

## Architecture Program

### Program Structure

The program consists of 180 credit hours divided on 10 semesters as per the following reference study plan.

Semester 1, Level 0, Credits = 18

#	Code	English Title	Credits	Prerequisite
1	BAS 011	Mathematics (1)	3	
2	BAS 021	Physics (1)	3	
3	BAS 031	Mechanics (1)	3	
4	BAS 041	Chemistry	3	
5	BAS 061	Engineering Drawing and Projection	4	
6	BAS 014	Information Technology	2	

Semester 2, Level 0, Credits = 18

#	Code	English Title	Credits	Prerequisite
1	BAS 012	Mathematics (2)	3	BAS 011
2	BAS 022	Physics (2)	3	BAS 021
3	BAS 023	Computer Programming (1)	2	
4	BAS 032	Mechanics (2)	3	
5	BAS 033	Production Engineering	3	
6	HUM X25	Engineering History and Introduction to Engineering Sciences	2	
7	HUM X12	English Language	2	

Semester 3, Level 1, Credits = 17

#	Code	English Title	Credits	Prerequisite
1	ARC 111	Visual Formation and Fundamentals of Design	3	
2	ARC 112	Skiaigraphy & Perspective	3	
3	ARC 121	Theories of Architecture (1)	2	
4	ARC 131	Building Construction (1)	3	
5	CIV 110	Surveying	2	
6	BAS X51	Statistics	2	
7	HUM XXX	Elective Humanities-1	2	

Semester 4, Level 1, Credits = 18

#	Code	English Title	Credits	Prerequisite
1	ARC 122	History of Architecture (1)	2	
2	ARC 132	Building Construction (2)	3	ARC 131
3	ARC 142	Introduction to Environmental Sciences	2	
4	ARC 151	Architectural Design Studio (1)	4	ARC 111
5	CIV 140	Building Materials	3	
6	HUM 111	Human Rights	2	
7	HUM XXX	Elective Humanities-2	2	

Semester 5, Level 2, Credits = 18

#	Code	English Title	Credits	Prerequisite
1	ARC 222	Thermal Environment Control	2	
2	ARC 223	History of Architecture (2)	2	ARC 142
3	ARC 233	Building Construction (3)	3	ARC 132
4	ARC 252	Architectural Design Studio (2)	4	ARC 151
5	CIV 221	Structural Analysis	3	
6	HUM X14	Scientific Thinking and Technical Report Writing Skills	2	
7	HUM XXX	Elective Humanities-3	2	

Semester 6, Level 2, Credits = 18

#	Code	English Title	Credits	Prerequisite
1	ARC 224	Theories of Architecture (2)	2	ARC 121
2	ARC 242	Acoustics in Architecture	2	
3	ARC 244	Principles of Green Architecture	3	ARC 222
4	ARC 253	Architectural Design Studio (3)	4	ARC 252
5	CIV 231	Concrete Structures	3	CIV 221
6	CIV 241	Sanitary Installations in Buildings	2	
7	HUM X13	Communication and Presentation Skills	2	

Semester 7, Level 3, Credits = 18

#	Code	English Title	Credits	Prerequisite
1	ARC 325	History of Islamic Architecture	2	
2	ARC 334	Working Drawings (1)	3	ARC 233
3	ARC 341	Electrical Installations and Lighting in Buildings	2	
4	ARC 354	Architectural Design Studio (4)	4	ARC 244 ARC 253
5	CIV 322	Steel Structures	3	CIV 221
6	ARC 3XX	Elective-A-1	2	
7	BAS X61	Engineering Economics	2	

Semester 8, Level 3, Credits = 18

#	Code	English Title	Credits	Prerequisite
1	ARC 314	Building Economics	2	ARC 244
2	ARC 321	New and Renewable Energy	2	
3	ARC 335	Working Drawings (2)	3	ARC 334
4	ARC 355	Architectural Design Studio (5)	4	ARC 354
5	ARC 362	Urban Design	3	
6	MEC 343	Mechanical Installations in Buildings	2	
7	ARC 3XX	Elective-A-2	2	

