



REMEMBER THAT, THROUGH YOUR UNDERGRADUATE STUDIES, YOU SHOULD TAKE **AT LEAST TWO TOTALLY-ONLY PROFESSIONAL SUBJECTS AND AT LEAST TWO SUBJECTS IN ENGLISH.**  
 WE RECOMMEND YOU TO TAKE AT LEAST ONE HUMANITIES SUBJECT EVERY SEMESTER TO FINISH YOUR UNDERGRADUATE STUDIES IN THE EXPECTED TIME.  
**PLAN YOUR CAREER SCHEDULE.**

This reference program shows an adequate sequencing for taking your courses. In its preparation, faculty members considered the complexity, difficulty and logical progression of the subject contents. All credits are Anahuac credits.

BIOMEDICAL ENGINEERING PROGRAM - REFERENCE PLAN 2016											
ACADEMIC AREA	1st SEMESTER	2nd SEMESTER	3rd SEMESTER	4th SEMESTER	5th SEMESTER	6th SEMESTER	7th SEMESTER	8th SEMESTER	9th SEMESTER	Anahuac Credits	
<b>REQUIRED PROFESSIONAL BLOCK</b>	Course code: MAT1304 <b>Differential Calculus</b> Credits: 7 Hours: 4.5 Prerequisite: None Concurrent: None Skill: 5	Course code: MAT1305 <b>Integral Calculus</b> Credits: 7 Hours: 4.5 Prerequisite: MAT1304 (Differential Calculus) Concurrent: None Skill: 5	Course code: MAT2305 <b>Multivariate Calculus</b> Credits: 9 Hours: 6 Prerequisite: MAT1305 (Integral Calculus) Concurrent: None Skill: 5	Course code: MAT2306 <b>Differential Equations</b> Credits: 7 Hours: 4.5 Prerequisite: MAT1305 (Integral Calculus) Concurrent: None Skills: 5 and 9	Course code: MAT2309 <b>Integral Transforms</b> Credits: 6 Hours: 4.5 Prerequisite: MAT2306 (Differential Equations) Concurrent: None Skill: 5	Course code: CMP3301 <b>Digital Signal Processing</b> Credits: 6 Hours: 4.5 Prerequisite: MAT2309 (Integral Transforms) Concurrent: None Skill: 7	Course code: BIO4304 <b>Medical Imaging</b> Credits: 6 Hours: 4.5 Prerequisite: None Concurrent: CMP3301 (Digital Signal Processing) Skills: 1 and 7	Course code: BIO4305 <b>Hospital Infrastructure</b> Credits: 3 Hours: 1.5 Prerequisite: None Concurrent: None Skills: 3 and 8	Course code: BIO13301 <b>Bioinformatics</b> Credits: 6 Hours: 4.5 Prerequisite: None Concurrent: None Skills: 4 and 6		335
	Course code: FIS1301 <b>General Physics</b> Credits: 9 Hours: 6 Prerequisite: None Skills: 6 and 8	Course code: FIS2203 <b>Statics</b> Credits: 9 Hours: 6 Prerequisite: None Skills: 6 and 8	Course code: FIS2301 <b>Dynamics</b> Credits: 9 Hours: 6 Prerequisites: FIS2203 (Statics) and MAT1305 (Integral Calculus) Skills: 6 and 8	Course code: FIS2304 <b>Modern Physics</b> Credits: 6 Hours: 3 Prerequisites: FIS1301 (General Physics) and MAT1305 (Integral Calculus) Skill: 6	Course code: FIS3301 <b>Medical Physics</b> Credits: 4 Hours: 3 Prerequisite: BIOT1302 (Applied Biophysics) Skills: 4, 6 and 8	Course code: BIO4303 <b>Design of Biomedical Systems</b> Credits: 6 Hours: 4.5 Prerequisite: None Skills: 2 and 9	Course code: SOC2305 <b>Social Responsibility and Sustainability</b> Credits: 6 Hours: 3 Prerequisite: HUM2301 (Ethics) Skill: 2	Course code: ADM2302 <b>Entrepreneurship and Innovation</b> Credits: 6 Hours: 3 Prerequisite: None Skill: 4	Course code: ING4301 <b>Technology Innovation</b> Credits: 6 Hours: 3 Prerequisite: None Skills: 3 and 9		
