

FACULTY OF ENGINEERING, DEPARTMENT OF RAILWAY SYSTEMS ENGINEERING 100% ENGLISH

2016-2017 ACADEMIC CURRICULUM

PREPARATION CLASS

Prep Class 1st Semester					Prep Class 2nd Semester						
Code	Course Name	LT	LB	CR	ECTS	Code	Course Name	LT	LB	CR	ECTS
REN000	Prep class	0	0	0	0	REN000	Prep class	0	0	0	0

1st YEAR

1st. Semester Courses					2nd. Semester Courses								
Code	Course Name	LT	LB	CR	ECTS	Code	Course Name	LT	LB	CR	ECTS		
PHY195	General Physics I	3	2	4	5	PHY196	General Physics II	3	2	4	5		
FOL183	Foreign Language I	2	0	2	2	FOL184	Foreign Language II	2	0	2	2		
CHE189	General Chemistry	3	2	4	4	CAL182	Mathematics II	4	0	4	5		
CAL181	Mathematics I	4	0	4	5	CAL194	Linear Algebra	3	0	3	4		
REN101	Introduction to Railway Systems Engineering	2	0	2	4	MEE102	Statics	4	0	4	4		
CEC101	Information Technologies and Applications	1	2	2	3	MEE104	Computer Aided Technical Drawing	2	2	3	4		
CEC105	Technical Drawing	2	2	3	5	CEC102	Computer Programming	1	2	2	4		
TRK181	Turkish Language I	2	0	2	2	TRK182	Turkish Language II	2	0	2	2		
Total					19	8	23	30	Total				
									21				
									6				
									24				
									30				

IInd YEAR

3rd. Semester Courses					4th. Semester Courses								
Code	Course Name	LT	LB	CR	ECTS	Code	Course Name	LT	LB	CR	ECTS		
HST181	Atatürk's Principles and History of Revolutions I	2	0	2	2	HST182	Atatürk's Principles and History of Revolutions II	2	0	2	2		
CAL289	Differential Equations	4	0	4	4	FOL282	Technical Foreign Language II	2	0	2	2		
FOL281	Technical Foreign Language I	2	0	2	2	MEE204	Strength of Materials II	3	0	3	5		
MEE203	Strength of Materials I	3	0	3	4	MEE210	Basics of Electricity and Electronics	2	0	2	4		
MEE205	Materials Science	3	1	3	4	MEE212	Measurement Technique	2	1	2	4		
MEE209	Dynamics	4	0	4	5	REN201	Thermodynamics	4	0	4	4		
REN201	Manufacturing Processes	3	1	3	4	REN204	Rail Vehicle Dynamics	3	0	3	4		
REN203	Railway Systems Construction	3	0	3	5	REN206	Electromechanical Energy Conversion	2	0	2	5		
Total					24	2	24	30	Total				
									20				
									1				
									20				
									30				

IIIrd YEAR

5th. Semester Courses					6th. Semester Courses								
Code	Course Name	LT	LB	CR	ECTS	Code	Course Name	LT	LB	CR	ECTS		
CEC303	Engineering Economics	2	0	2	3	CEC302	Numerical Analysis	2	0	2	3		
CEC305	Occupational Health and Safety I	2	0	2	2	CEC306	Occupational Health and Safety II	2	0	2	2		
MEE303	Machine Elements I	4	0	4	4	CEC310	Engineering Statistics	3	0	3	3		
MEE305	Heat Transfer	4	0	4	4	MEE304	Machine Elements II	4	0	4	4		
REN301	Bogie Systems and Vibration	3	0	3	3	MEE310	System Dynamics and Control	3	0	3	4		
REN303	Fluid Mechanics	4	0	4	4	REN302	Locomotive and Wagon Design	3	0	3	5		
REN399	Industrial Practice I	0	0	0	4	REN304	Mechanisms	3	0	3	3		
	Technical Elective Course	2	1	2	4		Technical Elective Course	2	1	2	4		
	Social Elective Course	2	0	2	2		Social Elective Course	2	0	2	2		
Total					23	1	23	30	Total				
									24				
									1				
									24				
									30				