Semester 9, Level 4, Credits = 19

#	Code	English Title	Credits	Prerequisite
1	ARC 441	Assessment of Building Life-Cycle	2	
2	ARC 435	Working Drawings (3)	3	ARC 335
3	ARC 456	Architectural Design Studio (6)	4	ARC 355
4	ARC 491	Project (1)	2	ARC 355
5	CIV 473	Projects Management	3	ARC 335
6	ARC 4XX	Elective-B-1	3	
7	ARC 448	Buildings Evaluation Codes	2	

Semester 10, Level 4, Credits = 18

#	Code	English Title	Credits	Prerequisite
1	ARC 415	Buildings Performance Simulation	3	ARC 244
2	ARC 471	Bids Documents and Contracts	3	ARC 335
3	ARC 492	Project (2)	4	ARC 491
4	ARC 4XX	Elective-B-2	3	
5	ARC 4XX	Elective-B-3	3	
6	HUM X71	Legislations and Professional Ethics	2	

## Structural Engineering Program

### Program Structure

The program consists of 180 credit hours divided on 10 semesters as per the following reference study plan.

Semester 1, Level 0, Credits = 18

#	Code	English Title	Credits	Prerequisite
1	BAS 011	Mathematics (1)	3	
2	BAS 021	Physics (1)	3	
3	BAS 031	Mechanics (1)	3	
4	BAS 041	Chemistry	3	
5	BAS 061	Engineering Drawing and Projection	4	
6	BAS 014	Information Technology	2	

Semester 2, Level 0, Credits = 18

#	Code	English Title	Credits	Prerequisite
1	BAS 012	Mathematics (2)	3	BAS 011
2	BAS 022	Physics (2)	3	BAS 021
3	BAS 023	Computer Programming (1)	2	
4	BAS 032	Mechanics (2)	3	
5	BAS 033	Production Engineering	3	
6	HUM X25	Engineering History and Introduction to Engineering Sciences	2	
7	HUM X12	English Language	2	

Semester 3, Level 1, Credits = 18

#	Code	English Title	Credits	Prerequisite
1	BAS 113	Mathematics (3)	3	BAS 012
2	BAS 131	Engineering Geology	2	
3	CIV 121	Analysis of Structures (1)	3	BAS 031
4	CIV 141	Properties and Testing of Building Materials (1)	3	
5	CIV 150	Civil Drawing	3	BAS 061
6	BAS X51	Statistics	2	
7	HUM XXX	Elective Humanities-1	2	

Semester 4, Level 1, Credits = 18

#	Code	English Title	Credits	Prerequisite
1	CIV 111	Surveying (1)	3	
2	CIV 122	Analysis of Structures (2)	3	CIV 121
3	CIV 142	Properties and Testing of Building Materials (2)	3	CIV 141
4	CIV 171	Fluid Mechanics	3	BAS 022
5	ARC 130	Building Construction	2	
6	HUM 111	Human Rights	2	
7	HUM XXX	Elective Humanities-2	2	

Semester 5, Level 2, Credits = 19

#	Code	English Title	Credits	Prerequisite
1	CIV 212	Surveying (2)	3	CIV 111
2	CIV 223	Analysis of Structures (3)	3	CIV 122
3	CIV 243	Properties and Testing of Building Materials (3)	3	CIV 142
4	CIV 251	Design of Reinforced Concrete Structures (1)	3	CIV 122
5	CIV 262	Soil Mechanics (1)	3	CIV 131
6	HUM X14	Scientific Thinking and Technical Report Writing Skills	2	
7	HUM XXX	Elective Humanities-3	2	

Semester 6, Level 2, Credits = 19

#	Code	English Title	Credits	Prerequisite
1	CIV 213	Surveying (3)	3	CIV 212
2	CIV 224	Analysis of Structures (4)	3	CIV 223
3	CIV 252	Design of Reinforced Concrete Structures (2)	3	CIV 251
4	CIV 263	Soil Mechanics (2)	3	CIV 262
5	CIV 264	Principles of Hydraulics	2	CIV 171
6	CIV 265	Environmental and Sanitary Engineering	3	CIV 171
7	HUM X13	Communication and Presentation Skills	2	

Semester 7, Level 3, Credits = 18

#	Code	English Title	Credits	Prerequisite
1	CIV 345	Foundation Engineering (1)	3	CIV 263
2	CIV 353	Design of Reinforced Concrete Structures (3)	3	CIV 252
3	CIV 354	Design of Steel Structures (1)	3	CIV 122
4	CIV 365	Design of Irrigation Works	3	CIV 171
5	CIV XXX	Elective-A-1	2	
6	CIV XXX	Elective-A-2	2	
7	BAS X61	Engineering Economics	2	