	Course code: MAT1307 <b>Advanced Mathematics</b> Credits: 7 Hours: 4.5 Prerequisite: None Skill: 5	Course code: SIS1301 <b>Algorithms and Programming</b> Credits: 6 Hours: 4.5 Prerequisite: None Skills: 5, 7 and 9	Course code: MAT1303 <b>Linear Algebra</b> Credits: 7 Hours: 4.5 Prerequisite: None Skill: 5	Course code: MAT2308 <b>Numerical Methods</b> Credits: 7 Hours: 4.5 Prerequisites: MAT1303 (Linear Algebra), MAT1305 (Integral Calculus) and SIS1301 (Algorithms and Programming) Skill: 5	Course code: IELC3303 <b>Fundamentals of Semiconductors</b> Credits: 6 Hours: 4.5 Prerequisite: FIS1302 (Electric Circuits I) Skill: 9	Course code: IELC3301 <b>Digital Circuits I</b> Credits: 6 Hours: 4.5 Prerequisite: IELC3303 (Fundamentals of Semiconductors) Skills: 7 and 8	Course code: BIO4307 <b>Embedded Systems for Biomedical Engineering</b> Credits: 6 Hours: 4.5 Prerequisite: IELC3301 (Digital Circuits I) Skill: 9	Course code: BIO4302 <b>Biomedical System Dynamics and Control</b> Credits: 7 Hours: 4.5 Prerequisite: MAT2306 (Differential Equations) Skill: 7	Course code: BIO4301 <b>BioMEMS and BIONEMS</b> Credits: 4 Hours: 3 Prerequisite: IMEC1302 (Materials Engineering) and IELC3303 (Fundamentals of Semiconductors) Skills: 2, 4 and 9		
	Course code: QUI1304 <b>General Chemistry</b> Credits: 7 Hours: 4.5 Prerequisite: None Concurrent: None Skill: 6	Course code: BIOT1306 <b>Organic Chemistry in the Study of Biological Systems</b> Credits: 7 Hours: 6 Prerequisite: QUI1304 (General Chemistry) Concurrent: None Skill: 6	Course code: FIS1302 <b>Electric Circuits I</b> Credits: 6 Hours: 4.5 Prerequisite: None Concurrent: None Skill: 5	Course code: QUI1302 <b>Thermodynamics</b> Credits: 8 Hours: 6 Prerequisite: None Concurrent: None Skill: 5	Course code: BIO13303 <b>Biomaterials</b> Credits: 6 Hours: 4.5 Prerequisite: IMEC1302 (Materials Engineering) Concurrent: None Skill: 7	Course code: BIO13302 <b>Bioinstrumentation</b> Credits: 6 Hours: 4.5 Prerequisite: FIS1302 (Electric Circuits I) Concurrent: BIO13304 (Electronics for Biomedical Engineering) Skills: 2, 7 and 8	Course code: TERF2301 <b>Biomechanics</b> Credits: 6 Hours: 3 Prerequisite: FIS1301 (Musculoskeletal Anatomy) Concurrent: None Skill: 6	Course code: BIO12301 <b>Orthopedics and Rehabilitation</b> Credits: 6 Hours: 4.5 Prerequisite: None Concurrent: None Skills: 3, 7 and 8	Course code: BIO14306 <b>Clinical Engineering</b> Credits: 6 Hours: 3 Prerequisite: BIO13302 (Bioinstrumentation) Concurrent: None Skills: 7 and 8		
	Course code: BIO13301 <b>Introduction to Bioengineering</b> Credits: 3 Hours: 1.5 Prerequisite: None Skills: 1 and 5	Course code: BIOT1302 <b>Applied Biophysics</b> Credits: 6 Hours: 4.5 Prerequisite: None Skill: 6	Course code: BIOT1305 <b>Human Physiology</b> Credits: 9 Hours: 4.5 Prerequisite: BIOT1302 (Applied Biophysics) Skill: 6	Course code: BIOT2304 <b>Cell Physiology and Biology</b> Credits: 9 Hours: 4.5 Prerequisite: BIOT1305 (Human Physiology) Skill: 6	Course code: BIOT1310 <b>Applied Biostatistics</b> Credits: 7 Hours: 4.5 Prerequisite: None Skill: 5	