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

CURRICULUM – CIVIL INFRASTRUCTURE ENGINEERING

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
INTRODUCTION TO CIVIL INFRASTRUCTURE ENGINEERING		2	30	0	-	30
CALCULUS I		6	90	0	-	90
GENERAL CHEMISTRY		4	60	0	-	60
LABORATORY OF GENERAL CHEMISTRY		2	0	30	-	30
TOTAL NUMBERS IN THE SEMESTER		**30**	**330**	**120**	**0**	**450**
SEMESTER 2						
FUNDAMENTALS OF LATIN AMERICA II		4	60	0	-	60
INTRODUCTION TO SCIENTIFIC THINKING		4	60	0	-	60
ADDITIONAL INTERMEDIATE PORTUGUESE I / SPANISH I	(p) Additional Basic Portuguese / Spanish	6	90	0	-	90
MECHANICS		4	60	0	-	60
LABORATORY OF MECHANICS		2	0	30	-	30
CALCULUS II	(p) Calculus I	6	90	0	-	90
ANALYTICAL GEOMETRY AND LINEAR ALGEBRA		4	60	0	-	60
GEOLOGY APPLIED TO CIVIL INFRASTRUCTURE ENGINEERING	Completed Credits – 20	4	45	15	-	60
TOTAL NUMBERS IN THE SEMESTER		**34**	**465**	**45**	**0**	**510**
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
CALCULUS III	(p) Calculus II; (p) Analytical Geometry and Linear Algebra	6	90	0	-	90
COMPUTER PROGRAMMING		4	45	15	-	60
THERMAL AND WAVE PHYSICS	(p) Mechanics	4	60	0	-	60
LABORATORY OF THERMAL AND WAVE PHYSICS	(p) Mechanics: Laboratory of Mechanics	2	0	30	-	30
SOIL MECHANICS I	(p) Geology Applied to Civil Infrastructure Engineering	6	60	30	-	90
TOTAL NUMBERS IN THE SEMESTER		**28**	**345**	**75**	**0**	**420**
SEMESTER 4						
TECHNOLOGY OF BUILDING MATERIALS	(p) General Chemistry: Laboratory of General Chemistry; Completed Credits – 48	6	60	30	-	90
PROJECTION DRAWING	(p) Technical Drawing	6	0	90	-	90
TOPOGRAPHY	(p) Technical Drawing	6	30	60	-	90
APPLIED MECHANICS	(p) Mechanics	4	60	0	-	60

