BS Technology Programs

UNIVERSITY OF ENGINEERING AND TECHNOLOGY, TAXILA

1. INTRODUCTION

The university offers 4 years bachelor technology programs in the following areas:

1. BS Energy Technology
2. BS Automotive Technology
3. BS Bio-Medical Technology
4. BS Cyber Technology

2. Eligibility Requirements

a. ***An applicant for admission to any of BS Technology course offered by the University must fulfill the following requirements:***

1. He should have passed the Intermediate (Pre-Engg) Examination with Mathematics, Physics and Chemistry from Board of Intermediate and Secondary Education of Pakistan or an equivalent examination so recognized by the University.

2. Intermediate or an equivalent with Physics, Mathematics and Computer Science/Statistics shall be acceptable only for Cyber Technology.

3. Intermediate or an equivalent with Physics, Chemistry and Biology shall be accepted only for Bio-Medical Technology.

4. He should have passed the examination (up to the latest annual examination) on the basis of which he seeks admission.

5. He should have obtained at least 60% unadjusted marks in examination on the basis of which he seeks admission. Marks of NCC and Hifz-e- Quran, where applicable, shall be added only for determination of merit and not towards eligibility. Rounding off percentage figure to make it 60% will not be considered towards eligibility.

6.   He should be a bonafide resident of the area from where he seeks admission.

7.   He should meet standards of physique and eyesight laid down in the medical certificate.

8.   He should have appeared in the Entry Test for the respective session arranged by the University with the following combinations:

(English, Mathematics, Physics, Chemistry /Computer Science/Statistics.)

9.   Candidates applying on the basis of FSc (Pre-Medical) should have appeared in the Entry Test arranged by UHS for the respective session.

b.   *Eligibility for Diploma Holders:*

a) For admission against seats reserved for holders of the Diploma of Associate Engineer, he should have passed the diploma examination from the **Punjab Board of Technical Education, Lahore** in the relevant technology, obtaining at least 60% unadjusted marks. Rounding off percentage figure to make it 60% will not be considered towards eligibility.

b) Applicants seeking admission against seats reserved for the holders of diploma of Associate Engineer shall not be eligible unless their diplomas are in the relevant technology as specified against each degree course given below:

Bio-Medical Technology
• Diploma in Electrical Technology
• Diploma in Electronics Technology
• Diploma in Instrumentation Technology
• Diploma in Instrumentation and Process Control
• Diploma in Bio-Medical Technology

Energy Technology
• Diploma in Energy Technology
• Diploma in Mechanical Technology
• Diploma in Refrigeration and Air-conditioning Technology
• Diploma in Mechanical (Power) Technology
• Diploma in Mechanical (Production) Technology
• Diploma in Auto and Diesel Technology

• Diploma in Mechanical (Construction Machinery) Technology

• Diploma in Petroleum Technology

• Diploma in Chemical Technology

• Diploma in Electrical Technology

• Diploma in Mechatronics Technology

Automotive Technology

• Diploma in Mechanical Technology

• Diploma in Refrigeration and Air-conditioning Technology

• Diploma in Mechanical (Power) Technology

• Diploma in Mechanical (Production) Technology

• Diploma in Precision Mechanical & Instruments Technology

• Diploma in Auto and Diesel Technology

• Diploma in Dies and Mould Technology

• Diploma in Automation Technology

• Diploma in Mechanical (Construction Machinery) Technology

• Diploma in Automation Technology

Cyber Technology

• Diploma in Computer Technology

• Diploma in Computer Information Technology

• Diploma in Telecommunication Technology

• Diploma in Electrical Technology

• Diploma in Electronics Technology

• Diploma in Software Technology

• Diploma in Radar Technology

• Diploma in Automation Technology

• Diploma in Radio Technology

• Diploma in Instrumentation/Instrumentation and Process Control Technology

3. **Seats Allocation Chart**

	Category	Energy	Automotive	Bio-Medical	Cyber	Total
A	Punjab	25	25	*25	25	100
I	DAE	10	10	10	10	40
Total		35	35	35	35	140

12 seats are fixed for candidates having FSc (Pre-Medical)

4. **CATEGORIES AND SYMBOLS**
   a. Category A (Punjab Province)
The applicant should be a bonafide resident of the Punjab province. The selection and

allocation of disciplines are made according to merit. Diploma holders are not eligible to

apply under this category.

   b. Category I (Diploma Holders)
The applicant should be a bonafide resident of the Punjab province and should have passed the relevant diploma examination from the Punjab Board of Technical Education, Lahore. Selection and allotment of disciplines are made according to merit.

