



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



CURRICULUM - CHEMICAL ENGINEERING - BACHELOR'S DEGREE

COURSE COMPONENTS	PREREQUISITE (P) / COREQUISITE (C)	CREDITS	CREDIT HOURS			
			THEORETICAL	PRACTICE	MANDATORY INTERNSHIP	TOTAL HOURS
SEMESTER 1						
FUNDAMENTALS OF LATIN AMERICA I		4	60	0	-	60
ADDITIONAL BASIC PORTUGUESE / SPANISH		6	90	0	-	90
TECHNICAL DRAWING		6	0	90	-	90
GENERAL CHEMISTRY		4	60	0	-	60
EXPERIMENTAL GENERAL CHEMISTRY		4	0	60	-	60
INTRODUCTION TO CHEMICAL ENGINEERING		2	30	0	-	30
CALCULUS I		6	90	0	-	90
TOTAL NUMBERS IN THE SEMESTER		32	330	150	0	480
SEMESTER 2						
FUNDAMENTALS OF LATIN AMERICA II		4	60	0	-	60
INTRODUCTION TO SCIENTIFIC THINKING		4	60	0	-	60
ADDITIONAL INTERMEDIATE PORTUGUESE / SPANISH I	(p) Additional Basic Portuguese/Spanish	6	90	0	-	90
GENERAL PHYSICS I		4	60	0	-	60
ANALYTICAL CHEMISTRY	(p) General Chemistry	4	60	0	-	60
EXPERIMENTAL ANALYTICAL CHEMISTRY	(c) Analytical Chemistry	4	0	60	-	60
INORGANIC CHEMISTRY	(p) General Chemistry	4	60	0	-	60
CALCULUS II	(p) Calculus I	6	90	0	-	90
ANALYTICAL GEOMETRY AND LINEAR ALGEBRA		4	60	0	-	60
TOTAL NUMBERS IN THE SEMESTER		40	540	60	0	600
SEMESTER 3						
FUNDAMENTALS OF LATIN AMERICA III	(p) Fundamentals of Latin America I and II	2	30	0	-	30
ETHICS AND SCIENCE		4	60	0	-	60
PROBABILITY AND STATISTICS	(p) Calculus I	4	60	0	-	60
GENERAL PHYSICS II	(p) General Physics I	4	60	0	-	60
ORGANIC CHEMISTRY I	(p) General Chemistry	4	60	0	-	60
MASS AND ENERGY BALANCE	(p) Introduction to Chemical Engineering	4	60	0	-	60
CALCULUS III	(p) Calculus II ; (p) Analytical Geometry and Linear Algebra	6	90	0	-	90
TOTAL NUMBERS IN THE SEMESTER		28	420	0	0	420
SEMESTER 4						
GENERAL PHYSICS III	(p) General Physics II	4	60	0	-	60
ORGANIC CHEMISTRY II	(p) Organic Chemistry I	4	60	0	-	60
LABORATORY OF GENERAL PHYSICS III	(p) General Physics III	2	0	30	-	30
EXPERIMENTAL ORGANIC CHEMISTRY	(c) Organic Chemistry II	4	0	60	-	60

INDUSTRIAL CHEMICAL PROCESSES	(p) Mass and Energy Balance	4	60	0	-	60
COMPUTER PROGRAMMING		4	30	30	-	60
APPLIED MECHANICS	(p) General Physics I	4	60	0	-	60
INSTRUMENTAL ANALYSIS	(p) Analytical Chemistry	4	0	60	-	60
NUMERICAL CALCULUS	(p) Calculus III	4	30	30	-	60
TOTAL NUMBERS IN THE SEMESTER		34	300	210	0	510
SEMESTER 5						
CHEMICAL THERMODYNAMICS I	(p) Calculus II; Mass and Energy Balance	6	90	0	-	90
TRANSPORT PHENOMENA I	(p) General Physics II; (p) Calculus II	4	60	0	-	60
UNIT OPERATIONS I	(c) Transport Phenomena I	4	60	0	-	60
SCIENTIFIC METHOD	(p) Introduction to Scientific Thinking	2	30	0	-	30
FUNDAMENTALS OF GENERAL ELECTROTECHNICS	(p) General Physics III	4	60	0	-	60
LABORATORY OF GENERAL ELECTROTECHNICS	(c) Fundamentals of General Electrotechnics	2	0	30	-	30
LABORATORY OF MASS AND ENERGY BALANCE	(p) Mass and Energy Balance	2	0	30	-	30
INDUSTRIAL INSTRUMENTATION	(c) Fundamentals of General Electrotechnics	2	0	30	-	30
TOTAL NUMBERS IN THE SEMESTER		26	300	90	0	390
SEMESTER 6						
CHEMICAL THERMODYNAMICS II	(p) Chemical Thermodynamics I	6	90	0	-	90
TRANSPORT PHENOMENA II	(p) Transport Phenomena I	4	60	0	-	60
UNIT OPERATIONS II	(c) Transport Phenomena II	4	60	0	-	60
LAW FOR ENGINEERING	(p) All course components up to Semester 4	2	30	0	-	30
MATERIALS FOR CHEMICAL INDUSTRY	(p) Industrial Chemical Processes	4	60	0	-	60
EFFLUENT MANAGEMENT AND TREATMENT	(p) Unit Operations I	4	60	0	-	60
LABORATORY OF CHEMICAL ENGINEERING I	(c) Chemical Thermodynamics I; Transport Phenomena I	4	0	60	-	60
ELECTIVE I		4	-	-	-	60
TOTAL NUMBERS IN THE SEMESTER		32	360	60	0	480
SEMESTER 7						
PROCESS MODELING AND SIMULATION	(p) Numerical Calculus	4	30	30	-	60
UNIT OPERATIONS III	(c) Transport Phenomena III	4	60	0	-	60
CHEMICAL REACTION ENGINEERING I	(p) Chemical Thermodynamics II	6	90	0	-	90
TRANSPORT PHENOMENA III	(p) Transport Phenomena II	4	60	0	-	60
ADMINISTRATION AND ECONOMICS	(p) Law for Engineering	4	60	0	-	60
LABORATORY OF CHEMICAL ENGINEERING II	(c) Transport Phenomena II; Unit Operations II	4	0	60	-	60
INNOVATION AND ENTREPRENEURSHIP	(c) Administration and Economics	4	60	0	-	60
ELECTIVE II		4	-	-	-	60
TOTAL NUMBERS IN THE SEMESTER		34	360	90	0	510
SEMESTER 8						
CHEMICAL PROCESS CONTROL	(p) Process Modeling and Simulation	4	30	30	-	60
FOOD ENGINEERING	(p) Unit Operations III	4	60	0	-	60
CHEMICAL REACTION ENGINEERING II	(p) Chemical Reaction Engineering I	4	60	0	-	60
INTRODUCTION TO SAFETY ENGINEERING	(p) Administration and Economics	2	30	0	-	30
BIOCHEMICAL ENGINEERING	(p) Chemical Reaction Engineering I	4	60	0	-	60
FINAL PAPER I	(c) Chemical Reaction Engineering II	2	30	0	-	30

