

[DEGREE PROGRAMMES](#)[BOLOGNA](#)[THE INSTITUTION](#)[INFO FOR STUDENTS](#)You are here : [Home](#) [Master's Degree& Doctorate Degree](#) [Physics \(PhD\)](#) [Supersymetry And Supergravity](#) **Course Information**

Course Information

COURSE INFORMATION

Course Title	Code	Semester	L+U Hour	Credits	ECTS
Supersymetry And Supergravity	FZ-6019		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	Assist. Prof. Dr. Melis ULU DOĞRU
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Instructors	Prof. Dr. İhsan YILMAZ Prof. Dr. İsmail TARHAN Assist. Prof. Dr. Melis ULU DOĞRU Assist. Prof. Dr. Sezgin AYGÜN
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Assistants	
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Course Objectives	The course includes supersymmetry and supergravity and it aims that the theories can be applied on physical systems.
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Course Content	Lie super algebras, superspace, superspace and superfields, dynamics of rotating point particles, Strings and topological defects, dynamics of rotating strings, Wess-Zumino model, supersymmetric Yang-Mills theories, supergravity theories, physical applications.
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Course Learning Outcomes	1) define the supersymmetry theories 2) use this theories to their applications.
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WEEKLY COURSE CONTENT

Week	Topics	Teaching and Learning Methods and Techniques	Study Materials
1. Week	Lie super algebras I	Oral lectures with interactive discussions, Homeworks, Applications, Practice Writing the paper and criticism to paper	
2. Week	Lie super algebras II	Oral lectures with interactive discussions, Homeworks,	

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

		Applications, Practice Writing the paper and criticism to paper	
3. Week	superspace	Oral lectures with interactive discussions, Homeworks, Applications, Practice Writing the paper and criticism to paper	
4. Week	superspace and superfields	Oral lectures with interactive discussions, Homeworks, Applications, Practice Writing the paper and criticism to paper	
5. Week	dynamics of rotating point particles I	Oral lectures with interactive discussions, Homeworks, Applications, Practice Writing the paper and criticism to paper	
6. Week	dynamics of rotating point particles II	Oral lectures with interactive discussions, Homeworks, Applications, Practice Writing the paper and criticism to paper	
7. Week	Strings and topological defects	Oral lectures with interactive discussions, Homeworks, Applications, Practice Writing the paper and criticism to paper	
8. Week	dynamics of rotating strings I	Oral lectures with interactive discussions, Homeworks, Applications, Practice Writing the paper and criticism to paper	
9. Week	dynamics of rotating strings II	Oral lectures with interactive discussions, Homeworks, Applications, Practice Writing the paper and criticism to paper	
10. Week	Wess-Zumino model I	Oral lectures with interactive discussions, Homeworks, Applications, Practice Writing the paper and criticism to paper	
11. Week	Wess-Zumino model II	Oral lectures with interactive discussions, Homeworks, Applications,	

		Practice Writing the paper and criticism to paper	
12. Week	super symmetric Yang-Mills theories	Oral lectures with interactive discussions, Homeworks, Applications, Practice Writing the paper and criticism to paper	
13. Week	supergravity theories	Oral lectures with interactive discussions, Homeworks, Applications, Practice Writing the paper and criticism to paper	
14. Week	Physical applications	Oral lectures with interactive discussions, Homeworks, Applications, Practice Writing the paper and criticism to paper	
15. Week	general review	Oral lectures with interactive discussions, Homeworks, Applications, Practice Writing the paper and criticism to paper	
16. Week	general review, final exam	Oral lectures with interactive discussions, Homeworks, Applications, Practice Writing the paper and criticism to paper	

RESOURCES

Recommended Sources
Introduction to Supersymmetry, A. Bilal, arXiv:hep-th/0101055, 2011
Lectures on supergravity, Friedemann Brandt, arXiv:hep-th/0204035, 2002
Supersymmetry and Supergravity, Julius Wess and Jonathan Bagger, Princeton University Press, 1992

ASSESSMENT

Measurement and Evaluation Methods and Techniques
Assignment , Mid-term exam, final

COURSE CATEGORY

Course Category	Percentage
Area of?Specialization Courses	% 100

CONTRIBUTION OF COURSE LEARNING OUTCOMES TO PROGRAMME OUTCOMES

Programme Outcomes	Contribution Level	DK1	DK2

PY1	3	3	0
PY2	4	4	0
PY3	4	4	0
PY4	3	3	0
PY5	4	4	0
PY6	5	5	0
PY7	4	4	0
PY8	4	4	0
PY9	4	4	0
PY10	4	4	0
PY11	2	2	0
PY12	4	4	0
PY13	3	3	0
PY14	5	5	0
PY15	5	5	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)
Final Exam	1	2	2
Class Hours (14 weeks)	14	3	42
Mid Term Exam Preparation	1	25	25
Final Exam Preparation	1	25	25
Assignment 1	13	2	26
Mid Term Exam 1	1	2	2
Research&Project	7	10	70
Total Workload			192
Total Workload / 25.5 (s)			7.53
ECTS Credit of the Course			8