Course code: INT3316 <b>Practicum I: Biomedical Research</b> Credits: 6 Hours: 3 Prerequisite: MAT2308 (Numerical Methods) Skills: 1 and 6		Course code: INT4339 <b>Practicum II: Design and Development of Biomedical Systems</b> Credits: 6 Hours: 3 Prerequisite: INT3316 (Practicum I: Biomedical Research) and BIO4303 (Design of Biomedical Systems) Skills: 1, 8 and 9	Course code: INT4340 <b>Practicum III: Development of Biomedical Projects and Companies</b> Credits: 6 Hours: 3 Prerequisite: INT4339 (Practicum II: Design and Development of Biomedical Systems) Skills: 1 and 10		
	Course code: SLD1301 <b>Anatomy</b> Credits: 9 Hours: 4.5 Prerequisite: None Skill: 6	Course code: TERF1301 <b>Musculoskeletal Anatomy</b> Credits: 9 Hours: 6 Prerequisite: SLD1301 (Anatomy) Skill: 6	Course code: IMEC1302 <b>Materials Engineering</b> Credits: 6 Hours: 4.5 Prerequisite: QUI1304 (General Chemistry) Skill: 6	Course code: SLD2301 <b>General Biochemistry</b> Credits: 6 Hours: 4.5 Prerequisite: BIOT1306 (Organic Chemistry in the Study of Biological Systems) Skill: 6	Course code: BIO13303 <b>General Biology</b> Credits: 9 Hours: 4.5 Prerequisite: None Skill: 6	Course code: SIS2301 <b>Structured Programming with Microcontrollers</b> Credits: 6 Hours: 4.5 Prerequisite: None Skill: 9					
	<b>ELECTIVE PROFESSIONAL BLOCK</b> (choose 4 subjects from your program's catalog, as listed below)							<b>Professional Block Elective I</b> Crédits: 6	<b>Professional Block Elective II</b> Crédits: 6	<b>Professional Block Elective III</b> Crédits: 6  <b>Professional Block Elective IV</b> Crédits: 6	
<b>ANAHUAC BLOCK (HUMANITIES)</b>	Course code: HUM1303 <b>Being a University Student</b> Credits: 6 Hours: 3 Prerequisite: None Skill: 1	Course code: LDR3301 <b>Leadership</b> Credits: 6 Hours: 3 Prerequisite: None Skills: 3 and 4		Course code: HUM1302 <b>Person and Meaning of Life</b> Credits: 6 Hours: 3 Prerequisite: HUM1303 (Being a University Student) Skill: 3	Course code: HUM2301 <b>Ethics</b> Credits: 9 Hours: 4.5 Prerequisite: HUM1302 (Person and Meaning of Life) Skill: 2		Course code: HUM2302 <b>Person and Transcendence</b> Credits: 6 Hours: 3 Prerequisite: HUM1302 (Person and Meaning of Life) Skill: 3	Course code: HUM3301 <b>Classical and Contemporary Humanism</b> Credits: 9 Hours: 4.5 Prerequisite: HUM1302 (Person and Meaning of Life) Prerequisite: 110 Credits Skill: 1		42	
<b>GENERAL ELECTIVE BLOCK: You can choose 2 subjects of 6 credits e/o and 3 workshops of 3 credits e/o</b>			<b>General Studies Workshop I</b> Credits: 3 Skill: ANAHUAC			<b>Free Elective I</b> Credits: 6 Skill: ANAHUAC	<b>General Studies Workshop II</b> Credits: 3 Skill: ANAHUAC	<b>General Studies Workshop III</b> Credits: 3 Skill: ANAHUAC	<b>Free Elective II</b> Credits: 6 Skill: ANAHUAC	21	
	48	50	49	49	47	48	39	46	46	422	
	7	7	7	7	7	8	7	8	8	66	
<b>Total Anahuac Credits (Professional Block, Professional Elective Block, Anahuac Block [Humanities], General Elective Block)</b>										<b>422</b>	

The subjects of the Elective Professional Block for Biomedical Engineering are shown below.  