NUMERICAL CALCULUS	(p) Calculus III	4	30	30	-	60
ELECTROMAGNETISM AND OPTICS	(p) Thermal and Wave Physics	4	60	0	-	60
LABORATORY OF ELECTROMAGNETISM AND OPTICS	(p) Thermal and Wave Physics; (p) Laboratory of Thermal and Wave Physics	2	0	30	-	30
SOIL MECHANICS II	(p) Soil Mechanics I	4	45	15	-	60
TOTAL NUMBERS IN THE SEMESTER		**36**	**285**	**255**	**0**	**540**
SEMESTER 5						
FLUID MECHANICS	(p) Calculus III; (p) Thermal and Wave Physics	4	45	15	-	60
CONCRETE TECHNOLOGY	(p) General Chemistry; (p) Laboratory of General Chemistry; Completed Credits – 48	6	60	30	-	90
HEAVY CONSTRUCTION	(p) Completed Credits – 60	2	30	0	-	30
RESISTANCE OF MATERIALS I	(p) Applied Mechanics I	4	60	0	-	60
FOUNDATIONS	(p) Soil Mechanics II	6	60	30	-	90
THEORY OF STRUCTURES I	(p) Applied Mechanics	6	75	15	-	90
APPLIED TOPOGRAPHY	(p) Topography	4	0	60	-	60
TOTAL NUMBERS IN THE SEMESTER		**32**	**330**	**150**	**0**	**480**
SEMESTER 6						
HYDRAULICS	(p) Fluid Mechanics	4	45	15	-	60
TRANSPORTATION SYSTEMS	Completed Credits – 60	4	60	0	-	60
ROADS I	(p) Applied Topography	4	60	0	-	60
PROBABILITY AND STATISTICS		4	60	0	-	60
CIVIL CONSTRUCTION	(p) Concrete Technology; (p) Tecnology of Building Materials	6	45	45	-	90
THEORY OF STRUCTURES II	(p) Theory of Structures I	6	90	0	-	90
RESISTANCE OF MATERIALS II	(p) Resistance of Materials I	4	60	0	-	60
ELECTIVE		4	-	-	-	60
TOTAL NUMBERS IN THE SEMESTER		**36**	**420**	**60**	**0**	**540**
SEMESTER 7						
APPLIED HYDROLOGY	(p) Fluid Mechanics	4	45	15	-	60
HYDRAULIC AND BUILDING FACILITIES	(p) Hydraulics	6	60	30	-	90
ROADS II	(p) Roads I	4	60	0	-	60
RAILWAYS	(p) Transportation Systems	4	60	0	-	60
ENGINEERING ECONOMICS	(p) Probability and Statistics	2	30	0	-	30
STEEL AND WOOD STRUCTURES	(p) Resistance of Materials II; (p) Theory of Structures II	6	90	0	-	90
REINFORCED CONCRETE STRUCTURE I	(p) Theory of Structures I; (p) Resistance of Materials II	6	75	15	-	90
ELECTIVE		4	-	-	-	60
TOTAL NUMBERS IN THE SEMESTER		**36**	**420**	**60**	**0**	**540**
SEMESTER 8						
SANITATION I	(p) Applied Hydrology; (p) General Chemistry	6	60	30	-	90
OCCUPATIONAL SAFETY ENGINEERING	(p) Civil Construction	2	30	0	-	30
CONSTRUCTION MANAGEMENT	(p) Engineering Economics; (p) Civil Construction	4	60	0	-	60
AIRPORTS, PORTS AND WATERWAYS	(p) Transportation Systems	4	60	0	-	60
ELECTRICAL INSTALLATIONS	(p) Eletroctromagnetism and Optics; (p) Laboratory of Electromagnetism and Optics	4	30	30	-	60
TUNNELS	(p) Reinforced Concrete Structure I ; (p) Theory of Structures II; (p) Heavy Construction	4	60	0	-	60
REINFORCED CONCRETE STRUCTURE II	(p) Reinforced Concrete Structure I	4	60	0	-	60
LEGAL AND ENVIRONMENTAL ASPECTS OF THE CIVIL CONSTRUCTION INDUSTRY	(p) Civil Construction	2	30	0	-	30
ELECTIVE		4	-	-	-	60
TOTAL NUMBERS IN THE SEMESTER		**34**	**390**	**60**	**0**	**510**
SEMESTER 9						

HYDRAULIC WORKS	(p) Hydraulics	4	45	15	-	60
SANITATION II	(p) Sanitation I	4	30	30	-	60
CONSTRUCTION ADMINISTRATION	(p) Construction Management	4	60	0	-	60
SEISMIC ANALYSIS	(p) Reinforced Concrete Structure II; (p) Theory of Structures II	4	60	0	-	60
CONCRETE AND STEEL BRIDGES	(p) Reinforced Concrete Structure II; (p) Steel and Wood Structures	4	60	0	-	60
PRESTRESSED CONCRETE	(p) Reinforced Concrete Structure II	4	60	0	-	60
AERODYNAMIC ANALYSIS	(p) Reinforced Concrete Structure II; (p) Steel and Wood Structures	4	60	0	-	60
FINAL PAPER I	Completed Credits – 230	6	34	60	-	90
ELECTIVE		4	-	-	-	60
TOTAL NUMBERS IN THE SEMESTER		**38**	**409**	**105**	**0**	**570**
SEMESTER 10						
FINAL PAPER II	FINAL PAPER I	4	30	30	-	60
SUPERVISED INTERNSHIP IN CIVIL INFRASTRUCTURE ENGINEERING	Completed Credits – 230	16	-	-	240	240
TOTAL NUMBERS IN THE SEMESTER		**20**	**30**	**30**	**240**	**300**
COMPLEMENTARY ACADEMIC ACTIVITIES						
COMPLEMENTARY ACADEMIC ACTIVITIES		**8**	-	-	-	**120**
TOTAL NUMBERS OF ELECTIVES						
TOTAL NUMBERS OF ELECTIVES		16	-	-	-	240
TOTAL CREDIT HOURS OF THE COURSE		**MINIMUM CLOCK HOURS REQUIRED BY MEC**				
4980		**3600**				
TOTAL HOURS – MANDATORY INTERNSHIP		**240**				
TOTAL HOURS – COMPLEMENTARY ACADEMIC ACTIVITIES		**120**				
TOTAL HOURS - INTERNSHIP + COMPLEMENTARY ACADEMIC ACTIVITIES		**360**	**MAXIMUM CLOCK HOURS ALLOWED BY MEC**			**996**