Semester 8, Level 3, Credits = 17

#	Code	English Title	Credits	Prerequisite
1	CIV 346	Foundation Engineering (2)	3	CIV 345
2	CIV 355	Design of Reinforced Concrete Structures (4)	3	CIV 353
3	CIV 356	Design of Steel Structures (2)	3	CIV 351
4	CIV 367	Transportation Planning and Traffic Engineering	3	
5	CIV 368	Matrix Structural Analysis	2	
6	CIV XXX	Elective-B-1	3	

Semester 9, Level 4, Credits = 17

#	Code	English Title	Credits	Prerequisite
1	CIV 457	Design of Reinforced Concrete Structures (5)	3	CIV 353
2	CIV 458	Design of Steel Structures (3)	3	CIV 352
3	CIV 468	Highway Engineering	3	CIV 263
4	CIV 473	Projects Management	3	BAS x61
5	CIV 481	Computer-Aided Structural Analysis	3	CIV224
6	CIV 491	Project (1)	2	

Semester 10, Level 4, Credits = 18

#	Code	English Title	Credits	Prerequisite
1	CIV 471	Repair and Strengthening of Structures	3	CIV 353
2	CIV 482	Bids Documents and Contracts	3	
3	CIV 492	Project (2)	4	CIV 491
4	CIV XXX	Elective-B-2	3	
5	CIV XXX	Elective-B-3	3	
6	HUM X71	Legislations and Professional Ethics	2	

## Energy Engineering and Renewable Energies Program

### Program Structure

The program consists of 180 credit hours divided on 10 semesters as per the following reference study plan.

#### Semester 1, Level 0, Credits = 18

#	Code	English Title	Credits	Prerequisite
1	BAS 011	Mathematics (1)	3	
2	BAS 021	Physics (1)	3	
3	BAS 031	Mechanics (1)	3	
4	BAS 041	Chemistry	3	
5	BAS 061	Engineering Drawing and Projection	4	
6	BAS 014	Information Technology	2	

#### Semester 2, Level 0, Credits = 18

#	Code	English Title	Credits	Prerequisite
1	BAS 012	Mathematics (2)	3	BAS 011
2	BAS 022	Physics (2)	3	BAS 021
3	BAS 023	Computer Programming (1)	2	
4	BAS 032	Mechanics (2)	3	
5	BAS 033	Production Engineering	3	
6	HUM X25	Engineering History and Introduction to Engineering Sciences	2	
7	HUM X12	English Language	2	

#### Semester 3, Level 1, Credits = 19

#	Code	English Title	Credits
1	BAS 113	Mathematics (3)	3
2	BAS 114	Differential Equations	3
3	MEC 111	Thermodynamics	3
4	MEC 112	Properties and Testing of Materials	3
5	ELE 111	Electrical Circuits	3
6	BAS X51	Statistics	2
7	HUM XXX	Elective Humanities-1	2

#### Semester 4, Level 1, Credits = 16

#	Code	English Title	Credits
1	MEC 141	Sources of Renewable Energy	2
2	MEC 142	Energy Conversion	3
3	MEC 143	Manufacturing Techniques	2
4	ELE 112	Electrical Measurements	3
5	ELE 151	Electromagnetic Fields	2
6	HUM 111	Human Rights	2
7	HUM XXX	Elective Humanities-2	2

Semester 5, Level 2, Credits = 19

#	Code	English Title	Credits
1	MEC 222	Heat Transfer	3
2	MEC 251	Fluid Dynamics	3
3	MEC 253	Machines Manufacturing	3
4	ELE 223	Electrical Machines (1)	3
5	ELE 254	Electronic Engineering	3
6	HUM X14	Scientific Thinking and Technical Report Writing Skills	2
7	HUM XXX	Elective Humanities-3	2

Semester 6, Level 2, Credits = 17

#	Code	English Title	Credits
1	MEC 233	Control Systems	3
2	MEC 252	Engineering Measurements	3
3	MEC 264	Machines Theory	3
4	ELE 255	Electrical Power Engineering	3
5	ELE 256	Electrical Machines (2)	3
6	HUM X13	Communication and Presentation Skills	2