LABORATORY OF CHEMICAL ENGINEERING III	(c) Transport Phenomena III ; Unit Operations III ; Chemical Reaction Engineering I	4	60	0	-	60
ELECTIVE III		4	-	-	-	60
TOTAL NUMBERS IN THE SEMESTER		28	330	30	0	420
SEMESTER 9						
CHEMICAL PROCESS ANALYSIS AND OPTIMIZATION	(p) Process Modeling and Simulation	4	30	30	-	60
CHEMICAL ENGINEERING PROJECT	(p) Chemical Reaction Engineering II	4	30	30	-	60
FINAL PAPER II	(p) Final Paper I	12	0	180	-	180
LABORATORY OF CHEMICAL ENGINEERING IV	(p) Chemical Reaction Engineering I ; Biochemical Engineering; Chemical Process Control	4	0	60	-	60
ELECTIVE IV		4	-	-	-	60
TOTAL NUMBERS IN THE SEMESTER		28	60	300	0	420
SEMESTER 10						
SUPERVISED INTERNSHIP	(p) Introduction to Safety Engineering; (p) Laboratory of Chemical Engineering III	15	-	-	225	225
TOTAL NUMBERS IN THE SEMESTER		15	0	0	225	225
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 CLOCK HOURS REQUIRED BY MEC				
4635		3600				
TOTAL HOURS - MANDATORY INTERNSHIP		225				
TOTAL HOURS - COMPLEMENTARY ACADEMIC ACTIVITIES		180				
TOTAL HOURS - INTERNSHIP + COMPLEMENTARY ACADEMIC ACTIVITIES		405	MAXIMUM CLOCK HOURS ALLOWED BY MEC			
			927			
ELECTIVES TO BE OFFERED FOR 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	10	20	30	
ENGLISH FOR ACADEMIC PURPOSES I		4	60	0	60	
ENGLISH FOR ACADEMIC PURPOSES II		4	60	0	60	
OBJECT-ORIENTED PROGRAMMING	(p) Computer Programming	4	60	0	60	
COMPUTATIONAL FLUID MECHANICS AND HEAT TRANSFER	(p) Transport Phenomena II	4	0	60	60	
FUNDAMENTALS OF CFD (COMPUTATIONAL FLUID DYNAMICS)	(p) Transport Phenomena II	4	0	60	60	
SPECIAL TOPICS IN BIOGAS	(p) Biochemical Engineering	4	60	0	60	
POLYMERS	(p) Organic Chemistry II	4	60	0	60	
CHEMICAL INDUSTRY EQUIPMENT	(p) Transport Phenomena II	4	60	0	60	
INDUSTRIAL PIPING	(p) Transport Phenomena II	4	60	0	60	
HOMOGENEOUS CATALYSIS	(p) Chemical Reaction Engineering I	2	30	0	30	
HETEROGENEOUS CATALYSIS	(p) Chemical Reaction Engineering I	4	60	0	60	
SOLID WASTE MANAGEMENT	(p) Chemical Reaction Engineering I	2	30	0	30	
TEXTILE TECHNOLOGY		4	60	0	60	
SPECIAL TOPICS IN ENGINEERING I	(p) Mass and Energy Balance	4	30	30	60	
SPECIAL TOPICS IN ENGINEERING II	(p) Mass and Energy Balance	4	60	0	60	

SPECIAL TOPICS IN ENGINEERING III	(p) Mass and Energy Balance	2	30	0	30	
MODELING AND SIMULATION OF NATURAL SYSTEMS		4	30	30	60	
ATMOSPHERIC POLLUTANT CONTROL		4	60	0	60	