PHYSICAL LINEAR ALGEBRA

1	Course Title:	PHYSICAL LINEAR ALGEBRA
2	Course Code:	MAT2498
3	Type of Course:	Optional
4	Level of Course:	First Cycle
5	Year of Study:	2
6	Semester:	4
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. EMRULLAH YAŞAR
15	Course Lecturers:	Fen-Edebiyat Fakültesi Matematik bölümü tüm öğretim üyeleri
16	Contact information of the Course Coordinator:	e-posta:eyasar@uludag.edu.tr Telefon:0224 2941768 Adres:U.Ü Fen-Edb. Fak. Mat. Böl. B102 Görükle Bursa
17	Website:	
18	Objective of the Course:	The aim of this course to give to the physics students the knowledge about matrices which the need in their undergraduate and postgraduate studies
19	Contribution of the Course to Professional Development:	Gain the background to follow new developments in the field of linear algebra
20	Learning Outcomes:	
	1	Learns general concepts of linear algebra.
	2	Learns matrix definitions and basic matrix operations.
	3	Learns determinants.
	4	Learns matrix inversion operation.
	5	Understands the matrix's rank concept.
	6	Learns how to solve various types of linear equations systems.
	7	Understands the eigen value and eigen vector concepts.
	8	
	9	
	10	
21	Course Content:	

Course Content:

Week	Theoretical	Practice
1	Matrix definitions, matrix summation and substraction.	
2	Matrix multiplication.	
3	Special matrices, matrix tranpozation, matrix decomposition.	
4	Determinants,Laplace's expansion, Cramer's rule.	

5	Rank of a matrix, rank properties.	
6	Matrix inversion, properties of inverse matrices.	
7	Solutions of systems of linear equations, homogeneous systems of linear equations.	
8	Inhomogeneous systems of linear equations.	
9	Matrix forms.	
10	Characteristic equation of a matrix.	
11	Eigen values of a matrix.	
12	Eigen vectors of a matrix.	
13	Matrix diagonalization.	
14	Matrix diagonalization (continued).	

| 22 | Textbooks, References and/or Other Materials: | 1) Linear Algebra I,II. Prof.Dr.H.Hilmi Hacısalihoğlu
2)Linear Algebra, Prof.Dr.Feyzi Başar |
| 23 | Assesment | |

TERM LEARNING ACTIVITIES	NUMBER	WEIGHT
Midterm Exam	1	40.00
Quiz	0	0.00
Home work-project	0	0.00
Final Exam	1	60.00

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	3.00	42.00
Contribution of Final Exam to Success Grade	60		
Practicals/Labs	0	0.00	0.00
Self study and preperation	14	5.00	70.00
Measurement and Evaluation Techniques Used in the	To ask questions about the subject during the lesson and		
Homeworks	0	0.00	0.00
Projects	0	0.00	0.00
the students. Creating a discussion environment (question and answer) among students in order to understand the			
Field Studies	0	0.00	0.00
24 ECTS / WORK LOAD TABLE			
Midterm Exams	1	6.00	6.00
Others	14	4.00	56.00
Final Exams	1	8.00	8.00
Total Work Load			182.00
Total work load/ 30 hr			6.07
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	5	5	5	0	0	5	4	0	5	5	0	0	0	0	0	0
ÖK2	3	3	2	0	0	3	3	0	2	3	0	0	0	0	0	0
ÖK3	5	5	4	0	0	5	3	0	3	3	0	0	0	0	0	0
ÖK4	5	5	5	0	0	5	3	0	3	4	0	0	0	0	0	0

ÖK5	5	5	5	0	0	5	3	0	3	4	0	0	0	0	0	0
ÖK6	5	5	5	0	0	4	2	0	2	2	0	0	0	0	0	0
ÖK7	5	5	5	0	0	4	2	0	3	3	0	0	0	0	0	0

LO: Learning Objectives   PQ: Program Qualifications

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