Semester 7, Level 3, Credits = 19

#	Code	English Title	Credits
1	MEC 335	Mechanical Design of Machines	3
2	MEC 336	Combustion and Furnaces	3
3	MEC 331	Solar Energy (1)	2
4	ELE 332	Photovoltaic	3
5	MEC 337	Thermal Power Plants	3
6	ELE 334	Power Electronics (1)	3
7	BAS X61	Engineering Economics	2

Semester 8, Level 3, Credits = 18

#	Code	English Title	Credits
1	MEC 243	Internal Combustion Engines	3
2	ELE 333	Automated Systems based on Microprocessor	3
3	MEC 341	Mechanical Vibrations	3
4	ELE 338	Power Electronics (2)	3
5	MEC 344	Energy Storage Technologies	3
6	ELE 345	Quality of Electrical Power	3



Semester 9, Level 4, Credits = 18

#	Code	English Title	Credits
1	MEC 432	Solar Energy (2)	3
2	ELE 433	Connecting Renewable Energy Sources with Grids	3
3	ELE 435	Generation, Transmission and Operation Economics	2
4	MEC 491	Project (1)	4
5	XXX XXX	Elective-1	3
6	XXX XXX	Elective-2	3

Semester 10, Level 4, Credits = 18

#	Code	English Title	Credits
1	MEC 436	Wind Energy	3
2	ELE 437	Electric Drive Systems	3
3	MEC 492	Project (2)	4
4	XXX XXX	Elective-3	3
5	XXX XXX	Elective-4	3
6	HUM X31	Legislations and Professional Ethics	2

## Electronics Engineering and Electrical Communications Program

### Program Structure

The program consists of 180 credit hours divided on 10 semesters as per the following reference study plan.

Semester 1, Level 0, Credits = 18

#	Code	English Title	Credits	Prerequisite
1	BAS 011	Mathematics (1)	3	
2	BAS 021	Physics (1)	3	
3	BAS 031	Mechanics (1)	3	
4	BAS 041	Chemistry	3	
5	BAS 061	Engineering Drawing and Projection	4	
6	BAS 014	Information Technology	2	

Semester 2, Level 0, Credits = 18

#	Code	English Title	Credits	Prerequisite
1	BAS 012	Mathematics (2)	3	BAS 011
2	BAS 022	Physics (2)	3	BAS 021
3	BAS 023	Computer Programming (1)	2	
4	BAS 032	Mechanics (2)	3	
5	BAS 033	Production Engineering	3	
6	HUM X25	Engineering History and Introduction to Engineering Sciences	2	
7	HUM X12	English Language	2	

Semester 3, Level 1, Credits = 16

#	Code	English Title	Credits	Prerequisite
1	BAS 013	Mathematics (3)	3	BAS 012
2	BAS 114	Differential Equations	3	BAS 012
3	ELE 111	Electrical Circuits	3	BAS 012
4	ECO 131	Electronic Materials	3	BAS 022
5	BAS x51	Statistics	2	
6	HUM xxx	Elective Humanities Course (1)	2	

Semester 4, Level 1, Credits = 18

#	Code	English Title	Credits	Prerequisite
1	BAS 115	Complex Functions	3	BAS 113
2	BAS 116	Numerical Techniques	3	BAS114
3	BAS 123	Modern Physics and Quantum Mechanics	3	BAS 113 BAS 114
4	COM 122	Logical Design	3	BAS 023
5	ECO 151	Static Electricity and Magnetism	2	BAS 022 BAS 113
6	HUM 111	Human Recourses	2	
7	HUM xxx	Elective Humanities Course (2)	2	

Semester 5, Level 2, Credits = 17

#	Code	English Title	Credits	Prerequisite
1	ECO 221	Electronic Devices	3	ECO 131 ELE 111
2	ECO 222	Electromagnetic Fields	3	ECO 151
3	ECO 231	Signal and Systems	4	
4	ECO 261	Thermal and Optical Physics	3	BAS 012
5	HUM x14	Scientific Thinking and Technical Report Writing	2	
6	HUM xxx	Elective Humanities Course (3)	2	