Technical Elective Courses

REN305	Rail Vehicle Mechanics	2	1	2	4
REN307	Test and Certification in Rail Systems	2	1	2	4
REN309	Engines and Power Trains	2	1	2	4
REN311	Hydraulics and Pneumatics	2	1	2	4

Technical Elective Courses

REN306	Track Construction and Maintenance Machines	2	1	2	4
REN308	Transport Technology and Economy	2	1	2	4
REN310	Rail Systems Superstructure	2	1	2	4
REN312	Electrification Systems	2	1	2	4

Social Elective Courses

ESC301	Labour Law	2	0	2	2
ESC303	Patent and Industrial Design	2	0	2	2
ESC305	Entrepreneurship	2	0	2	2
ESC307	Communication Skills	2	0	2	2
ESC309	International Communication	2	0	2	2
ESC311	Critical Analytical Thinking Techniques	2	0	2	2
DEG301	Values Education	2	0	2	2

Social Elective Courses

ESC302	Research and Presentation Skills	2	0	2	2
ESC304	Human Resources Management	2	0	2	2
ESC306	Management Systems	2	0	2	2
ESC310	Corporate Behavior	2	0	2	2
ESC312	Standardization	2	0	2	2
ESC316	Social Media	2	0	2	2
ESC318	Contemporary Topics	2	0	2	2

IVth YEAR

7th. Semester Courses					8th. Semester Courses								
Code	Course Name	LT	LB	CR	ECTS	Code	Course Name	LT	LB	CR	ECTS		
REN401	Graduation Project I	0	2	1	3	REN402	Graduation Project II	0	2	1	6		
REN403	Design of Railway Systems	2	1	2	3	REN498	Applied Engineering Education ⁽¹⁾	0	16	8	24		
REN405	Railway Systems Eng. Laboratory	0	4	2	4								
REN407	Welding Technology	2	0	2	2		Technical Elective Course ⁽²⁾	2	1	2	6		
REN499	Industrial Practice II	0	0	0	4		Technical Elective Course ⁽²⁾	2	1	2	6		
CEC401	Ethics in Engineering	2	0	2	2		Technical Elective Course ⁽²⁾	2	1	2	6		
							Technical Elective Course ⁽²⁾	2	1	2	6		
	Technical Elective Course	2	1	2	6		Total (if the course affixed with ⁽¹⁾ is taken)	0	18	9	30		
	Technical Elective Course	2	1	2	6		Total (if the courses affixed with ⁽²⁾ are taken)	8	6	9	30		
Total					10	9	13	30	Total				
									8				
									6				
									9				
									30				

Technical Elective Courses

REN409	Signalling	2	1	2	6
REN411	Urban Rail Transport	2	1	2	6
REN413	High Speed Rail Systems	2	1	2	6
REN415	Accident Analysis and Reporting	2	1	2	6
REN417	Computer Aided Manufacturing	2	1	2	6
REN419	Tribology	2	1	2	6
REN421	Geographical Information Systems	2	1	2	6

Technical Elective Courses

REN404	Track and Route Planning in Railways	2	1	2	6
REN406	Operations and Traffic Management in Railways	2	1	2	6
REN408	Rail Systems Maintenance	2	1	2	6
REN410	Transportation Machines	2	1	2	6
REN412	Programmable Control Systems (PLC)	2	1	2	6
REN414	Aerodynamics in Rail Systems	2	1	2	6
REN416	HVAC in Railway Systems Vehicles	2	1	2	6

DERS İSTATİSTİKLERİ

1	Total Credits	160	8	Total Credits / Credit Limit of 128	125,0%
2	Total ECTS Credits	240	9	Total ECTS Credits / Total Credits	150,0%
3	Total Elective Course Credits	20	10	Total Elective Course Cr / Total Credits	12,5%
4	Theoretical Course Hours	149	11	Theoretical Course Hours / Total Course Hours	81,4%
5	Practical Course Hours	34	12	Practical Course Hours / Total Course Hours	18,6%
6	Total English Course Credits	160	13	Total English Course Credits / Total Credits	100,0%
7	Total ECTS Credits of Elective Courses	48	14	Total ECTS Credits of Elective Courses / Total ECTS Credits	20,0%
			15	Total Basic Science Course Credits	32