COURSE IDENTIFICATION FORM

Course Code and Name: IM5027 PERFORMANCE-BASED DESIGN				**Department of :** CIVIL ENGINEERING / MASTER PROGRAMME			
Semester	**Theoretic Hour**	**Practice Hour**	**Total Hour**	**Credits**	**ECTS**	**Education Language**	**Type: Compulsory Elective**
Atumn/Spring	3	0	3	3	5	Turkish	Optional
Prerequisite (s)							
Instructor		Prof. Dr. Burak YÖN				**Mail : burakyon@munzur.edu.tr Web :**	
Course Assistant						**Mail : Web :**	
Groups / Classes							
Course Aim	To teach performance evaluation methods for existing and new buildings.						
Course Goals	• It is aimed to teach the calculation of non-linear systems in terms of material and geometry changes, the situation of non-linear deformations being spread over the system, the situation of collecting non-linear deformations in plastic sections, finding the second order limit load and direct calculation of the second order limit load.						
Course Learning Outs and Proficiencies	• Students will be able to evaluate the performance of existing and new buildings. • Students will be able to classify their performance levels. • Students will be able to calculate static thrust.						
Course Basic and Auxiliary Contexts	• Lecturer Notes. • McGuire, W., Gallagher, R.H., and Ziemian, R.D., Matrix Structural Analysis, 2nd Edition, John Wiley, 2000 • Livesley, R.K., Matrix Methods of Structural Analysis, 2 nd Edition, Pergamon, • • Çakıroğlu, A., Özden, E., Özmen, G., Matrix Methods and Electronic Calculator Programs for the Calculation of Building Systems, Volume 1, 2, ITU Faculty of Civil Engineering Printing House, 1992 (in Turkish) • Özer, E., Pala, S., Orakdöğen, E., Girgin, K., Determination of Earthquake Safety and Rehabilitation of Existing Reinforced Concrete						

	Structures in Earthquake Zones, Turkish Earthquake Foundation Technical Report TDV/TR 028-45, 1999 (in Turkish).
Methods of Give a Lecture	Face to Face

		If Available, to Sign (x)	General Average Percentage (%) Rate
Assessment Criteria	**Midterm Exam**	**X**	**50**
	1. Quiz		
	2. Quiz		
	3. Quiz		
	4. Quiz		
	Oral Examination		
	Practice Examination (Laboratory, Project etc.)		
	Final Exam	**X**	**50**

Semester Course Plan

Week	Subjects
1	Introduction and earthquake-resistant building design philosophy
2	Examination of relevant documents and regulations
3	Performance levels, ranges and definitions
4	Linear elastic methods in determining the performance of existing structures
5	Account principles
6	Section damage limits and definitions
7	Building performance evaluation
8	Midterm Exam
9	Section interior – force strain relations, Plastic hinge concept
10	Static pushover analysis: Purpose and definitions
11	Static pushover analysis
12	Static pushover analysis
13	Definition of nonlinear displacement rate
14	Final Exam