STRUCTURAL ANALYSIS

1	Course Title:	STRUCTURAL ANALYSIS
2	Course Code:	BSM3523-S
3	Type of Course:	Optional
4	Level of Course:	First Cycle
5	Year of Study:	3
6	Semester:	5
7	ECTS Credits Allocated:	3.00
8	Theoretical (hour/week):	2.00
9	Practice (hour/week):	1.00
10	Laboratory (hour/week):	0
11	Prerequisites:	
12	Language:	English
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Doç. Dr. Erkan Yaslıoğlu
15	Course Lecturers:	
16	Contact information of the Course Coordinator:	yasli@uludag.edu.tr, 0224-2941624, U.Ü. Ziraat Fakültesi Biyosistem Mühendisliği Bölümü, Görükle, Bursa.
17	Website:	
18	Objective of the Course:	To train students in understanding of basic principles of structural analysis, estimation methods of isostatic and hyperstatic systems
19	Contribution of the Course to Professional Development:	
20	Learning Outcomes:	

	1	Be able to explain load-carrying mechanisms and calculation methods
	2	Be able to explain external influences on structural systems
	3	Be able to calculate reaction forces.
	4	Be able to calculate normal force, shearing force and moment in load-bearing systems
	5	Be able to draw normal force, shearing force and moment diagrams in isostatic systems.
	6	Be able to determine relocation and deformation amount of the structures under loads.
	7	Be able to solve problems about different structural systems under the complex loading.
	8	Be able to analyse hyper-static systems.
	9	
	10	

21	Course Content:	
	Course Content:	
Week	Theoretical	Practice
1	Introduction to the structural analysis, objectives of structural design.	Example solutions
2	Structural analysis steps, statical assumptions and loads	Example solutions

3	Stability equations, support types, classification of load-bearing systems.	Example solutions
4	Beams, portal frames and reaction forces on support	Example solutions
5	Examples on estimation of reaction forces of beams, and portal frames	Example solutions
6	Analysis of internal and external forces	Example solutions
7	Relationship among linear load, shearing force and bending moment	Example solutions
8	General review	Example solutions
9	Relationship among linear load, shearing force and bending moment	Example solutions
10	Relocation and deformation, longitudinal/shear force, bending/torsional moment	Example solutions
11	Relocation and deformation, longitudinal/shear force, bending/torsional moment	Example solutions
12	Solution of hyper-static systems with Cross method.	Example solutions
13	Solution of hyper-static systems with Cross method.	Example solutions
14	Solution of hyper-static systems with Cross method.	Example solutions

22	Textbooks, References and/or Other	Can, H., 2002. Çözümlü Örneklerle Yapı Statiği, Birsen Yayınevi, İstanbul Çağatay, İ. H. ve H. Binici. 1999. Çözümlü Örneklerle Yapı Statiği, Birsen Yayınevi, İstanbul
23	Assesment	

Activites		Number	Duration (hour)	Total Work Load (hour)
Theoretical		14	2.00	28.00
Practicals/Labs		14	1.00	14.00
Self study and preperation		13	3.00	39.00
Homeworks		0	0.00	0.00
Projects	R	0	0.00	0.00
Midterm Exam	1	40.00		
Field Studies		0	0.00	0.00
Quiz	0	0.00		
Midterm exams	1	1	2.00	2.00
Homework project	0	0.00		
Others		0	0.00	0.00
Final Exam	1	60.00		
Final Exams	1	1	2.00	2.00
Total	3	100.00		
Total Work Load				85.00
Contribution of Term (Year) Learning Activities to Success Grade		40.00		
Total work load/ 30 hr				2.83
ECTS Credit of the Course				3.00
Contribution of Final Exam to Success Grade		60.00		
Total		100.00		
Measurement and Evaluation Techniques Used in the Course				

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	1	1	1	5	1	1	2	1	1	0	2	4	0	0	0
ÖK2	5	1	1	1	5	1	1	1	1	1	1	3	0	0	0	0

ÖK3	5	1	1	1	5	1	1	2	1	1	1	3	0	0	0	0
ÖK4	5	1	1	1	5	1	1	1	1	1	1	3	0	0	0	0
ÖK5	5	1	1	1	5	1	1	1	1	1	1	3	0	0	0	0
ÖK6	5	1	1	1	5	1	1	1	1	1	1	3	0	0	0	0
ÖK7	5	1	1	1	5	1	1	1	1	1	1	3	0	0	0	0
ÖK8	5	1	1	1	5	1	1	1	1	1	1	3	0	0	0	0

LO: Learning Objectives PQ: Program Qualifications

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