III. CURR	ICULUM	FORM								
Program Name	: MECHANI	CAL ENGINE	CERING, THE	Course Code: MNMU 7049						
MASTER'S PROGRAM					Course Name: Advanced Biomechanics					
Semester	Theory	Practice	Lab	Credit	ECTS	Course La	nguage	Course Type		
2	3	0	0	3	6	ENGLI	SH	Elective		
Admission Requirements			Course d	oes not have	the condition consider	condition considered.				
		Theory			Practice		Lab			
Compulsory Attendance		70%			0%		0%			
Course Teacher	r(s)	ASSIST.PROF.DR. YUNUS ZIYA ARSLAN								
Course Content		Mechanical and computational models of musculoskeletal system. Hill type muscle models. Musculoskeletal modeling and simulation in Opensim software. EMG-driven muscle models. Optimization approaches for force-sharing problem in musculoskeletal models. Projects.								
Course Learnin	ng Outcomes	To develop analysis and computational skills for musculoskeletal models. To describe, compare, and evaluate selected musculoskeletal models and methods. To develop skills in planning, conducting, and critically reviewing biomechanics research.								
Teaching and L Methods	earning	Lecture, pres	entation, discu	ssion, pro	ject.					
Assessment S	System					Number	Contribu	tion (%)		
Assignments						3	20			
Presentation						0	0			
Mid-term Exami	inations (inclu	ding time for p	reparation)			1	10			
Project Clinical Practice	<u> </u>				0		0			
Laboratory	, 				0		0			
Field Work					0		0			
Other Application	ons				0		0			
Quiz					0		0			
Term Paper/ Pro	ject				0		0			
Reports							0			
Learning Diary					0		0			
Thesis/ Project					0		0			
Seminar					0		0			
Final Exam					1		70			
Other Tatal					0		0			
10tal The Weight of (the In-Term A	ssignments in	the Final Cra	do	5		30			
The Weight of t	the End of Te	rm Exam in th	e Final Grade	uc	1		7)		
Continuous Improvement in the Context of the courses (questionnaires, interviews, and so on.) Front Shown Measurement and Evaluation Tools and Objectives :					Opinions of the students concerning teaching methods and the conte of the lectures are received via interviews during semester.					
ECIS						787.*		J:4 XV 1 1		
Activities				Number		Time (Hour)	Cre	Credit Workload		
Class Hours					14	3		42		
Working Hours out of Class				14	3	42				
Assignments Presentation				0	14 0	42				
riesentation Mid-term Examinations (including time for preparation)			1		10	10				
Project		<u> </u>	1		0	0	0			
Clinical Practice				0	0	0				
Laboratory				0	0	0				
Field Work Other Applications				0	0		0			
Final Examinations (including preparatory year)				1	14		0			
Quiz				0	0		0			
Term Paper/ Project				0	0		0			

Portfolio Study		0	0		0					
Reports		0	0			0				
Learning Diary			0	0		0				
Thesis/ Project			0	0		0				
Seminar			0	0		0				
Other			0	0		0				
Total Workload							150			
Total Workload / 25							6			
ECIS	Credit of Course				6					
Weel	Neekly Course Contents									
we	ek Theore	Practice Topics								
1	Introduction to various mechanic	ous mechanical and computational musculoskeletal								
models.										
2	Hill type muscle models.									
3	Hill type muscle models.									
4	Musculoskeletal modeling and si									
	FMG-driven muscle model									
7	EMG-driven muscle model.									
	Optimization approaches for for	blem in musculoskeletal								
8 models.										
Optimization approaches for force-sharing problem in n			blem in musculoskeletal							
9 models.										
10 Project works.										
1	Project works.									
12 Project works.										
1.	3 Project works.									
L. Dala	4 Floject works.	. with Cours	as I samina Outoor	•			Doint			
Keia	uonsnip of Proficiency Program	I WILL COUR	se Learning Outcor	nes			Point			
INO	Program Competencies									
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1	The ability to deepen and improve his/he	er knowledge b	by relying on undergradu	ate qualifications in a	field on expe	rt level.	5			
1	The ability to deepen and improve his/he	er knowledge t	by relying on undergradu	ate qualifications in a	field on expe	rt level.	5			
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