DISCIPLINES OFFERED BY THE COURSE	PREREQUISITE (P) / COREQUISITE (C)	CREDITS	CREDIT HOURS (CLASS HOURS)		
			THEORETICAL	PRACTICE	TOTAL HOURS
DAM SAFETY	(p) Hydraulic Works	4	-	-	60
RATIO OF CONVENTIONAL AND SPECIAL CONCRETE	(p) Concrete Technology	4	-	-	60
LABORATORY OF OPTICS AND MODERN PHYSICS	(p) Laboratory of Electromagnetism and Optics	2	-	-	30
RESTAURATION OF HISTORICAL BUILDINGS	(p) Technology of Building Materials	4	-	-	60
INVESTMENT PLANNING AND MANAGEMENT	(p) Construction Management	4	-	-	60
OPTICS AND MODERN PHYSICS	(p) Electromagnetism and Optics	4	-	-	60
FINITE ELEMENT METHOD	(p) Calculus III; (p) Theory of Structures II	4	-	-	60
SUSTAINABILITY IN INFRASTRUCTURE CONSTRUCTIONS	(p) Concrete Technology	4	-	-	60
THERMODYNAMICS	(p) Thermal and Wave Physics	4	-	-	60
REPAIR AND STRENGTHENING OF STRUCTURES	(p) Concrete Technology; (p) Reinforced Concrete Structure I	4	-	-	60
STRUCTURAL SYSTEMS IN LATIN AMERICA	COMPLETION OF 120 CREDITS	4	-	-	60
SCIENTIFIC METHOD APPLIED TO ENGINEERING	(p) Introduction to Civil Infrastructure Engineering	4	-	-	60
COMPUTER STRUCTURAL CALCULUS	(p) Reinforced Concrete Structure II	4	-	-	60
ENTREPRENEURSHIP	(p) Construction Management	4	-	-	60
PAVING	(p) Roads II	4	-	-	60
INTRODUCTION TO BRAZILIAN SIGN LANGUAGE – LIBRAS		3	-	-	45
HYDROELECTRIC POWER PLANTS	(p) Hydraulics	4	-	-	60
VALUATION ENGINEERING	(p) Engineering Economics	4	-	-	60
SOCIAL INTEREST HOUSING IN LATIN AMERICA	(p) Introduction to Civil Infrastructure Engineering	4	-	-	60
PROJECT COMPATIBILITY	(p) Building Facilities; (p) Reinforced Concrete Structure II	4	-	-	60
APPLIED THERMODYNAMICS	(p) Resistance of Materials I	4	-	-	60

SOCIAL ENVIRONMENTAL IMPACT OF VENTURES IN LATIN AMERICA	(p) Introduction to Civil Infrastructure Engineering; (p) Completed Credits – 36	4	-	-	60
APPLIED SEISMIC ANALYSIS	(p) Seismic Analysis	4	-	-	60
APPLIED MECHANICS II	(p) Applied Mechanics	4	-	-	60
COMPUTATIONAL FLUID DYNAMICS	(p) Fluid Mechanics	4	-	-	60
APPLIED AERODYNAMIC ANALYSIS	(p) Aerodynamic Analysis	4	-	-	60
ENERGY SOURCES AND CONVERSION TECHNOLOGIES	(p) Introduction to Renewable Energy Engineering	4	-	-	60
CORROSION: PRINCIPLES AND PREVENTION	(p) Technology of Building Materials; (p) Concrete Technology	4	-	-	60
SPECIAL TOPICS IN TIDAL AND WAVE ENERGY	(p) Applied Thermodynamics; (p) Fluid Mechanics	4	-	-	60
MATERIALS SCIENCE	(p) General Chemistry: (p) Calculus I	4	-	-	60
WATER RESOURCE MANAGEMENT	(p) Applied Hydraulics	4	-	-	60
WASTE MANAGEMENT	(p) Construction Management	4	-	-	60
CIVIL CONSTRUCTION II	(p) Civil Construction	4	-	-	60