Semester 6, Level 2, Credits = 19

#	Code	English Title	Credits	Prerequisite
1	COM 223	Computer Design	3	COM 122
2	ECO 242	Electronic Circuits (1)	4	ECO 221
3	ECO 252	Analog Communications Systems	3	ECO 231
4	ECO 252	Waves and Transmission Lines	4	ECO 222
5	ECO 272	Microprocessor and Applications	3	COM 122
6	HUM x13	Communications and Presentation Skills	2	

Semester 7, Level 3, Credits = 20

#	Code	English Title	Credits	Prerequisite
1	ECO 343	Electronic Circuits (2)	3	ECO 242
2	ECO 344	Antenna Engineering	3	ECO 262
3	ECO 354	Digital Circuits Design	3	COM 122 ECO 343
4	ECO 371	Quality Engineering	3	
5	ECO xxx	Elective Course (1)	3	
6	HUM xxx	Elective Course (2)	3	
7	BAS x61	Engineering Economics	2	

Semester 8, Level 3, Credits = 18

#	Code	English Title	Credits	Prerequisite
1	ECO 353	Communications Networks	3	ECO 352
2	ECO 356	Digital Signal Processing	3	ECO 231
3	CIV 372	Projects Environmental Effects	3	
4	ECO 381	Control Systems	3	ECO 231
5	ECO xxx	Elective Course (3)	3	
6	ECO xxx	Elective Course (4)	3	

Semester 9, Level 4, Credits = 17

#	Code	English Title	Credits	Prerequisite
1	ECO 454	Digital Communications	3	ECO 352
2	ECO 452	Computer Networks	3	ECO 353
3	ECO 491	Project (1)	3	
4	ECO xxx	Elective Course (5)	3	
5	ECO xxx	Elective Course (6)	3	
6	BAS x71	Legislation and Professional Ethics	2	

Semester 10, Level 4, Credits = 19

#	Code	English Title	Credits	Prerequisite
1	ECO 454	Analog Integrated Circuits Design	3	COM 223 ECO343
2	ECO 455	Information's Theory and Coding	3	ECO 451
3	ECO 456	Mobile and Wireless Communications	3	ECO 252 ECO 353
4	ECO 492	Project (2)	4	
5	ECO xxx	Elective Course (7)	3	
6	CIV 473	Projects Managements	3	

## Computers Engineering and Systems Program

### Program Structure

The program consists of 180 credit hours divided on 10 semesters as per the following reference study plan.

Semester 1, Level 0, Credits = 18

#	Code	English Title	Credits	Prerequisite
1	BAS 011	Mathematics (1)	3	
2	BAS 021	Physics (1)	3	
3	BAS 031	Mechanics (1)	3	
4	BAS 041	Chemistry	3	
5	BAS 061	Engineering Drawing and Projection	4	
6	BAS 014	Information Technology	2	

Semester 2, Level 0, Credits = 18

#	Code	English Title	Credits	Prerequisite
1	BAS 012	Mathematics (2)	3	BAS 011
2	BAS 022	Physics (2)	3	BAS 021
3	BAS 023	Computer Programming (1)	2	
4	BAS 032	Mechanics (2)	3	
5	BAS 033	Production Engineering	3	
6	HUM X25	Engineering History and Introduction to Engineering Sciences	2	
7	HUM X12	English Language	2	

Semester 3, Level 1, Credits = 18

#	Code	English Title	Credits	Prerequisite
1	BAS 113	Mathematics (3)	3	BAS 012
2	COM 123	Computer Programming (2)	3	BAS 023
3	COM 122	Logic Design	3	
4	ELE 111	Electrical Circuits	3	BAS 012
5	BAS X51	Statistics	2	
6	HUM XXX	Elective Humanities-1	2	
7	HUM XXX	Elective Humanities-2	2	

Semester 4, Level 1, Credits = 19

#	Code	English Title	Credits	Prerequisite
1	BAS 114	Differential Equations	3	BAS 012
2	COM 131	Digital Design	3	BAS 023
3	COM 124	Data Structures and Algorithms	3	BAS 023
4	COM 125	Software Engineering (1)	3	BAS 023
5	COM 132	Computer Design	3	BAS 114
6	HUM 111	Human Rights	2	
7	HUM XXX	Elective Humanities-3	2	

