

Pak-Austria Fachhochschule: Institute of Applied Sciences and Technology

Curriculum - BE Materials Engineering											
Semester 1						Semester 2					
Course Code	Course Title	Theory CH	Lab CH	Total	Pre-Req	Course Code	Course Title	Theory CH	Lab CH	Total	Pre-Req
MGT-262	Entrepreneurship	3	0	3	-	SS-310	Professional Ethics	3	0	3	-
COMP-102	Introduction to ICT	2	0	2	-	SS-112	Pakistan Studies	2	0	2	-
COMP-102 L	Introduction to ICT Lab	0	1	1	-	MTH-202	Linear Algebra and Differential Equations	3	0	3	-
SS-111	Islamic Studies	2	0	2	-	ME-101L	Workshop Practice	0	1	1	-
MTH-101	Calculus and Analytical Geometry	3	0	3	-	CH-102	Inorganic and Organic Chemistry	3	0	3	-
PHY-101	Applied Physics	3	0	3	-	CH-102L	Inorganic and Organic Chemistry Lab	0	1	1	-
PHY-101L	Applied Physics Lab	0	1	1	-	SS-102	English Language and Communication Skills	3	0	3	-
MSE-101	Fundamentals of Engineering Materials	3	0	3	-						
Total		16	2	18		Total		14	2	16	-
Semester 3						Semester 4					
Course Code	Course Title	Theory CH	Lab CH	Total	Pre-Req	Course Code	Course Title	Theory CH	Lab CH	Total	Pre-Req
MSE-202	Applied Geology & Mineral Dressing	3	0	3	-	MSE-231	Mechanical Behavior of Materials	3	0	3	ME-103
ECE-110	Basic Electrical Engineering	2	0	2	-	MSE-213	Iron & Steel Making	2	0	2	MSE-211
ECE-110L	Basic Electrical Engineering Lab	0	1	1	-	MTH-307	Numerical Computations	2	0	2	MTH-202
MSE-211	Materials Thermodynamics	3	0	3	MSE-101	MTH-307L	Numerical Computations Lab	0	1	1	-
ME-103	Engineering Mechanics	2	0	2	-	SS-203	Technical & Business Writing	3	0	3	SS-102
ME-103L	Engineering Mechanics Lab	0	1	1	-	MSE-212	Phase Equilibria and Microstructures	3	0	3	MSE-211
MSE-221	Crystallography & X-ray Diffraction	3	0	3	-	MSE-222	Characterization Techniques	2	0	2	MSE-221
SS-331	Community Service	0	1	1 (NC)	-	MSE-292	Materials Engineering Lab-II	0	1	1	-
MSE-291	Materials Engineering Lab-I	0	2	2	-	ME-102L	Engineering Drawing	0	1	1	MTH-101
Total		13	4	17		Total		15	3	18	

<i>Semester 5</i>					
<i>Course Code</i>	<i>Course Title</i>	<i>Theory CH</i>	<i>Lab CH</i>	<i>Total</i>	<i>Pre-Req</i>
MSE-314	Heat Treatment Processing	3	0	3	MSE-212
MSE-332	Manufacturing Processes	3	0	3	MSE-231
MSE-335	Powder Processing	2	0	2	-
CHE-423	Instrumentation & Process Control	3	0	3	-
CHE-423L	Instrumentation & Process Control Lab	0	1	1	-
MSE-334	Joining of Materials	2	0	2	-
SS-120	Occupational Health and Safety	2	0	2	-
MSE-393	Materials Engineering Lab-III	0	2	2	-
Total		15	3	18	
<i>Semester 7</i>					
<i>Course Code</i>	<i>Course Title</i>	<i>Theory CH</i>	<i>Lab CH</i>	<i>Total</i>	<i>Pre-Req</i>
MSE-423	Material Selection & Design	2	0	2	-
MGT-344	Engineering Management	3	0	3	-
MSE-498	Materials Design Project-I	0	3	3	-
MSE-4XX	Elective – I	3	0	3	-
MSE-441	Composite Materials	3	0	3	MSE-303 and MSE-304
MSE-455	Materials Engineering Lab-V	0	1	1	-
Total		11	4	15	

<i>Semester 6</i>					
<i>Course Code</i>	<i>Course Title</i>	<i>Theory CH</i>	<i>Lab CH</i>	<i>Total</i>	<i>Pre-Req</i>
MSE-303	Polymeric Materials	3	0	3	CH-102
MSE-315	Non-ferrous Metallurgy	2	0	2	MSE-211
MSE-333	Foundry Engineering	2	0	2	MSE-212
SS-321	Engineering Economics	2	0	2	-
MSE-361	Corrosion Engineering	3	0	3	MSE-211
MSE-304	Ceramics & Glasses	3	0	3	MSE-101
MSE-394	Materials Engineering Lab-IV	0	2	2	-
Total		15	2	17	
<i>Semester 8</i>					
<i>Course Code</i>	<i>Course Title</i>	<i>Theory CH</i>	<i>Lab CH</i>	<i>Total</i>	<i>Pre-Req</i>
MSE-442	Advanced Materials	3	0	3	-
MSE-4XX	Elective-II	3	0	3	-
MSE-499	Materials Design Project-II	0	3	3	-
MSE-4XX	Elective-III	3	0	3	-
MGT-355	Production & Operational Management	3	0	3	-
Total		12	3	15	

Grand Total	134
Non-Engineering Courses	29.85%
Engineering Courses	70.15%