Department of Technologies

Technology can be a powerful tool for transforming learning. It can help affirm and advance relationships between educators and students, reinvent our approaches to learning and collaboration, shrink long-standing equity and accessibility gaps, and adapt learning experiences to meet the needs of all learners. The Department of Technologies focuses on students to prepare them as an efficient engineering technologist and to compose him/her professionally trained in certain aspects of development and implementation of a respective area of technology in order to boost industrialization, economic growth of society, and empower all students to be successful citizens of Pakistan.

Department of Technologies since its establishment is playing a vital role by providing outstanding graduates to the society and is acting as incubators of exploration and invention. The syllabus is continually under development and review as per HEC and NTC guidelines. We are collaborators in learning, seeking new knowledge and constantly acquiring new skills alongside our students. We have set a vision for creating learning experiences that provide the right tools and supports for all learners to thrive. We have state-of-the-art laboratories, library and other allied facilities where students can enhance their practical skills. Also, industrial/field visits are arranged on regular basis to boost and prepare the students for market.

Vision

Achieving excellence in Engineering Technology programs boosting professionalism and sustainable development.

Mission

To produce graduates capable of applying their technical knowledge and skills to serve the society with professionalism and ethical norms.

Programs Offered:

Bachelor of Science in Civil Engineering Technology

Bachelor of Science in Electrical Engineering Technology

Bachelor of Science in Architectural Engineering Technology

Bachelor of Science in Information Security Engineering Technology

Bachelor of Science in Mechanical Engineering Technology

Faculty Members, Department of Technologies

Engr. Muhammad Faisal Khan	Director	MSc Electrical Engineering (Power), UET Peshawar
Mr. Hasnain Ali	Coordinator	MS Engineering Management, Sarhad University, Peshawar
Engr. Obaid Ur Rehman	Coordinator	MS Civil Engineering (Structural Engg), CECOS University, Peshawar
Engr. Syed Zia Ud Din	Assistant Professor	MS Electrical Engineering, COMSATS, Islamabad
Engr. Fayaz Ahmad	Assistant Professor	MS Electrical Engineering (Power), Sarhad University, Peshawar
Mr. Zabih Ullah	Lecturer	M-Tech Civil (Structure), CECOS University, Peshawar
Mr. Sajjad Hussain	Lecturer	MS Civil Engineering Technology, Sarhad University, Peshawar
Engr. Zahid Hussain	Assistant Prof. (on leave)	MS Engineering Management, Sarhad University, Peshawar

Bachelor of Science in
Civil Engineering Technology

Program Code	149
Number of Courses	42 + Project + SIT
Credit Hours	133
Minimum Duration	8 Semesters, 4 Years
Maximum Duration	16 Semesters, 8 Years
Minimum CGPA Required To Earn Degree	2.00

Eligibility:

3 Years Diploma of Associate Engineers from Technical Board in the relevant technology or F.Sc Pre-Engineering / Pre Medical from any Intermediate Board with at-least 50% marks or equivalent qualification.

Pre Medical Students must pass Deficiency courses of Mathematics of 6 Credit Hours with in the first year of their regular studies.

Candidates need to pass an aptitude Test / Interview conducted by the university.

Program Mission:

To impart technical education and training for producing Civil Engineering Technologist capable of serving the society for sustainable development and professional growth.

Program Educational Objectives (PEOs) :

PEO-01: Specialized Knowledge: The graduates will have the knowledge, skills, and abilities to solve issues with modern technologies in the field of Civil Engineering Technology.

PEO-02: Industrial Technology: The graduates will have an effective communication and management abilities in order to meet industry's technology needs.

PEO-03: Responsible Technologist: The graduates will exhibit professional integrity and commitment to social and ethical responsibilities.

PEO-04: Professional Growth: The graduates will demonstrate professionalism and to nurture entrepreneurial and continuous professional development abilities.