 All the courses in a row must be taken for the corresponding diploma. If the student is not interested in a diploma, he can choose them from separate areas.

<b>ELECTIVE PROFESSIONAL COURSES,</b> Professional Area: Management of Health Institutions (diploma)		Course code: CON1305 <b>Basic Accounting in Health Care</b> Credits: 6 Hours: 3 Prerequisite: None	Course code: CON1306 <b>Accounting for Health Care Companies</b> Credits: 3 Hours: 1.5 Prerequisite: None	Course code: ADM1318 <b>Start-up of a Health Care Business</b> Credits: 6 Hours: 3 Prerequisite: None	Course code: SLD2311 <b>Essential Aspects of Health Management</b> Credits: 6 Hours: 3 Prerequisite: None	Course code: SLD2315 <b>Health Policy and Sector Reforms</b> Credits: 6 Hours: 3 Prerequisite: None	Course code: SLD4304 <b>Quality in Health Care Institutions</b> Credits: 6 Hours: 3 Prerequisite: None		
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ACADEMIC AREA	BIOMEDICAL ENGINEERING PROGRAM - REFERENCE PLAN 2016										Anahuac Credits
	1st SEMESTER	2nd SEMESTER	3rd SEMESTER	4th SEMESTER	5th SEMESTER	6th SEMESTER	7th SEMESTER	8th SEMESTER	9th SEMESTER		
ELECTIVE PROFESSIONAL COURSES, Professional Area: Physical Therapy (diploma)			Skill: 10 Course code: TERF2302 <b>Joint Biomechanics</b> Credits: 6 Hours: 3 Prerequisite: TERF1301 (Musculoskeletal Anatomy) Skill: 9	Skill: 10 Course code: TERF2304 <b>Functional Ergonomics and Training</b> Credits: 6 Hours: 3 Prerequisite: None Skill: 7	Skill: 10 Course code: TERF2307 <b>Exercise Physiology</b> Credits: 9 Hours: 4.5 Prerequisite: None Skill: 6	Skill: 10 Course code: SLD3307 <b>Normal and Pathological Walking</b> Credits: 6 Hours: 3 Prerequisite: None Skill: 7					
	GENERAL ELECTIVE BLOCK, Professional Area: Telemedicine (diploma)				Course code: TCOM3301 <b>Fundamentals of Communications</b> Credits: 6 Hours: 4.5 Prerequisite: None Skills: 5 and 6	Course code: BIOI3313 <b>Biomedical Optics</b> Credits: 6 Hours: 3 Prerequisite: FIS1301 (General Physics) Skill: 7	Course code: BIOI3316 <b>Telemedicine I</b> Credits: 6 Hours: 3 Prerequisite: None Skill: 7	Course code: BIOI3317 <b>Telemedicine II</b> Credits: 6 Hours: 3 Prerequisite: BIOI3316 (Telemedicine I) Skill: 7			
GENERAL ELECTIVE BLOCK, Professional Area: Medical Imaging (diploma)						Course code: BIOI3319 <b>Ultrasonography</b> Credits: 6 Hours: 3 Prerequisite: FIS3301 (Medical Physics) Skill: 7	Course code: BIOI3314 <b>Radiology</b> Credits: 6 Hours: 3 Prerequisite: FIS3301 (Medical Physics) Skill: 7	Course code: BIOI3318 <b>Computed Tomography</b> Credits: 6 Hours: 3 Prerequisite: BIOI3314 (Radiology) Skill: 7	Course code: BIOI3310 <b>Magnetic Resonance Imaging</b> Credits: 6 Hours: 3 Prerequisite: FIS3301 (Medical Physics) Skill: 7		
GENERAL ELECTIVE BLOCK, Professional area: Design and manufacturing of orthopedic and prosthetic equipment (diploma)				Course code: BIOI3315 <b>Rehabilitation Technologies</b> Credits: 6 Hours: 4.5 Prerequisite: None Skill: 9	Course code: BIOI3308 <b>Design and Manufacturing of Orthopedic Equipment</b> Credits: 6 Hours: 4.5 Prerequisite: BIOI3315 (Rehabilitation Technologies) Skill: 9	Course code: BIOI3309 <b>Design and Manufacturing of Prosthetic Equipment</b> Credits: 6 Hours: 4.5 Prerequisite: BIOI3315 (Rehabilitation Technologies) Skill: 9	Course code: BIOI3305 <b>Management of Rehabilitation Clinics and Centers</b> Credits: 6 Hours: 4.5 Prerequisite: None Skill: 10				
