

### MAPPING OF COURSES TO PLOs

	Code	Title	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12
Semester No.	Code	Title	Engineering Knowledge	Problem Analysis	Design/ Development of Solutions	Investigation	Modern Tool Usage	The Engineer and Society	Environment and Sustainability	Ethics	Individual and Team Work	Communication	Project Management	Lifelong Learning
1	EE100	Electric Circuits	3	2		1	2					3		
	CH100	Applied Chemistry	3	2	1		1							1
	ME 100L	Workshop Practice	2				2	2			3			
	PHY111	Applied Physics	2	2				2			2			
	HU 151	Arabic Language										1		1
	MA 123	Calculus	2	1										
2	EE 101	Electrical and Electronics Workshop				2	1							
	EE 110	Circuit Analysis and Design		2		1					2	2	3	
	ME 122L	Engineering Drawing	3		3		3							
	CS 141	Introduction to Computing	2	2	1		2						1	
	ME 110	Applied Thermodynamics	3	2		2			1					
	HU 111	Communication Skills									1	1		
3	MA 228	Differential Equations	1	1										
	EE 212	Semiconductor Devices	3	2	1						1			
	EE 230	Programming Fundamentals	3	2	1	1	1						1	
	EE 272	Digital Systems	3		1		2						2	
	HU 221	Technical Writing and Presentation Skills										2		1

	MA 234	Linear Algebra	3	1									
4	EE 213	Analog and Digital Electronic Circuits	2	2	1					3			
	EE 220	Signals and Systems	3	2		2	1						
	EE 232	Data Structures and Algorithms	3		1	2	3				3		
	EE 273	Microprocessor Systems	3	3	3		1			3		1	
	MA 246	Numerical Methods	2	2									
5	EE 320	Applied Probability and Statistics	3	2			2						
	EE 340	Control Systems	2	2	1	1	1				2		
	EE 350	Electric Machinery Fundamentals	2	2	1	1	1			3			
	EE 356	Power Transmission, Distribution and Utilization	1	2		1				1			
	EE 380	Electromagnetic Theory	3	2	2	1					1		
6	EE 322	Analog and Digital Communications	2	2	1		1				3		
	EE 384	Digital Signal Processing	2	2	1		1						
	MCT 351	Introduction to Robotics	2	2	1							3	
	IS 101	Islamic and Pakistan Studies/Ethics								2			1
7	MGT 460	Engineering Economics					2	1					
	IS 201	Islamic and Pakistan StudiesII/Ethics						2		2			1
8	MGT 414	Entrepreneurship and Business Management						2				2	3
<b>Restricted Elective</b>	EE 431	Operating Systems (L)	2	3		1	1			2			
	EE 451	Power System Analysis and Design (L)		2	2	2	1						
	EE 483	Antenna Systems (L)	3	1	1	1	3				3		
<b>Elective</b>	EE 410	Power Electronics (L)		1	1							3	
<b>Elective</b>	EE 412	Integrated Electronic Circuits (L)	3	2	1	1							
<b>Elective</b>	EE 413	Industrial Electronics (L)	2	2	1	1	3		1				

<b>Elective</b>	EE 424	Satellite Engineering	<b>3</b>	<b>2</b>				<b>3</b>				<b>3</b>		
<b>Elective</b>	EE 425	Wireless Communications (L)	<b>3</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>1</b>					<b>3</b>		
<b>Elective</b>	EE 426	Digital Image Processing (L)	<b>3</b>	<b>2</b>	<b>1</b>									
<b>Elective</b>	EE 432	Computer Networks (L)	<b>3</b>	<b>2</b>	<b>1</b>		<b>1</b>					<b>3</b>		
<b>Elective</b>	EE 436	Database Engineering (L)	<b>3</b>	<b>1</b>	<b>1</b>		<b>2</b>				<b>2</b>			
<b>Elective</b>	EE 439	Introduction to Machine Learning	<b>3</b>	<b>2</b>	<b>1</b>	<b>3</b>								
<b>Elective</b>	EE 450	High Voltage Engineering (L)	<b>3</b>	<b>2</b>		<b>2</b>		<b>2</b>			<b>3</b>			
<b>Elective</b>	EE 452	(Renewable) Electrical Energy Systems	<b>1</b>	<b>2</b>	<b>1</b>									
<b>Elective</b>	EE 461	Design of Electrical Machines	<b>2</b>		<b>1</b>							<b>2</b>		
<b>Elective</b>	EE 453	Power System Operation and Control (L)		<b>2</b>	<b>2</b>	<b>1</b>	<b>2</b>							<b>3</b>
<b>Elective</b>	EE 454	Power System Protection (L)	<b>3</b>	<b>2</b>	<b>1</b>	<b>1</b>				<b>3</b>				
<b>Elective</b>	EE 456	Introduction to Smart Grids	<b>2</b>		<b>1</b>		<b>2</b>		<b>1</b>					
<b>Elective</b>	EE 475	Computer Architecture (L)	<b>3</b>	<b>2</b>	<b>1</b>		<b>3</b>				<b>1</b>			
<b>Elective</b>	EE 476	Introduction to VLSI Systems (L)	<b>3</b>	<b>2</b>	<b>1</b>									
<b>Elective</b>	EE 477	Software Construction	<b>3</b>	<b>2</b>	<b>1</b>									
<b>Elective</b>	EE 481	Optical Circuits and Systems	<b>3</b>	<b>3</b>	<b>1</b>	<b>2</b>								
<b>Elective</b>	EE 482	Microwave Engineering - Passive Devices (L)	<b>3</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>1</b>					<b>3</b>		
<b>Elective</b>	EE 484	Microwave Engineering - Active Devices (L)	<b>3</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>2</b>				<b>3</b>		
<b>Elective</b>	EE 485	Electromagnetic Compatibility	<b>3</b>		<b>2</b>		<b>2</b>	<b>1</b>						
<b>Elective</b>	EE 491	Electrical Instruments and Measurements	<b>2</b>			<b>2</b>	<b>2</b>							
<b>Elective</b>	EE 455	Power Plant Engineering	<b>2</b>	<b>2</b>	<b>1</b>				<b>1</b>		<b>3</b>			<b>1</b>
<b>Elective</b>	MGT102	Sociology						<b>2</b>	<b>2</b>	<b>3</b>				
Semesters 7, 8	EE-499	Final Year Project	<b>2</b>	<b>2</b>	<b>1</b>		<b>2</b>			<b>1</b>		<b>3</b>	<b>3</b>	