Note: For further details please read undergraduate prospectus – 2017 entry page No.135 to page No. 142.

5. **BS Energy Technology**

Program Overview

The aim of Energy Engineering Technology program is to develop well skilled graduates who possess the technical knowledge about concerned areas in Energy Sector. This program will provide knowledge of the discipline in the local context of the socio-economic and infrastructure development in energy sector of Pakistan. Our graduates will not only have the relevant technical skills, but also become problem solvers for energy and environmental issues.

Courses Under Semester System

SEMESTER – I

S. No.	Course Title	Contact Hours			Credit Hours		
		Th	Pr	Total	Th	Pr	Total
1.	Applied Chemistry	2	2	4	2	1	3
2.	Applied Physics	2	2	4	2	1	3
3.	Applied Mathematics-I	3	0	3	3	0	3
4.	English for communication	2	0	2	2	0	2
5.	Engineering Drawing and Graphics	1	4	5	1	2	3
6.	Workshop Practice-I	0	4	4	0	2	2
	Total	10	12	22	**10**	**6**	**16**

SEMESTER – II

S. No.	Course Title	Contact Hours			Credit Hours		
		Th	Pr	Total	Th	Pr	Total
1.	Applied mathematics-II	3	0	3	3	0	3
2.	Technical Report Writing	1	2	3	1	1	2
3.	Introduction to Computer Programming	1	2	3	1	1	2
4.	Computer Aided Design (CAD)	1	4	5	1	2	3
5.	Fundamentals of Mechanical Technology	2	2	4	2	1	3
6.	Fundamentals of Energy Technologies	2	2	4	2	1	3
	Total	10	12	22	**10**	**6**	**16**

SEMESTER – III

S. No.	Course Title	Contact Hours			Credit Hours		
		Th	Pr	Total	Th	Pr	Total
1.	Industrial Repair and Maintenance	1	4	5	1	2	3
2.	Fundamentals of Electrical Technology	1	2	3	1	1	2
3.	Process Measurement	2	2	4	2	1	3
4.	Fuel Technology-I	2	2	4	2	1	3
5	Islamic & Pakistan Studies	3	0	3	3	0	3
6.	Fluid Mechanics and Hydraulic Machinery	1	2	3	1	1	2
	Total	10	12	22	**10**	**6**	**16**

SEMESTER - IV

S. No.	Course Title	Contact Hours			Credit Hours		
		Th	Pr	Total	Th	Pr	Total
1.	Applied Thermodynamics	1	2	3	1	1	2
2.	Fuel Technology-II	2	2	4	2	1	3
3.	Solar System Technologies	1	2	3	1	1	2
4.	Automation and Control	1	2	3	1	1	2
5.	Manufacturing Technologies	2	2	4	2	1	3
6.	Power Generation-I	2	2	4	2	1	3
	Total	9	12	21	**9**	**6**	**15**

SEMESTER - V

S. No.	Course Title	Contact Hours			Credit Hours		
		Th	Pr	Total	Th	Pr	Total
1.	Wind Turbines	1	2	3	1	1	2
2.	Energy Audit and Management	1	2	3	1	1	2
3.	Heat Exchanger and Pressure Vessels	2	2	4	2	1	3
4.	Fuel Cell Technology	2	2	4	2	1	3
5	Power Generation-II	2	2	4	2	1	3
6.	Piping System Design and Drafting	1	2	3	1	1	2
7.	Environmental Technologies	2	0	2	2	0	2
	Total	11	12	23	**11**	**6**	**17**

SEMESTER - VI

S. No.	Course Title	Contact Hours			Credit Hours		
		Th	Pr	Total	Th	Pr	Total
1.	Hydro Turbines	2	2	4	2	1	3
2.	Energy Storage Techniques	2	2	4	2	1	3
3.	Industrial Power Electronics and Drives	2	2	4	2	1	3
4.	Heating Ventilation and Air Conditioning (HVAC)	2	2	4	2	1	3
5.	Power Transmission and Distribution	1	2	3	1	1	2
6.	Biomass and Geothermal Technologies	1	2	3	1	1	2
7.	Project and Financial Management	1	2	3	1	1	2
	Total	11	14	25	11	7	18

SEMESTER - VII

S. No.	Course Title	Contact Hours			Credit Hours		
		Th	Pr	Total	Th	Pr	Total
1.	Supervised Industrial/Field Training	0	32	32	0	16	16
2.	Capstone Project	0	6	6	0	3	3
	Total	0	38	38	0	19	19

SEMESTER-VIII

S. No.	Course Title	Contact Hours			Credit Hours		
		Th	Pr	Total	Th	Pr	Total
1.	Supervised Industrial/Field Training	0	32	32	0	16	16
2.	Capstone Project	0	6	6	0	3	3
	Total	0	38	38	0	19	19
	Grand Total	61	150	211	61	75	136

6.   BS Automotive Technology
Program Overview
The program intends to meet the needs of the 21st century automotive industry. It trains the students on a range of topics including manufacturing and maintenance of automobiles. The curriculum includes imparting knowledge on the related aspects of the transportation sector, energy and environmental concerns, application of fossil and alternative fuels and development of vehicles of the future.

