Course Information

COURSE INFORMATION

Course Title	Code	Semester	L+U Hour	Credits	ECTS
Stellar Atmospheres	FZ-6018		3 + 0	3.0	7.5

Prerequisites	None

Language of Instruction	Turkish
Course Level	Third Cycle
Course Type	Elective
Mode of delivery	Face to face
Course Coordinator	Assoc. Prof. Dr. Faruk SOYDUGAN
Instructors	Assoc. Prof. Dr. Faruk SOYDUGAN
Assistants	
Course Objectives	This course includes the knowledge about Radiation equilibrium and energy transfer, solution of energy transfer equation, opacity of stellar materials, stellar atmosphere models, line formation theory, applications of line formation theory, expansion curves and Solar atmosphere.
Course Content	Radiation equilibrium , Energy transfer equation, Solution of energy transfer equation, Opacity of stellar materials, Stellar atmosphere models - I, Stellar atmosphere models - II, Line formation theory, Applications of line formation theory - I, Applications of line formation theory -II, Expansion curves, Solar atmosphere, Photosphere, Chromosphere, Corona.
Course Learning Outcomes	1) Explain what the radiation equilibrium and the stellar atmosphere models are. 2) Make calculations on the amount of energy transfer in stars using energy transfer equation. 3) Interpret the spectral lines in stellar atmospheres. 4) Explain expansion curves. 5) Interpret the opacity of stellar materials.

WEEKLY COURSE CONTENT

Week	Topics	Teaching and Learning Methods and Techniques	Study Materials
1. Week	Radiation equilibrium	Lecture, Homework, Discussion	
2. Week	Energy transfer equation	Lecture, Homework, Discussion	

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

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

3. Week	Solution of energy transfer equation	Lecture, Homework, Discussion	
4. Week	Opacity of stellar materials	Lecture, Homework, Discussion	
5. Week	Stellar atmosphere models - I	Lecture, Homework, Discussion	
6. Week	Stellar atmosphere models - II	Lecture, Homework, Discussion	
7. Week	Line formation theory	Lecture, Homework, Discussion	
8. Week	Midterm exam	Written exam	
9. Week	Applications of line formation theory - I	Lecture, Homework, Discussion	
10. Week	Applications of line formation theory -II	Lecture, Homework, Discussion	
11. Week	Expansion curves	Lecture, Homework, Discussion	
12. Week	Solar atmosphere	Lecture, Homework, Discussion	
13. Week	Photosphere	Lecture, Homework, Discussion	
14. Week	Chromosphere	Lecture, Homework, Discussion	
15. Week	Corona	Lecture, Homework, Discussion	
16. Week	Final exam	Written exam	

RESOURCES

Recommended Sources
Böhm-Vitense, E., 1989, Introduction to Stellar Astrophysics, Cambridge University Pres.
Editörler : Hubeny, I., Mihalas, D., Werner, K, 2003, Stellar Atmosphere Modelling, ASP Conference Series, Vol.288
The Observation and Analysis of Stellar Photospheres, D. Gray, 1992, Cambridge University Press

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
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	5	5
PY2	5	5	5	5	5	5
PY3	5	5	5	5	5	5
PY4	4	4	4	4	4	4
PY5	4	4	4	4	4	4
PY6	4	4	4	4	4	4
PY7	4	4	4	4	4	4
PY8	4	4	4	4	4	4
PY9	4	4	4	4	4	4
PY10	3	3	3	3	3	3
PY11	3	3	3	3	3	3
PY12	2	2	2	2	2	2
PY13	3	3	3	3	3	3
PY14	4	4	4	4	4	4
PY15	3	3	3	3	3	3

*DK = Course's Contrubution.

	0	1	2	3	4	5
Level of contribution	None	Very Low	Low	Fair	High	Very High

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ECTS CREDITS AND COURSE WORKLOAD

Event	Quantity	Duration (Hour)	Total Workload (Hour)
Class Hours (14 weeks)	14	3	42
Final Exam Preparation	1	39	39
Mid Term Exam Preparation	1	35	35
Further Study	14	2	28
Final Exam	1	3	3
Mid Term Exam 1	1	3	3
Preliminary Study	14	3	42
		Total Workload	192
		Total Workload / 25.5 (s)	7.53

ECTS Credit of the Course	8