



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 \(PhD\)](#) [Stellar Modells and Evolution](#) **Course Information**

Course Information

COURSE INFORMATION

Course Title	Code	Semester	L+U Hour	Credits	ECTS
Stellar Modells and Evolution	FZ-6020		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. Caner ÇIÇEK
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Instructors	Prof. Dr. Caner ÇIÇEK
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Assistants	
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Course Objectives	In this course, stellar models and the stellar evolution are explained with nuclear processes that take place in stars
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Course Content	Introduction, Observational background and basic assumptions, The equations of stellar evolution, Elementary physics of gas and radiation in stellar interiors, Nuclear processes that take place in stars, Stellar structure : making star models, simple models, The stability of stars, The evolution of stars – a schematic picture, The evolution of stars – a detailed picture, The stellar life cycle, Star formation, proto-stars, very young stars, Stars out of balance: from main sequence star to red giant, Stellar evolution in the lower mass range, Stellar evolution in the higher mass range.
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Course Learning Outcomes	<ol style="list-style-type: none"> 1) Explain the stellar evolution. 2) Interpret stellar structure and the stellar evolution models. 3) Explain nuclear process in the stellar evolution 4) Describe evaluation of low mass stars. 5) Describe evaluation of high mass stars.
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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](#)

[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	Oral lectures with interactive discussions, assignment , Applications, Practice	
2. Week	bservational background and basic assumptions	Oral lectures with interactive discussions,assignment , Applications, Practice	

3. Week	The equations of stellar evolution	Oral lectures with interactive discussions, assignment , Applications, Practice	
4. Week	Elementary physics of gas and radiation in stellar interiors	Oral lectures with interactive discussions, assignment , Applications, Practice	
5. Week	Nuclear processes that take place in stars	Oral lectures with interactive discussions, assignment , Applications, Practice	
6. Week	Stellar structure : making star models, simple models	Oral lectures with interactive discussions, assignment , Applications, Practice	
7. Week	The stability of stars	Oral lectures with interactive discussions, assignment , Applications, Practice	
8. Week	Midterm Exam	Writing-Oral Exam	
9. Week	The evolution of stars – a detailed picture	Oral lectures with interactive discussions, assignment , Applications, Practice	
10. Week	The stellar life cycle	Oral lectures with interactive discussions, assignment , Applications, Practice	
11. Week	Star formation, proto-stars, very young stars	Oral lectures with interactive discussions, assignment , Applications, Practice	
12. Week	Stars out of balance: from main sequence star to red giant	Oral lectures with interactive discussions, assignment , Applications, Practice	
13. Week	Stellar evolution in the lower mass range	Oral lectures with interactive discussions, assignment , Applications, Practice	
14. Week	Stellar evolution in the higher mass range	Oral lectures with interactive discussions, assignment , Applications, Practice	
15. Week	Discussing of some papers related the course	Oral lectures with interactive discussions, Assignment , Applications, Pratic, group study, reading	
16. Week	Final Exam	Written, oral exam	

RESOURCES

Recommended Sources
An Introduction to the Theory of Stellar Structure and Evolution, Cambridge University Press, Dina Prialnik, 2000
Stars and Stellar Evolution, EDP Sciences, K.S. de Boer & W. Seggewiss, 2008
The Stars : Their structure and evolution, 2nd Edition, Cambridge University Press, Roger J. Tayler, 1994

ASSESSMENT

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Measurement and Evaluation Methods and Techniques

Mid-term exam (%40) Final exam (%60)

In-Term Studies	Quantity	Percentage
Mid Term Exam 1	1	40
Total	1	40
End-Term Studies	Quantity	Percentage
Final Exam	1	60
Total	1	60
Contribution Of In-Term Studies To Overall Grade		40
End-Term Studies		60
Total		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
PY1	5	5	5	5	0	0
PY2	4	4	4	4	0	0
PY3	5	5	5	5	0	0
PY4	4	4	4	4	0	0
PY5	3	3	3	3	0	0
PY6	5	5	5	5	0	0
PY7	4	4	4	4	0	0
PY8	4	4	4	4	0	0
PY9	4	4	4	4	0	0
PY10	3	3	3	3	0	0
PY11	3	3	3	3	0	0
PY12	4	4	4	4	0	0
PY13	4	4	4	4	0	0
PY14	5	5	5	5	0	0
PY15	4	4	4	4	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)
Class Hours (14 weeks)	14	3	42
Presentation/Seminar	1	1	1

Final Exam Preparation	1	10	10
Mid Term Exam Preparation	1	10	10
Assignment 1	5	4	20
Application/Practice	5	2	10
Further Study	10	3	30
Preliminary Study	14	2	28
Assignment 2	14	2	28
Research&Project	5	2	10
Final Exam	1	2	2
Mid Term Exam 1	1	2	2
Total Workload			193
Total Workload / 25.5 (s)			7.57
ECTS Credit of the Course			8