



# Çanakkale Onsekiz Mart University

Education Information System

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## Course Information

### COURSE INFORMATION

Course Title	Code	Semester	L+U Hour	Credits	ECTS
Radio Astronomy I	FZ5049		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>	Prof. Dr. Osman DEMİRCAN
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<b>Instructors</b>	Prof. Dr. Osman DEMİRCAN
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<b>Assistants</b>	
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<b>Course Objectives</b>	Radio astronomy interests in radiation of celestial bodies at radio wavelength taken with radio telescopes then recording and evaluating the data. This course provides introduction to radio astronomy.
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<b>Course Content</b>	Introduction, Basic Concepts and Definitions, The Nature of the Radio Signal, Signals, Noise, Radiometers and Spectrometers, Single-aperture Radio Telescopes, The two-element Interferometer, Aperture Synthesis Radiation, propagation and absorption of radio waves. Midterm Exam The Local Universe The Interstellar Medium Galactic Dynamics Stars Pulsars Radio Galaxies and Quasars The Future of Radio Astronomy
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<b>Course Learning Outcomes</b>	<ol style="list-style-type: none"> <li>1) Learning the basic concepts of radio astronomy</li> <li>2) Understanding the origin of the radio radiation</li> <li>3) Understanding the structure of interferometric telescopes</li> <li>4) Learning the situation in life for radio telescopes</li> <li>5) Being informed about the radio observatories on Earth</li> </ol>
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### WEEKLY COURSE CONTENT

Week	Topics	Teaching and Learning Methods and Techniques	Study Materials
1. Week	Introduction, Basic Concepts and Definitions	Reading the related parts of the course material.	
2. Week	The Nature of the Radio Signal	Reading the related parts of the course material.	
3. Week	Signals, Noise, Radiometers and Spectrometers	Reading the related parts of the course	

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

		material.	
4. Week	Single-aperture Radio Telescopes	Reading the related parts of the course material.	
5. Week	The two-element Interferometer	Reading the related parts of the course material.	
6. Week	Aperture Synthesis	Reading the related parts of the course material.	
7. Week	Radiation, propagation and absorption of radio waves	Reading the related parts of the course material.	
8. Week	Midterm Exam	Reading the related parts of the course material.	
9. Week	The Local Universe	Reading the related parts of the course material.	
10. Week	The Interstellar Medium	Reading the related parts of the course material.	
11. Week	Galactic Dynamics	Reading the related parts of the course material.	
12. Week	Stars	Reading the related parts of the course material.	
13. Week	Pulsars	Reading the related parts of the course material.	
14. Week	Radio Galaxies and Quasars	Reading the related parts of the course material.	
15. Week	The Future of Radio Astronomy	Reading the related parts of the course material.	
16. Week	Final Exam	Reading the related parts of the course material.	

## RESOURCES

Recommended Sources
Burke, B.F. and Graham-Smith, F., "An Introduction to Radio Astronomy", Cambridge Univ. Pres. 2010.
Akyol, M.Ü."RADYO ASTRONOMİ VE UZAY ARAŞTIRMALARI", Selçuk Üniv. Yayınları, 1988

## ASSESSMENT

Measurement and Evaluation Methods and Techniques
Midterm Exam (40%), Final Exam (60%)

## 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>	4	4	4	4	4	4
<u>PY3</u>	4	4	4	4	4	4

<u>PY4</u>	4	4	4	4	4	4
<u>PY5</u>	4	4	4	4	4	4
<u>PY6</u>	4	4	4	4	4	4
<u>PY7</u>	4	4	4	4	4	4
<u>PY8</u>	4	4	4	4	4	4
<u>PY9</u>	4	4	4	4	4	4
<u>PY10</u>	3	3	3	3	3	3
<u>PY11</u>	3	3	3	3	3	3
<u>PY12</u>	4	4	4	4	4	4
<u>PY13</u>	4	4	4	4	4	4
<u>PY14</u>	4	4	4	4	4	4
<u>PY15</u>	4	4	4	4	4	4

\*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)	16	3	48
Assignment 1	10	5	50
Final Exam Preparation	1	10	10
Assignment 2	9	5	45
Mid Term Exam Preparation	1	10	10
Final Exam	1	2	2
Research&Project	1	15	15
<b>Total Workload</b>			180
<b>Total Workload / 25.5 (s)</b>			7.06
<b>ECTS Credit of the Course</b>			7