



Ministry of Education
Federal University of Latin American Integration
Dean's Office for Undergraduate Studies



CURRICULUM - MATERIALS ENGINEERING

COURSE COMPONENTS	PREREQUISITE (P) / COREQUISITE (C)	CREDITS	CREDIT HOURS			
			THEORETICAL	PRACTICE	MANDATORY INTERNSHIP	TOTAL HOURS
SEMESTER 1						
INTRODUCTION TO MATERIALS ENGINEERING		4	60	0	-	60
MECHANICAL TECHNICAL DRAWING		6	0	90	-	90
CALCULUS I		6	90	0	-	90
GENERAL CHEMISTRY		4	60	0	-	60
LABORATORY OF GENERAL CHEMISTRY	(c) GENERAL CHEMISTRY	2	0	30	-	30
ADDITIONAL BASIC PORTUGUESE / SPANISH		6	90	0	-	90
FUNDAMENTALS OF LATIN AMERICA I		4	60	0	-	60
TOTAL NUMBERS IN THE SEMESTER		32	360	120	0	480
SEMESTER 2						
APPLIED MATERIALS SCIENCE	(c) Introduction to Materials Engineering	4	60	0	-	60
CALCULUS II	(p) Calculus I	6	90	0	-	90
GENERAL PHYSICS I		4	60	0	-	60
ANALYTICAL GEOMETRY AND LINEAR ALGEBRA		4	60	0	-	60
ORGANIC CHEMISTRY	(P) General Chemistry	4	60	0	-	60
ADDITIONAL INTERMEDIATE PORTUGUESE / SPANISH I	(P) Additional Basic Portuguese / Spanish	6	90	0	-	90
FUNDAMENTALS OF LATIN AMERICA II		4	60	0	-	60
INTRODUCTION TO SCIENTIFIC THINKING		4	60	0	-	60
TOTAL NUMBERS IN THE SEMESTER		36	540	0	0	540
SEMESTER 3						
STRUCTURE OF MATERIALS	(c) Applied Materials Science	4	60	0	-	60
CALCULUS III	(P) Calculus II; (P) Analytical Geometry and Linear Algebra	6	90	0	-	90
GENERAL PHYSICS II	(P) General Physics I	4	60	0	-	60
COMPUTER PROGRAMMING		4	15	45	-	60
INORGANIC CHEMISTRY	(P) General Chemistry	4	60	0	-	60
FUNDAMENTALS OF LATIN AMERICA III	(P) Fundamentals of Latin America I and II	2	30	0	-	30
ETHICS AND SCIENCE		4	60	0	-	60
TOTAL NUMBERS IN THE SEMESTER		28	375	45	0	420
SEMESTER 4						
PHYSICAL PROPERTIES OF MATERIALS	(c) Applied Materials Science	4	60	0	-	60
NUMERICAL CALCULUS	(p) Calculus III	4	30	30	-	60
GENERAL PHYSICS III	(P) General Physics II	4	60	0	-	60
LABORATORY OF GENERAL PHYSICS III	(c) General Physics III	2	0	30	-	30

