

CHARGED PARTICLES PHYSICS

1	Course Title:	CHARGED PARTICLES PHYSICS
2	Course Code:	FZK5604
3	Type of Course:	Optional
4	Level of Course:	Second Cycle
5	Year of Study:	1
6	Semester:	2
7	ECTS Credits Allocated:	6.00
8	Theoretical (hour/week):	3.00
9	Practice (hour/week):	0.00
10	Laboratory (hour/week):	0
11	Prerequisites:	None
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Prof. Dr. NİLGÜN DEMİR
15	Course Lecturers:	Prof.Dr. Nilgün DEMİR Doç. Dr. ÖZKAN ŞAHİN
16	Contact information of the Course Coordinator:	Prof.Dr. Nilgün DEMİR E-mail: dnilgun@uludag.edu.tr, İş Tel:0224 2941702 Bursa Uludağ Üniversitesi Fen Edebiyat Fakültesi, Fizik Bölümü 16059 Görükle Kampüsü Bursa, Türkiye
17	Website:	
18	Objective of the Course:	The aim of the course is to reinforce the classical electromagnetism subjects that the student has seen during her undergraduate education and to introduce classical electromagnetism subjects at a level that will be able to solve the problems they will encounter at postgraduate level
19	Contribution of the Course to Professional Development:	It forms the basis of the charged particle interactions required in experimental high energy physics.
20	Learning Outcomes:	
	1	Reinforces classical electromagnetism subjects
	2	Knows electromagnetic processes
	3	With her/his homework studies, she gains the ability to do research in the scientific field
	4	Learns all the physical processes of particles in the medium.
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21	Course Content:	
	Course Content:	
Week	Theoretical	Practice
1	Classical electromagnetism, introduction	
2	Classical electromagnetism, introduction	

3	The energy loss of charged particles in matter	
4	Ionisation energy loss and distribution of light charged particles	
5	Ionisation energy loss and distribution of heavy charged particles	
6	Bremsstrahlung process	
7	Radiation emission of nucleus and particles	
8	Electrical transition rates	
9	magnetic transition rates	
10	Electromagnetic shower generation in matter	
11	Electromagnetic shower generation in matter	
12	Multiple-scattering models	
13	Multiple-scattering models	
14	investigating another electromagnetic processes	

22	Textbooks, References and/or Other Materials:	Nuclear and particle physics, W.S.C. Williams, Clarendon Pres, Oxford Classical Charged Particles, F. Rohrlich, World scientific.
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23	Assesment
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TERM LEARNING ACTIVITIES	NUMBER	WEIGHT
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Activites	Number	Duration (hour)	Total Work Load (hour)

Theoretical	1	70.00	3.00	42.00
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Practicals/Labs	0	0.00	0.00
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Self-study and Independent Learning Activities to	30.00	4.00	56.00
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Homeworks	14	3.00	42.00
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Contribution of Final Exam to Success Grade	70.00	0.00	0.00
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Field Studies	0	0.00	0.00
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Midterm exams	0	0.00	0.00
Measurement and Evaluation Techniques Used in the	The system of relative evaluation is applied	0.00	0.00

Others	1	12.00	12.00
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24. ECTS / WORK LOAD TABLE			
Final Exams	1	28.00	28.00

Total Work Load			180.00
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Total work load/ 30 hr			6.00
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ECTS Credit of the Course			6.00
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25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS
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	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK2	0	0	4	0	0	0	0	0	0	0	4	0	0	0	0	0
ÖK3	0	0	4	5	0	0	4	0	0	0	0	0	0	0	0	0
ÖK4	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0

LO: Learning Objectives **PQ: Program Qualifications**

Contribution Level:	1 very low	2 low	3 Medium	4 High	5 Very High
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