Courses Under Semester System
SEMESTER – I

S. No.	Course Title	Th	Pr	Total	Contact Hr.
1	Communication Skills	2	1	3	4
2	Applied Mathematics-I	3	0	3	3
3	Applied Physics	2	1	3	4
4	Technical Drawing & Graphics	1	2	3	5
5	Workshop Practices	1	3	4	7
6	Introduction to Automotive Technology	1	2	3	5
	Total	10	9	19	28

SEMESTER – II

S. No.	Course Title	Th	Pr	Total	Contact Hr.
1	Applied Mathematics-II	3	0	3	3
2	Applied Chemistry	2	1	3	4
3	Applied Mechanics	2	2	4	6
4	Computer Aided Drafting	0	2	2	4
5	Introduction to Automotive Engines	2	2	4	6
	Total	**9**	**7**	**16**	**23**

SEMESTER – III

S. No.	Course Title	Th	Pr	Total	Contact Hr.
1	Communication Skills and Personality Development	3	0	3	3
2	Islamic & Pakistan Studies	3	0	3	3
3	Automotive Materials and Metallurgy	2	1	3	4
4	Machines & Mechanisms	1	2	3	5
5	Automotive Engine Components	1	2	3	5
6	Basic Electrical and Electronics Technology	1	2	3	5
	Total	**11**	**7**	**18**	**25**

SEMESTER – IV

S. No.	Course Title	Th	Pr	Total	Contact Hr.
1	Automotive Safety and Health	3	0	3	3
2	Product Development and Costing	3	0	3	3
3	Automotive Production Technology	1	2	3	5
4	Vehicle Thermal Management	1	2	3	5
5	Automotive Chasis	1	2	3	5
6	Automotive Transmission	1	2	3	5
	Total	**10**	**8**	**18**	**26**

SEMESTER – V

S. No.	Course Title	Th	Pr	Total	Contact Hr.
1	Automobile Economics and Finanace	3	0	3	3
2	Values & Ethics in Profession	3	0	3	3
3	Automovtive Electrical and Electronics	1	2	3	5
4	Fuels and Lubricants	1	2	3	5
5	Automotive Maintenance	1	2	3	5
6	Elective - I	1	2	3	5
	Total	**10**	**8**	**18**	**26**

SEMESTER – VI

S. No.	Course Title	Th	Pr	Total	Contact Hr.
1	Entrepreneurship	3	0	3	3
2	Total Quality Management	3	0	3	3
3	Modern Vehicle Technology	1	2	3	5

4	Elective - II	1	2	3	5
5	Elective - III	1	2	3	5
	Total	**9**	**6**	**15**	**21**

SEMESTER – VII

S. No.	Course Title	Th	Pr	Total	Contact Hr.
1	Supervised Industrial/Field Training			16	
	Total	**0**	**0**	**16**	**40**

SEMESTER – VIII

S. No.	Course Title	Th	Pr	Total	Contact Hr.
1	Supervised Industrial/Field Training			16	
	Total	**0**	**0**	**16**	**40**

Total Credit Hours = 136
Total Contact Hours = 229

List of Elective Courses

S. No.	Course Title	Th	Pr	Total
1	Two and Three Wheelers Technology	1	2	3
2	Electric Hybrid Vehicles	1	2	3
3	Electronic Engine Management System	1	2	3
4	Automotive Pollution and Control	1	2	3
5	Vehicle Dynamics	1	2	3
6	Computational Fluid Dynamics	1	2	3
7	Composite Materials and Structures	1	2	3
8	Finite Element Methods in Automobiles	1	2	3
9	Automotive Aerodynamics	1	2	3
10	Simulation of IC engines	1	2	3
11	Advanced theory of IC engines	1	2	3
12	Vibration and Noise Control	1	2	3
13	Automotive Sensors and Applications	1	2	3
14	Fuel Cells and Applications	1	2	3
15	Robotics	1	2	3
16	Alternative Fuels and Energy System	1	2	3
17	Vehicle Body Technology	1	2	3

7. BS Bio-Medical Technology

Program Overview

The 21st century is technically called the biological century. World is changing globally step by step and modern era is having the application of engineering in almost every field of science especially the biological sciences. Biomedical is a new discipline of engineering/technology which is curing health related life issues. It has been the fastest growing medical career field in recent years.