GENERAL ELECTIVE BLOCK, Professional Area: Medical Biotechnology (diploma)					Course code: SLD2301 <b>Pharmacology and Toxicology</b> Credits: 6 Hours: 3 Prerequisite: SLD2301 (General Biochemistry) Skill: 6	Course code: BIOT2306 <b>General Microbiology</b> Credits: 6 Hours: 4.5 Prerequisite: BIOT1303 (General Biology) Skill: 6	Course code: BIOT3304 <b>Medical Microbiology</b> Credits: 6 Hours: 4.5 Prerequisite: BIOT2306 (General Microbiology) Skill: 6	Course code: BIOT3302 <b>Medical Biotechnology</b> Credits: 7 Hours: 6 Prerequisite: BIOT3304 (Medical Microbiology) Skill: 6			
GENERAL ELECTIVE BLOCK, other subjects		Course code: QUI1303 <b>Analytical Chemistry</b> Credits: 8 Hours: 6 Prerequisite: QUI1304 (General Chemistry) Skill: 6	Course code: HUM1301 <b>Selected University Topics</b> Credits: 6 Hours: 3 Prerequisite: None	Course code: BIOI2302 <b>Fundamentals of Matlab and Simulink</b> Credits: 3 Hours: 1.5 Prerequisite: None Skill: 5	Course code: SLD3314 <b>Telemedicine and Medical Informatics</b> Credits: 6 Hours: 3 Prerequisite: None Skill: 7	Course code: BIOI3306 <b>Biocompatibility</b> Credits: 6 Hours: 3 Prerequisite: BIOI3303 (Biomaterials) Skill: 6	Course code: IELC4304 <b>Digital Circuits II</b> Credits: 6 Hours: 4.5 Prerequisite: IELC3301 (Digital Circuits I) Skills: 7 and 8	Course code: IIND1301 <b>Selected Topics in Engineering and Exact Sciences</b> Credits: 6 Hours: 3 Prerequisite: None	Course code: BIOT3306 <b>Experimental Models</b> Credits: 6 Hours: 4.5 Prerequisite: BIOT2306 (General Microbiology) Skill: 6		
		Course code: SLD2302 <b>Integral Ecology</b> Credits: 6 Hours: 3 Prerequisite: None Skills: 5 and 8	Course code: CUL1301 <b>Selected Topics in Science and Culture</b> Credits: 6 Hours: 3 Prerequisite: None	Course code: FIS2305 <b>Electric Circuits II</b> Credits: 6 Hours: 4.5 Prerequisite: FIS1302 (Electric Circuits I) Skill: 5	Course code: BIOI3311 <b>Health Informatics</b> Credits: 6 Hours: 3 Prerequisite: None Skills: 7 and 8	Course code: BIOT3312 <b>Neural Engineering</b> Credits: 6 Hours: 3 Prerequisite: None Skill: 6	Course code: BIOT3307 <b>Advanced Bioinstrumentation</b> Credits: 6 Hours: 4.5 Prerequisite: BIOT3302 (Bioinstrumentation) Skills: 7 and 8	Course code: BIOT1304 <b>Selected Topics in Biomedical Engineering</b> Credits: 6 Hours: 3 Prerequisite: None	Course code: BIOT2301 <b>Fundamentals of Genetic Engineering</b> Credits: 6 Hours: 4.5 Prerequisite: SLD2301 (General Biochemistry) Skill: 6		
GENERAL ELECTIVE BLOCK, other subjects (biotechnology)		Course code: BIOT4305 <b>Scientific Writing</b> Credits: 3 Hours: 1.5 Prerequisite: None Skill: 6	Course code: DEN2301 <b>Pathophysiology</b> Credits: 6 Hours: 3 Prerequisite: BIOT1305 (Human Physiology) Skill: 5	Course code: BIOT1301 <b>Plant Anatomy and Physiology</b> Credits: 4 Hours: 3 Prerequisite: None Skill: 6	Course code: BIOT2303 <b>Applied Physical Chemistry</b> Credits: 6 Hours: 4.5 Prerequisite: QUI1303 (Analytical Chemistry) Skill: 6	Course code: BIOT2305 <b>Research