Semester 5, Level 2, Credits = 18

#	Code	English Title	Credits	Prerequisite
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1	ECO 242	Electronic Circuits	3	
2	COM 225	Software Engineering (2)	3	COM 125
3	COM 226	Operating Systems	3	COM 132
4	ECO 231	Signals and Systems	4	
5	COM 232	Database Systems	3	COM 124
6	HUM X14	Scientific Thinking and Technical Report Writing	2	

Semester 6, Level 2, Credits = 18

#	Code	English Title	Credits	Prerequisite
1	COM 227	Software Verification	4	COM 225
2	COM 228	Compilers	3	COM 226
3	COM 229	Algorithms Analysis	3	COM 124
4	COM 243	Engineering Control	3	ECO 231
5	COM 244	Micro Controllers	3	COM 132
6	HUM X13	Communication and Presentation Skills	2	

Semester 7, Level 3, Credits = 17

#	Code	English Title	Credits	Prerequisite
1	BAS X61	Engineering Economics	2	
2	COM 342	Control Components	3	COM 241
3	COM 343	Computer Network (1)	3	
4	COM 351	Dynamics Systems	3	BAS 113
5	COM 360	Database Systems (2)	3	
6	ECO 371	Quality Engineering	3	

Semester 8, Level 3, Credits = 18

#	Code	English Title	Credits	Prerequisite
1	COM 381	Control Systems	3	ECO 242
2	COM 355	Computer Systems	3	BAS 023 COM 343
3	COM 356	Compact Systems	3	COM 226 COM 316
4	MEC 372	Environmental Impact of Projects	3	
5	COM xxx	Elective Course (1)	3	
6	COM xxx	Elective Course (2)	3	

Semester 9, Level 4, Credits = 19

#	Code	English Title	Credits	Prerequisite
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<b>1</b>	BAS x71	Legislations and Professional Ethics	2	
<b>2</b>	COM 441	Software Systems	3	COM 123 COM 226
<b>3</b>	COM 442	Pattern Recognition and Image Processing	3	ECO 231
<b>4</b>	COM 443	Computer and Network Security	3	COM 226 COM 343
<b>5</b>	COM 444	Multimedia Engineering	3	COM 343
<b>6</b>	COM 446	Software Management Systems	2	COM 225
<b>7</b>	COM 491	Project (1)	3	

Semester 10, Level 4, Credits = 17

#	Code	English Title	Credits	Prerequisite
<b>1</b>	COM 445	System Analysis and Design	3	
<b>2</b>	COM 492	Project (2)	5	
<b>3</b>	COM XXX	Elective Course (3)	3	
<b>4</b>	COM XXX	Elective Course (4)	3	
<b>5</b>	COM 456	Mobile Computing	3	COM 355

### Program Structure

The program consists of 180 credit hours divided on 10 semesters as per the following reference study plan.

Semester 1, Level 0, Credits = 18

#	Code	English Title	Credits	Prerequisite
1	BAS 011	Mathematics (1)	3	
2	BAS 021	Physics (1)	3	
3	BAS 031	Mechanics (1)	3	
4	BAS 041	Chemistry	3	
5	BAS 061	Engineering Drawing and Projection	4	
6	BAS 014	Information Technology	2	

Semester 2, Level 0, Credits = 18

#	Code	English Title	Credits	Prerequisite
1	BAS 012	Mathematics (2)	3	BAS 011
2	BAS 022	Physics (2)	3	BAS 021
3	BAS 023	Computer Programming (1)	2	
4	BAS 032	Mechanics (2)	3	
5	BAS 033	Production Engineering	3	
6	HUM X25	Engineering History and Introduction to Engineering Sciences	2	
7	HUM X12	English Language	2	

Semester 3, Level 1, Credits = 16

#	Code	English Title	Credits	Prerequisite
1	BAS 113	Mathematics (3)	3	BAS 012
2	BAS114	Statistics	2	
3	CHE 111	Physical Chemistry	3	BAS 022 BAS 041
4	CHE 112	Inorganic and Analytical Chemistry	3	BAS 041
5	MEC 113	Quality Control	3	
6	HUM xxx	Elective humanities course (1)	2	

