



# Çanakkale Onsekiz Mart University

Education Information System

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## Course Information

### COURSE INFORMATION

Course Title	Code	Semester	L+U Hour	Credits	ECTS
Magnetohydrodynamics	FZ5036		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>	Assoc. Prof. Dr. Hüseyin ÇAVUŞ
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<b>Instructors</b>	Assoc. Prof. Dr. Hüseyin ÇAVUŞ
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<b>Assistants</b>	
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<b>Course Objectives</b>	In this course, magnetohydrodynamics model, in which plasma is thought as fluid, is explained.
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<b>Course Content</b>	The students who succeeded in this course; have a knowledge about hydrodynamic concept, have a knowledge about the definition of plasma and magnetohydrodynamic representation of plasma, in order to make a advanced level research.
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<b>Course Learning Outcomes</b>	1) get the knowledge about hydrodynamic concept, 2) have a knowledge about the definition of plasma and magnetohydrodynamic representation of plasma, in order to make a advanced level research.
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### WEEKLY COURSE CONTENT

Week	Topics	Teaching and Learning Methods and Techniques	Study Materials
1. Week	Hydrodynamic reminders	Oral lectures Homework Interactive discussions Applications Pratic	
2. Week	Hydrodynamic reminders	Oral lectures Homework Interactive discussions Applications Pratic	
3. Week	Definition of magnetohydrodynamics (MHD) and MHD representation of plasma	Oral lectures Homework Interactive	

### 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

		discussions Applications Pratic	
4. Week	Derivation of MHD equations	Oral lectures Homework Interactive discussions Applications Pratic	
5. Week	Some dimensionless parameters in MHD	Oral lectures Homework Interactive discussions Applications Pratic	
6. Week	Hidrostatic equilibrium and stability	Oral lectures Homework Interactive discussions Applications Pratic	
7. Week	Magnetohidrostatic equilibrium and stability	Oral lectures Homework Interactive discussions Applications Pratic	
8. Week	MHD instabilities	Oral lectures Homework Interactive discussions Applications Pratic	
9. Week	MHD instabilities	Oral lectures Homework Interactive discussions Applications Pratic	
10. Week	Hydrodynamic waves	Oral lectures Homework Interactive discussions Applications Pratic	
11. Week	MHD waves	Oral lectures Homework Interactive discussions Applications Pratic	
12. Week	MHD shocks	Oral lectures Homework Interactive discussions Applications Pratic	
13. Week	MHD shocks	Oral lectures Homework Interactive discussions Applications Pratic	
14. Week	nvestigation of papers previously given to students	Oral lectures Homework Interactive discussions Applications Pratic	
15. Week	General Review	Oral Lectures	
16. Week	Final Exam	Written Exam	

## RESOURCES

### Recommended Sources

H. Goedbloed, S. Poedts, 2004, Principles of Magnetohydrodynamics, Cambridge University Press.

R. Moreau, 1990, Magnetohydrodynamics, Kluwer Academic Publishing.

E.R. Priest, 2000, Solar Magnetohydrodynamics, D.Reidel Publishing Company.

## ASSESSMENT

### Measurement and Evaluation Methods and Techniques

40% Mid Term Exam 60% Final Exam

## COURSE CATEGORY

Course Category	Percentage
Core Courses	% 100

## CONTRIBUTION OF COURSE LEARNING OUTCOMES TO PROGRAMME OUTCOMES

Programme Outcomes	Contribution Level	DK1	DK2
PY1	3	3	3
PY2	5	5	5
PY3	4	5	5
PY4	4	4	4
PY5	3	3	3
PY6	5	5	5
PY7	4	4	4
PY8	3	3	3
PY9	3	3	3
PY10	3	3	3
PY11	3	3	3
PY12	4	4	4
PY13	4	4	4
PY14	4	4	4
PY15	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)
Presentation/Seminar	2	2	4
Preliminary Study	14	1	14
Final Exam Preparation	1	25	25
Mid Term Exam Preparation	1	21	21
Further Study	14	2	28
Assignment 1	1	10	10
Class Hours (14 weeks)	14	3	42
Mid Term Exam 1	1	3	3

Final Exam	1	3	3
Research&Project	2	16	32
Assignment 2	1	10	10
<b>Total Workload</b>			192
<b>Total Workload / 25.5 (s)</b>			7.53
<b>ECTS Credit of the Course</b>			8