ADVANCED MAGNETICMATERIALS II

1	Course Title:	ADVANCED MAGNETICMATERIALS II
2	Course Code:	FZK6310
3	Type of Course:	Optional
4	Level of Course:	Third 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:	Non
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Prof.Dr.Dr. Naim Derebaşı
15	Course Lecturers:	
16	Contact information of the Course Coordinator:	naim@uludag.edu.tr, 0 224 29 41 1692, UÜ Fen Edebiyat Fakültesi, Fizik Bölümü 16059 Görükle Kampüsü Bursa
17	Website:	
18	Objective of the Course:	To inform students about magnetic materials in advanced level and support the Ph. D. studies.
19	Contribution of the Course to Professional Development:	amorphous and nano-crystal materials.
20	Learning Outcomes:	

	1	Learn isotropy and anisotropy
	2	Be familiar about the crystal structure of ferromagnetic materials and Miller indices
	3	Learn the isotropy and anisotropy in cubic and hexagonal structures
	4	Understand anisotropy constants, anisotropy in poly-crystalline materials
	5	Note types of anisotropy, physical origin of magnetostriction in crystal structures
	6	Have knowledge about the effect of force on magnetisation and magnetostriction
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21	Course Content:

Course Content:

Week	Theoretical	Practice
1	Isotropy and anisotropy I	
2	Isotropy and anisotropy II	
3	Crystal structure of ferromagnetic materials, Miller indices I	

4	Crystal structure of ferromagnetic materials, Miller indices II	
5	Isotropy and anisotropy in cubic and hexagonal structures I	
6	Isotropy and anisotropy in cubic and hexagonal structures II	
7	Anisotropy constants, anisotropy in poly-crystalline materials I	
8	Anisotropy constants, anisotropy in poly-crystalline materials II	
9	Types of anisotropy I	
10	Types of anisotropy II	
11	Physical origin of magnetostriction in crystal structures I	
12	Physical origin of magnetostriction in crystal structures II	
13	Effect of force on magnetisation and magnetostriction I	
14	Effect of force on magnetisation and magnetostriction II	

22	Textbooks, References and/or Other Materials:	1) Physics of magnetism, S. Chikazumi, Robert E. Krieger Publishing Company, 1986, ISBN: 0-88275-662-1 2) Introduction to magnetic materials, B: D: Cullity, Addison-Wesley Publishing Company, 1972, Library of Congress Catolog Card No: 71-159665

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	3.00	42.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	14	4.00	56.00
Homeworks	14	4.00	56.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	0	0.00	0.00
Others	14	2.00	28.00
Final Exams	1	2.00	2.00
Total Work Load			184.00
Total work load/ 30 hr			6.13
ECTS Credit of the Course			6.00

TERM LEARNING ACTIVITIES	**NUMBE**	**WEIGHT**
Midterm Exam	0	0.00
Home work-project	0	0.00
Midterm exams	1	100.00
Total		100.00

24	**ECTS / WORK LOAD TABLE**

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	5	4	5	5	4	5	5	5	5	4	4	5	0	0	0	0
ÖK2	3	5	5	5	4	4	4	3	5	5	4	5	0	0	0	0
ÖK3	5	4	4	5	5	5	4	4	5	5	4	5	0	0	0	0
ÖK4	5	5	5	3	5	5	3	4	3	4	4	5	0	0	0	0

ÖK5	5	5	5	3	5	5	3	4	3	4	5	5	0	0	0	0
ÖK6	5	5	5	4	5	4	4	5	5	5	5	4	0	0	0	0

LO: Learning Objectives PQ: Program Qualifications

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