learning Methods and Techniques	Study Materials
1. Week	Introduction to Astronomical Instruments and Observational Techniques	Lecture	
2. Week	Spectra of astronomical objects, Demonstrate the necessity of	Lecture,	

	observations at all wavelengths	Homework, Discussion	
3. Week	Optical telescopes	Lecture, Homework, Discussion	
4. Week	Photometric dedectors – CCD Cameras ve their properties	Lecture, Homework, Discussion	
5. Week	Spectrographs and their properties	Lecture	
6. Week	Saving the photometric and spectral data on CCDs and related problems	Lecture, applications	
7. Week	Radio telescopes	Lecture	
8. Week	Midterm exam	Exam	
9. Week	Infrared observations and dedectors	Lecture	
10. Week	Observations in UV region	Lecture, applications	
11. Week	X-and Gamma Ray observations and dedectors	Lecture	
12. Week	Telescopes and dedectors in ÇOMÜ Observatory	Lecture, applications	
13. Week	Observational practice at ÇOMÜ Observatory	Lecture, applications	
14. Week	CCD data and data reduction process for photometric data	Lecture, homework	
15. Week	Some basic calculations using astronomical images	Lecture, applications	
16. Week	Final exam	Exam	

## RESOURCES

Recommended Sources
Observational Astronomy E.C. Sutton, University of Illinois , Urbana Champaign, 2011
Observational Astronomy, D.S. Birney, W. College, M., g. Gonzalez, Iowa State Uniiversity, 2006

## ASSESSMENT

Measurement and Evaluation Methods and Techniques		
Mid-term exam (40 percent) and final exam (60 percent).		
In-Term Studies	Quantity	Percentage
Mid Term Exam 1	1	40
<b>Total</b>	1	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
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## CONTRIBUTION OF COURSE LEARNING OUTCOMES TO PROGRAMME OUTCOMES

Programme Outcomes	Contribution Level	DK1	DK2	DK3	DK4	DK5	DK6
<u>PY1</u>	5	5	5	5	5	3	5
<u>PY2</u>	5	5	5	5	5	2	5
<u>PY3</u>	5	5	5	5	5	4	5
<u>PY4</u>	5	5	5	5	5	3	5
<u>PY5</u>	4	4	4	4	4	4	4
<u>PY6</u>	5	5	5	5	5	3	5
<u>PY7</u>	5	5	5	5	5	4	5
<u>PY8</u>	5	5	5	5	5	3	5
<u>PY9</u>	4	4	4	4	4	3	4
<u>PY10</u>	5	5	5	5	5	4	5
<u>PY11</u>	3	3	3	3	3	3	3
<u>PY12</u>	4	4	4	4	4	3	4
<u>PY13</u>	5	5	5	5	5	0	5
<u>PY14</u>	5	5	5	5	5	4	5
<u>PY15</u>	4	4	4	4	4	4	4

\*DK = Course's Contribution.

	0	1	2	3	4	5
<b>Level of contribution</b>	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
Final Exam Preparation	1	30	30
Mid Term Exam Preparation	1	30	30
Further Study	14	3	42
Final Exam	1	3	3
Mid Term Exam 1	1	3	3
Preliminary Study	14	3	42
<b>Total Workload</b>			192
<b>Total Workload / 25.5 (s)</b>			7.53
<b>ECTS Credit of the Course</b>			8