Courses Under Semester System

SEMESTER – I

Sr. No.	Code #	Subject	Nature	Theory	Practical	Credit Hours
1	BMS-110	Basic Biology (for Pre-Engineering Students)	Natural Science	2*	1*	0*
	BMS-120	Basic Mathematics (for Pre-Medical Students)	Natural Science	3*	0	
2	BMS-133	Applied Physics	Natural Science	2	1	3
3	BMS-143	Applied Chemistry	Natural Science	2	1	3
4	BMT-113	Computer Applications	Computing	1	2	3
5	BMT-122	Technical Drawing	Foundation	0	2	2
6	BMH-152	Functional English	Humanities	2	0	2
		Semester Credit Hours		**7**	**6**	**13**
				Contact Hours		
		Semester Contact Hours		**7**	**12**	**19**

Basic Biology/Basic Mathematics are mandatory introductory courses to be treated as non-credit hours and are not included in semester credit/contact hours

SEMESTER – II

Sr. No.	Code #	Subject	Nature	Theory	Practical	Credit Hours
1	BMS-163	Applied Mathematics – I	Natural Science	3	0	3
2	BMT-123	Biochemistry	Foundation	2	1	3
3	BMT-133	Physiology – I	Foundation	2	1	3
4	BMT-143	Human Anatomy	Foundation	2	1	3
5	BMT-154	Electrical Technology Fundamentals	Foundation	2	2	4

6	BMT-164	Workshop Practice – I	Foundation	0	2	2
		Semester Credit Hours		**11**	**7**	**18**
				Contact Hours		
		Semester Contact Hours		**11**	**14**	**25**

SEMESTER – III

Sr. No.	Code #	Subject	Nature	Theory	Practical	Credit Hours
1	BMS-213	Applied Mathematics-II	Natural Science	3	0	3
2	BMT-213	Biophysics	Foundation	2	1	3
3	BMT-223	Circuit Analysis	Foundation	2	1	3
4	BMT-233	Physiology – II	Breadth	2	1	3
5	BMH-223	Communication Skills & Technical Report Writing	Humanities	2	1	3
6	BMH-232	Pakistan Studies	Humanities	2	0	2
		Semester Credit Hours		**13**	**4**	**17**
				Contact Hours		
		Semester Contact Hours		**13**	**8**	**21**

SEMESTER – IV

Sr. No.	Code #	Subject	Nature	Theory	Practical	Credit Hours
1	BMT-242	Workshop Practice – II	Foundation	0	2	2
2	BMT-254	Basic Electronics	Foundation	2	2	4
3	BMT-264	Digital Logic Technology	Breadth	2	2	4
4	BMT-274	Biomedical Instrumentation – I	Breadth	2	2	4
5	BMT-283	Biomechanics	IDEE	2	1	3
		Semester Credit Hours		**8**	**9**	**17**
				Contact Hours		
		Semester Contact Hours		**8**	**18**	**26**

SEMESTER – V

Sr. No.	Code #	Subject	Nature	Theory	Practical	Credit Hours
1	BMT-314	Biomedical Electronics	Breadth	2	2	4
2	BMT-322	Economics and Healthcare Management	Breadth	2	0	2

3	BMT-334	Microprocessors & Microcontrollers	Depth	2	2	4
4	BMT-344	Biomedical Instrumentation – II	Depth	2	2	4
5	BMM-312	Professional Practices & Medical Ethics	Management Sciences	2	0	2
6	BMM-322	Entrepreneurship	Management Sciences	2	0	2
		Semester Credit Hours		**12**	**6**	**18**
				Contact Hours		
		Semester Contact Hours		**12**	**12**	**24**

SEMESTER – VI

Sr. No.	Code #	Subject	Nature	Theory	Practical	Credit Hours
1	BMT-353	Telemedicine	Depth	2	1	3
2	BMT-364	Medical Imaging	Depth	2	2	4
3	BMT-374	Biomedical Control System	Depth	2	2	4
4	BMT-384	Rehabilitation Techniques	Depth	2	2	4
5	BMH-332	Human Psychology	Humanities	2	0	2
6	BMH-342	Islamic Studies/Ethics	Humanities	2	0	2
		Semester Credit Hours		**12**	**7**	**19**
				Contact Hours		
		Semester Contact Hours		**12**	**14**	**26**

