

## 8. Mapping of Curriculum to PLOs

Bachelor of Engineering in Materials Courses			Program Learning Outcomes (PLOs)											
			PLO-1	PLO-2	PLO-3	PLO-4	PLO-5	PLO-6	PLO-7	PLO-8	PLO-9	PLO-10	PLO-11	PLO-12
First Year	Fall	MM-102 Introduction to Engineering Materials	C1 C2	C3							A3			
		ME-101 Engineering Mechanics	C1 P1	C3 C3										
		PH-122 Applied Physics	C2 P3	C3 C3										
		ME-104 Workshop Practice				P3 P3					A4			
		HS-104 Functional English										A3 C2 C6		
	Spring	EE-118 Basic Electricity & Electronics	C3	C3 C3										
		AU-102 Engineering Drawing and Computer Graphics	P3				C3					C4		
		CY-109 Applied Chemistry	C2 P3	C3 C3										
		MT-114 Calculus	C1	C3 C2										
		HS-105/ HS-127 Pakistan Studies OR Pakistan Studies (for Foreigners)						C2					C2	
Second Year	Fall	MM-201 Physical Metallurgy	C2		C3	C3 P3								
		MM-204 Engineering Ceramic and Refractory Materials			C4	C4			C2					
		MM-205 Mechanics of Materials	C3		C4		C3				P3			
		MT-215 Differential Equations and Complex Variables	C2	C3										
		MY-211 Metallurgical Thermodynamics & Kinetics	C2	C3	C3									
	Spring	MM-202 Production and Refining of Materials			C2			C4	C2			A4		
		MM-208 Fundamentals of Modern Manufacturing and Foundry	C2			C3					P3		C4	
		MM-307 Joining of Materials			P3		C4	C4					C5	
		MM-309 Construction Materials	C2					C4	C2					
		IM-207 Computer Programming and Drafting	C2		C3		P3							
HS-205/HS-209 Islamic Studies OR Ethical Behavior								C2 C2						
HS – 200 Community Service						A3					A2			

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Third Year	Fall	MM-301 Corrosion: Protection and Prevention		C3			P3	C3	C4							
		MM-303 Inspection and Testing of Materials				C4	P3	C5							C4	
		MM-304 Heat Treatment of Materials			C4	C3	P3	C5								
		HS-304 Business Communication and Ethics								C3			A3	C6		
	Spring	MT-315 Mathematical Methods	C2	C3												
		MM-305 Polymer and Composite Materials		C3		C4	P3		C5							
		MM-308 Materials Characterization and Analytical Techniques				C4	P3						C5		C5	
		PF-303 Applied Economics for Engineers		C4				C2								
		MG-481 Entrepreneurship								A3				C3	C2	
		MT-441 Advance Mathematical Techniques	C3	C2	C3											
HSK-I Chinese Language																
Fourth Year	Fall	MM-410 Final Year Design Project		C	C				C	A	A	A	A			
		MM-404 Phase Transformation in Materials		C3			C4						P3	C3		
		MM-411 Nanomaterials and Nanotechnology					C3		C3						C4	
		MM-412 Surface Engineering			C4		P3		C5					A4		
		*Elective –1														
		MM-414 Total Quality Management					C3	C4		A3				C5		
		HSK-II Chinese Language														
	Spring	MM-410 Final Year Design Project		C	C					A	C,A	C,A	C	C		
		MM-402 Design and Selection of Materials					P3	C3			A4				C5	
		**Elective – 2														
		MM-415 Material Deformation and Failures: Mechanisms and Analysis		C3									A4		C4	
		MM-416 Biomedical and Functional Materials							C3	C5					C6	
		IM-417 Health Safety and Environment	C2						C3		P3				A3	
Internship	C	C					A		A	A	A					