Semester 4, Level 1, Credits = 16

#	Code	English Title	Credits	Prerequisite
1	BAS 115	Mathematics (4)	3	BAS 012
2	CHE 113	Organic and biochemistry	3	BAS 041
3	CHE 114	Chemical Engineering Thermodynamics	3	BAS 022
4	CHE 121	Transport Phenomena	3	BAS 031
5	BAS x51	Human Rights	2	
6	HUM xxx	Elective humanities course (2)	2	

Semester 5, Level 2, Credits = 19



#	Code	English Title	Credits	Prerequisite
1	CHE 211	Electrochemistry and Corrosion Engineering	3	CHE 111
2	CHE 212	Chemistry of Polymers	3	CHE 112
3	CHE 213	Environmental chemistry	3	CHE 113
4	CHE 221	Heat Transfer	3	CHE 114
5	CHE 283	Solid Wastes Management	3	
6	HUM x14	Scientific Thinking and Technical Report Writing Skills	2	
7	HUM xxx	Elective humanities course (3)	2	

Semester 6, Level 2, Credits = 17

#	Code	English Title	Credits	Prerequisite
1	CHE 231	Fundamentals of mass and energy balance	3	CHE 114
2	CHE 232	Kinetics of chemical reactions	3	CHE 111
3	CHE 241	Industrial-organic Chemistry	3	CHE 113
4	CHE 242	Industrial-inorganic Chemistry	3	CHE 112
5	CHE 281	Science of materials and new materials	3	CHE 112
6	HUM x13	Communication and Presentation skills	2	

Semester 7, Level 3, Credits =20

#	Code	English Title	Credits	Prerequisite
1	CHE 311	Surface Chemistry and Catalysis	3	CHE 232
2	CHE 321	Mass Transfer	3	CHE 231
3	CHE 331	Chemical Reactor Design	3	CHE 232
4	CHE 332	Modeling and Simulation of Chemical Process	3	CHE 232
5	CHE 333	Design and Management of Chemical Plants	3	CHE 231
6	CHE 351	Applied biotechnology	3	CHE 232
7	BAS x61	Engineering Economy	2	

Semester 8, Level 3, Credits = 18

#	Code	English Title	Credits	Prerequisite
1	CHE 334	Control of chemical processes	3	CHE 332
2	CHE 361	Petrochemical industries	3	CHE 241
3	CHE 362	Technology of Natural gas	3	CHE 261
4	CHE 371	Engineering of Renewable Energy Resources	3	CHE 221
5	CHE 373	Control Systems and Treatment of Chemical Industry Pollutant	3	CHE 213
6	CIV 372	Environmental impact of plants	3	

Semester 9, Level 4, Credits = 20

#	Code	English Title	Credits	Prerequisite
1	CHE 432	Economics of chemical plants	3	CHE 331
2	PCE 416	Mechanical Unit operations	3	
3	CHE 491	Project (1)	6	
4	CHE xxx	Elective special course (1)	3	
5	CHE xxx	Elective special course (2)	3	
6	BAS x71	Legislation and professional ethics	2	

Semester 10, Level 4, Credits = 18

#	Code	English Title	Credits	Prerequisite
1	CHE 452	Multi Separation Processes	3	CHE 321
2	CHE 461	Engineering Petroleum Refinery	3	CHE 241
3	CHE 492	Project (2)	6	
4	CHE xxx	Elective special course (3)	3	
5	CHE xxx	Elective special course (4)	3	

## Program Structure

The program consists of 180 credit hours divided on 10 semesters as per the following reference study plan.

Semester 1, Level 0, Credits = 18

#	Code	English Title	Credits	Prerequisite
1	BAS 011	Mathematics (1)	3	
2	BAS 021	Physics (1)	3	
3	BAS 031	Mechanics (1)	3	
4	BAS 041	Chemistry	3	
5	BAS 061	Engineering Drawing and Projection	4	
6	BAS 014	Information Technology	2	

Semester 2, Level 0, Credits = 18

#	Code	English Title	Credits	Prerequisite
1	BAS 012	Mathematics (2)	3	BAS 011
2	BAS 022	Physics (2)	3	BAS 021
3	BAS 023	Computer Programming (1)	2	
4	BAS 032	Mechanics (2)	3	
5	BAS 033	Production Engineering	3	
6	HUM X25	Engineering History and Introduction to Engineering Sciences	2	
7	HUM X12	English Language	2	