SEMESTER – VII

Sr. No.	Code #	Duration	Subject	Theory	Practical	Credit Hours
1	BMT-411	16 Weeks	Supervised Industrial Training (continued)	0	15	15
2	BMT-412	16 Weeks	Technical Project (Continued)	0	3	3
3	BMM-413	16 Weeks	Social Entrepreneurship	0	0	0*
			Semester Credit Hours	**0**	**18**	**18**
				Contact Hours		
			Semester Contact Hours	**0**	**36**	**36**
Social Entrepreneurship is a mandatory non-credit training reflected on transcript						

SEMESTER – VIII

Sr. No.	Code #	Duration	Subject	Theory	Practical	Credit Hours
1	BMT-411	16 Weeks	Supervised Industrial Training	0	15	15
2	BMT-412	16 Weeks	Technical Project	0	3	3
			Semester Credit Hours	**0**	**18**	**18**
					Contact Hours	
			Semester Contact Hours	**0**	**36**	**36**

6.   BS Cyber Technology

Program Overview

Department of Computer Science is offering 4 years technology degree program in Cyber Technology. Cyber technology is the field of technology that aims at development of artificial devices and machines that are capable of operating in digital world. These devices and machines will serve humans in all domains: industrial, health care, finance, personal etc. Students will learn the development of Internet of Things (IoT) devices, devices interaction in internet world using cloud computing, web and mobile app development for human interface, artificial intelligence and analytics for independent operation. IoT, cloud computing, web and mobile app development, artificial intelligence, analytics and cyber security have tremendous job opportunities in US, Europe and all over the world. Students will have intensive industrial internship for hands on experience in final year.

Courses Under Semester System

SEMESTER – I

Sr. No.	Course Title	Credit Hours		Contact Hours	
		Theory	Lab	Theory	Lab
1	Introduction to Information and Communication Technologies	2	2	2	6
2	Programming Fundamentals	2	2	2	6
3	Calculus and Analytical Geometry	3	-	3	-
4	Functional English	2	-	2	-
5	Basic Electronics	2	1	2	3

SEMESTER – II

Sr. No.	Course Title	Credit Hours		Contact Hours	
		Theory	Lab	Theory	Lab
1	Introduction to Cyber Technologies	2	2	2	6
2	Digital Logic Design	2	2	2	6
3	Linear Algebra	3	-	3	-
4	Technical and Business Writing	2	-	2	-
5	Islamic and Pak Studies	2	-	2	-

SEMESTER – III

Sr. No.	Course Title	Credit Hours		Contact Hours	
		Theory	Lab	Theory	Lab
1	Object Oriented Programming	2	2	2	6
2	Introduction to Database Management Systems	2	2	2	6
3	Web Programming	2	2	2	6
4	Probability and Statistics	3	-	3	-
5	Communication Skills	2	-	2	-

SEMESTER – IV

Sr. No.	Course Title	Credit Hours		Contact Hours	
		Theory	Lab	Theory	Lab
1	Data Structures and Algorithms	3	-	3	-
2	Mobile Application Development	2	2	2	6
3	Computer Architecture and Organization	2	2	2	6
4	Discrete Structures	3	-	3	-
5	Internet Economics	2	-	2	-

SEMESTER – V

Sr. No.	Course Title	Credit Hours		Contact Hours	
		Theory	Lab	Theory	Lab
1	Operating Systems	2	1	2	3
2	Introduction to Software Engineering	3	-	3	-
3	Data Communication and Networks	2	1	2	3

4	Entrepreneurship	2	-	2	-
5	User Interface Design	2	1	2	3
6	Artificial Intelligence	2	2	2	6

SEMESTER – VI

Sr. No.	Course Title	Credit Hours		Contact Hours	
		Theory	Lab	Theory	Lab
1	Machine Learning	2	1	2	3
2	Internet of Things	2	1	2	3
3	Computer Graphics and Augmented Reality	2	1	2	3
4	Embedded Systems	2	1	2	3
5	Cloud Computing	2	2	2	6
6	Cyber Security	2	-	2	-

SEMESTER –V II

Sr. No.	Course Title	Credit Hours		Contact Hours	
		Theory	Lab	Theory	Lab
1	Big Data Analytics	2	1	2	3
2	Capstone Project		2		6
3	Supervised Industrial Training	-	9	-	27

SEMESTER – VIII

Sr. No.	Course Title	Credit Hours		Contact Hours	
		Theory	Lab	Theory	Lab
1	Management Information System	2	1	2	3
2	Capstone Project		2		6
3	Supervised Industrial Training		9	-	27