LABORATORY OF MATERIALS ENGINEERING	(c) Applied Materials Science	4	0	60	-	60
PROBABILITY AND STATISTICS	(P) Calculus I	4	60	0	-	60
MECHANICS APPLIED TO MATERIALS	(P) General Physics I	4	60	0	-	60
TOTAL NUMBERS IN THE SEMESTER		26	270	120	0	390
SEMESTER 5						
THERMODYNAMICS APPLIED TO MATERIALS	(P) General Physics II	4	60	0	-	60
RAW MATERIAL EXTRACTION AND PROCESSING	(P) Applied Materials Science	4	60	0	-	60
CERAMIC RAW MATERIALS	(P) Applied Materials Science	4	60	0	-	60
PHYSICAL PROPERTIES OF POLYMERS	(P) Organic Chemistry	4	60	0	-	60
FUNDAMENTALS OF METALLURGY	(P) Applied Materials Science; (c) Structure of Materials	4	60	0	-	60
INTRODUCTION TO OCCUPATIONAL SAFETY ENGINEERING		2	30	0	-	30
TOTAL NUMBERS IN THE SEMESTER		22	330	0	0	330
SEMESTER 6						
MATERIAL ANALYSIS TECHNIQUES I	(P) Structure of Materials	4	0	60	-	60
PHASE TRANSFORMATIONS AND HEAT TREATMENT	(P) Thermodynamics Applied to Materials	5	60	15	-	75
MECHANICAL BEHAVIOR OF MATERIALS	(P) Mechanics Applied to Materials	4	45	15	-	60
PROCESS AND PROJECT MANAGEMENT		4	60	0	-	60
POLYMER ENGINEERING	(P) Organic Chemistry	4	45	15	-	60
FLUID MECHANICS APPLIED TO MATERIALS	(P) Calculus II; General Physics II	4	60	0	-	60
TOTAL NUMBERS IN THE SEMESTER		25	270	105	0	375
SEMESTER 7						
MATERIAL ANALYSIS TECHNIQUES II	(P) Structure of Materials	4	0	60	-	60
METALLIC MATERIAL PROCESSING	(P) Fundamentals of Metallurgy	6	75	15	-	90
HEAT TREATMENT OF CERAMIC MATERIALS	(P) Thermodynamics Applied to Materials	4	60	0	-	60
RHEOLOGY AND PROCESSING OF POLYMERS	(P) Physical Properties of Polymers	6	75	15	-	90
PROCESSING OF CERAMIC MATERIALS	(P) Ceramic Raw Materials	6	75	15	-	90
RESEARCH AND DEVELOPMENT IN MATERIALS	(P) Raw Material Extraction and Processing; Ceramic Raw Materials; Physical Properties of Polymers; Fundamentals of Metallurgy	4	0	60	-	60
TOTAL NUMBERS IN THE SEMESTER		30	285	165	0	450
SEMESTER 8						
MATERIAL ANALYSIS TECHNIQUES III	(P) Structure of Materials	4	0	60	-	60
MECHANISMS OF FRACTURE AND FAILURE ANALYSIS	(c) Mechanical Behavior of Materials	4	60	0	-	60
CORROSION AND DEGRADATION OF MATERIALS	(P) Fundamentals of Metallurgy	4	60	0	-	60
NANOMATERIALS	(P) Applied Materials Science; (c) Structure of Materials	4	60	0	-	60
COMPOSITE MATERIALS	(P) Applied Materials Science	4	60	0	-	60
SURFACE ENGINEERING	(c) Phase Transformations and Heat Treatment	4	60	0	-	60
TOTAL NUMBERS IN THE SEMESTER		24	120	60	0	360
SEMESTER 9						
FINAL PAPER	(P) 60% of the Total Credit Hours of the Course; (c) Research and Development in Materials	12	0	180	-	180
SPECIFICATION AND SELECTION OF MATERIALS	(P) Mechanical Behavior of Materials	4	60	0	-	60
TOTAL NUMBERS IN THE SEMESTER		16	0	180	0	240
SEMESTER 10						
MANDATORY SUPERVISED INTERNSHIP	(P) 75 % of the Total Credit Hours of the Course	12	-	-	180	180
TOTAL PARCIAL SEMESTRAL		12	0	0	180	180
COMPLEMENTARY ACADEMIC ACTIVITIES						
COMPLEMENTARY ACADEMIC ACTIVITIES		12	-	-	-	180
TOTAL NUMBERS OF ELECTIVES						

TOTAL NUMBERS OF ELECTIVES		16	-	-	-	240
TOTAL CREDIT HOURS OF THE COURSE		MINIMUM REQUIRED BY MEC (CLOCK HOURS)				
4185		3600				
TOTAL HOURS MANDATORY INTERNSHIP		180				
TOTAL HOURS - COMPLEMENTARY ACADEMIC ACTIVITIES		180				
TOTAL HOURS - INTERNSHIP + COMPLEMENTARY ACADEMIC ACTIVITIES		360	MAXIMUM CLOCK HOURS ALLOWED BY MEC			837

DISCIPLINES OFFERED BY THE COURSE	PREREQUISITE (P) / COREQUISITE (C)	CREDITS	CREDIT HOURS (CLASS HOURS)		
			THEORETICAL	PRACTICE	TOTAL HOURS
BRAZILIAN SIGN LANGUAGE - LIBRAS I		2	15	15	30
BRAZILIAN SIGN LANGUAGE – LIBRAS II	(p) Brazilian Sign Language – Libras I	2	15	15	30
ENGLISH FOR ACADEMIC PURPOSES I		4	60	0	60
ENGLISH FOR ACADEMIC PURPOSES II	(p) English for Academic Purposes I	4	60	0	60
ADMINISTRATION AND ECONOMICS		4	60	0	60
POWDER METALLURGY	(p) Phase Transformations and Heat Treatment	4	45	15	60
TOPICS IN INTELLIGENT MATERIALS		4	45	15	60
SPECIAL TOPICS IN METALLIC MATERIALS		4	45	15	60
SPECIAL TOPICS IN CERAMIC MATERIALS		4	45	15	60
SPECIAL TOPICS IN POLYMERIC MATERIALS		4	45	15	60
SPECIAL TOPICS IN COMPOSITE MATERIALS		4	45	15	60
ENVIRONMENTAL ENGINEERING		4	45	15	60
WELDING: METALLURGY AND PROCESS	(p) Metallic Material Processing	4	45	15	60
ELECTIVES CREATED BY THE COLLEGIATE OF THE COURSE AFTER APPROVAL OF THE PPC					
DISCIPLINES OFFERED BY THE COURSE	PREREQUISITE (P) / COREQUISITE (C)	CREDITS	CREDIT HOURS (CLASS HOURS)		
			THEORETICAL	PRACTICE	TOTAL HOURS
INTERDISCIPLINARY PROJECT		4	0	60	60