Semester 3, Level 1, Credits = 16

#	Code	English Title	Credits	Prerequisite
1	BAS 113	Mathematics (3)	3	BAS 012
2	BAS114	Statistics	2	
3	CHE 111	Physical Chemistry	3	BAS 022 BAS 041
4	CHE 112	Inorganic and Analytical Chemistry	3	BAS 041
5	MEC 113	Quality Control	3	
6	HUM xxx	Elective humanities course (1)	2	

Semester 4, Level 1, Credits = 16

#	Code	English Title	Credits	Prerequisite
1	BAS 115	Mathematics (4)	3	BAS 012
2	CHE 113	Organic and biochemistry	3	BAS 041
3	CHE 114	Chemical Engineering Thermodynamics	3	BAS 022
4	CHE 121	Transport Phenomena	3	BAS 031
5	BAS x51	Human Rights	2	
6	HUM xxx	Elective humanities course (2)	2	

Semester 5, Level 2, Credits = 19

#	Code	English Title	Credits	Prerequisite
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1	CHE 211	Electrochemistry and Corrosion Engineering	3	CHE 111
2	CHE 212	Chemistry of Polymers	3	CHE 112
3	CHE 213	Environmental chemistry	3	CHE 113
4	CHE 221	Heat Transfer	3	CHE 114
5	CHE 283	Solid Wastes Management	3	
6	HUM x14	Scientific Thinking and Technical Report Writing Skills	2	
7	HUM xxx	Elective humanities course (3)	2	

Semester 6, Level 2, Credits = 17

#	Code	English Title	Credits	Prerequisite
1	CHE 231	Fundamentals of mass and energy balance	3	CHE 114
2	CHE 232	Kinetics of chemical reactions	3	CHE 111
3	CHE 241	Industrial-organic Chemistry	3	CHE 113
4	CHE 242	Industrial-inorganic Chemistry	3	CHE 112
5	CHE 281	Science of materials and new materials	3	CHE 112
6	HUM x13	Communication and Presentation skills	2	

Semester 7, Level 3, Credits = 20

#	Code	English Title	Credits	Prerequisite
1	PCE 311	Mechanical Unit Operations	3	CHE 242
2	PCE 312	Multi Separation Processes	3	CHE 242
3	PCE 313	Computer applications in petrochemical engineering (1)	3	CHE 232
4	PCE 314	Engineering Petroleum Refinery (1)	3	CHE 241
5	PCE 315	Natural Gas Engineering	3	CHE 242
6	PCE 331- PCE334	Elective special course (1)	3	
7	BASx61	Engineering Economy	2	

Semester 8, Level 3, Credits = 18

#	Code	English Title	Credits	Prerequisite
1	PCE 321	Petrochemical Industries (1)	3	PCE 311
2	PCE 322	Computer applications in petrochemical engineering (2)	3	PCE 313
3	PCE 323	Processes Control of Petroleum Refinery (1)	3	PCE 314
4	PCE 324	Design of reactors and chemical devices	3	CHE 242
5	PCE 341- PCE 345	Elective special course (2)	3	PCE 315
6	CIV 372	Environmental impact of projects	3	

Semester 9, Level 4, Credits = 20

#	Code	English Title	Credits	Prerequisite
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<b>1</b>	CHE 412	Economics of chemical plants	3	CHE 242
<b>2</b>	PCE 411	Petrochemical Industries (1)	3	PCE 321
<b>3</b>	PCE 415	Project (1)	6	
<b>4</b>	PCE 413	Engineering Petroleum Refinery (2)	3	PCE 312
<b>5</b>	PCE 431- PCE 434	Elective special course (2)	3	
<b>6</b>	BAS x71	Legislation and professional ethics	2	
<b>7</b>	PCE 414			PCE 314

Semester 10, Level 4, Credits = 18

#	Code	English Title	Credits	Prerequisite
<b>1</b>	PCE421	Design of polymer reactors	3	PCE 324
<b>2</b>	PCE 422	Control of oil refining operations	3	PCE 323
<b>3</b>	PCE 423	Material transfer and multistage separations (2)	3	PCE 412
<b>4</b>	PCE424	Management of petrochemical projects on the computer	3	PCE 313
<b>5</b>	PCE 441- PCE444	Elective special course (4)	3	
<b>6</b>	PCE425	Project (2)	3	PCE 415