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.
	5	
	6	
	7	
	8	
	9	
	10	

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 physicis, W.S.C. Williams, Clarendon Pres, Oxford Classical Charged Particles,F. Rohrlich, World scientific.
23	Assesment	

TERM LEARNING ACTIVITIES	**NUMBER**	**WEIGHT**
Midterm Exam	0	0.00
Final Exam	1	70.00
Contribution of Term (Year) Learning Activities to Success Grade		30.00
Contribution of Final Exam to Success Grade		70.00
Measurement and Evaluation Techniques Used in the Course		The system of relative evaluation is applied.

24 ECTS / WORK LOAD TABLE

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	3.00	42.00
Practicals/Labs	0	0.00	0.00
Self-study and Preparation	14	4.00	56.00
Homeworks	14	3.00	42.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	0	0.00	0.00
Others	1	12.00	12.00
Final Exams	1	28.00	28.00
Total Work Load			180.00
Total work load/ 30 hr			6.00
ECTS Credit of the Course			6.00

25 CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS

	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