Methodology in Biotechnology</b> Credits: 6 Hours: 4.5 Prerequisite: BIOT1310 (Applied Biostatistics) Skill: 6	Course code: BIOT2307 <b>Industrial Microbiology</b> Credits: 6 Hours: 4.5 Prerequisite: BIOT2306 (General Microbiology) Skill: 6	Course code: BIOT3305 <b>Sanitary Microbiology</b> Credits: 6 Hours: 4.5 Prerequisite: BIOT2306 (General Microbiology) Skill: 6	Course code: BIOT4302 <b>Pharmaceutical Biotechnology</b> Credits: 7 Hours: 6 Prerequisite: BIOT4309 (Pharmacology and Toxicology) Skill: 6		
		Course code: SLD2303 <b>Biosecurity</b> Credits: 3 Hours: 1.5 Prerequisite: None Skill: 9	Course code: BIOT4306 <b>Virology Applied to Biotechnology</b> Credits: 7 Hours: 6 Prerequisite: SLD2303 (Biosecurity) Skill: 6	Course code: BIOT4307 <b>Bioremediation</b> Credits: 6 Hours: 4.5 Prerequisite: SLD2302 (Integral Ecology) Skill: 6	Course code: BIOT4308 <b>Biotechnology of animal species</b> Credits: 7 Hours: 6 Prerequisite: BIOT3306 (Experimental Models) Skill: 6	Course code: SLD3304 <b>Genomics and Proteomics</b> Credits: 7 Hours: 4.5 Prerequisite: None Skill: 6	Course code: BIOT3303 <b>Analytical Methods</b> Credits: 6 Hours: 4.5 Prerequisite: QUI1303 (Analytical Chemistry) Skill: 6	Course code: BIOT4301 <b>Agroalimentary biotechnology</b> Credits: 7 Hours: 6 Prerequisite: BIOT1301 (Plant Anatomy and Physiology) Skill: 6	Course code: BIOT4304 <b>Metabolomics</b> Credits: 6 Hours: 4.5 Prerequisite: SLD3304 (Genomics and Proteomics) Skill: 6		

**Anahuac skills**

1. Recognizes truth as the end of intelligence and chooses it as a guarantee of success in action.
2. Applies ethical principles in his or her professional performance and interpersonal relationships.
3. Seeks the transcendent meaning of life and the development of leadership in the service to others.
4. Communicates effectively and correctly, with freedom and responsibility, in native and foreign languages.
5. Applies knowledge, techniques, methods and modern tools of mathematics, science and engineering to the design and development of quality products and processes meeting the needs of human beings and society.
6. Researches biomedical phenomena to develop new technologies for health care.
7. Identifies and solves problems related to the prevention, diagnosis and treatment of diseases and disabilities, applying biomedical technology for timely and reliable care.
8. Collaborates with health and engineering professionals in the design, production, installation and preservation of infrastructure, equipment, instruments and medical devices to solve health problems with a multidisciplinary approach.
9. Develops or uses cutting-edge biomedical practices and technologies aimed at the prevention, diagnosis, rehabilitation and treatment of diseases and disabilities, promoting patients' well-being and quality of life.
10. Leads and participates in health sector projects in public and private institutions, aimed at disseminating and making optimal use of biomedical technology in order to improve the efficiency and costs of health services.

**Knowledge areas**

- Area E - Management of medical technology
- Area F - Medical imaging and informatics and telemedicine
- Area G - Practicum courses
- Area H - Selected topics