Scheme of Studies:

1st Semester

Course Code	Course Title	Cr. Hrs.17
GE 102/104	Islamic Studies / Social Ethics	2-0
CET 101	Surveying	1-0
CET 101L	Surveying (LAB)	0-2
CET 104	Civil Engineering Drawing, Drafting and Interpretation	1-0
CET 104L	Civil Engineering Drawing, Drafting and Interpretation (LAB)	0-2
MA 103	Applied Mathematics I	3-0
NS 101	Applied Physics	2-0
NS 101L	Applied Physics (LAB)	0-1
GE 101	Functional English (English-I)	3-0
QT 100	Quran-e-Majeed Teaching (Audit Basis)	2-0
MA 112	Mathematics I*	3-0

*Mandatory course for Pre-Medical background, Non Credit Course.

2nd Semester

Course Code	Course Title	Cr. Hrs.17
GE 107	Communication Skills (Expository Writing)	3-0
CS 103	Information and Communication Technology	1-0
CS 103L	Information and Communication Technology (LAB)	0-1
MA 104	Applied Mathematics II	3-0
NS 103	Applied Chemistry	2-0
NS 103L	Applied Chemistry (LAB)	0-1
CET 106	Concrete Technology	1-0
CET 106L	Concrete Technology (LAB)	0-2
CET 108	Materials and Methods of Construction	2-0
CET 108L	Materials and Methods of Construction (LAB)	0-1
MA 113	Mathematics II*	3-0

*Mandatory course for Pre-Medical background, Non Credit

3rd Semester

Course Code	Course Title	Cr. Hrs.14
GE 201	Ideology and Constitution of Pakistan (Pakistan Studies)	2-0
GE 311	Professional Ethics	2-0
CET 201	Evolution of Architecture and Engineering	2-0
CET 203	Environmental Technology	1-0
CET 203L	Environmental Technology (LAB)	0-1
CET 205	Fluid Mechanics	2-0
CET 205L	Fluid Mechanics (LAB)	0-1
CET 207	Mechanics of Solids	2-0
CET 207L	Mechanics of Solids (LAB)	0-1

4th Semester

Course Code	Course Title	Cr. Hrs.17
GE 205	Civics and Community Engagement	1-1
ENG 223	Technical & Scientific Writing	3-0
ECO 201	Fundamentals of Applied Economics	3-0
CET 209	Transportation and Highway Technology	2-0
CET 209L	Transportation and Highway Technology (LAB)	0-2
CET 212	Soil Mechanics	1-0
CET 212L	Soil Mechanics (LAB)	0-2
CET 214	Structural Principles	2-0

5th Semester

Course Code	Course Title	Cr. Hrs.18
CET 301	Hydrology	1-0
CET 301L	Hydrology (LAB)	0-1
CET 303	Reinforced and Prestressed Concrete	2-0
CET 303L	Reinforced and Prestressed Concrete (LAB)	0-1
CET 305	Construction Equipment and Jobsite Practices	2-0
CET 305L	Construction Equipment and Jobsite Practices (LAB)	0-1
CET 307	Computer Aided Drawing and Building Information Modelling	1-0
CET 307L	Computer Aided Drawing and Building Information Modelling (LAB)	0-2
CET 309	Geotechnical Investigation and Foundations	1-0
CET 309L	Geotechnical Investigation and Foundations (LAB)	0-1
CET 312	Electro-Mechanical Technology	2-0
RES 391	Project Part-I	0-3

6th Semester

Course Code	Course Title	Cr. Hrs.18
GE 310	Techno-preneurship	2-0
CET 313	Geology	1-0
CET 313L	Geology (LAB)	0-1
CET 315	Irrigation Technology	3-0
CET 317	Construction of Steel Structures	2-0
CET 317L	Construction of Steel Structures (LAB)	0-1
CET 319	Quantity Surveying and Estimation	1-0
CET 319L	Quantity Surveying and Estimation (LAB)	0-2
CET 321	Maintenance and Repair of Civil Works	1-0
CET 321L	Maintenance and Repair of Civil Works (LAB)	0-1
RES 392	Project Part-II	0-3

7th Semester

Course Code	Course Title	Cr. Hrs.16
CET 400	GIS and Remote Sensing	2-0
CET 400L	GIS and Remote Sensing (LAB)	0-1
CET 403	Ground Improvement Techniques	2-0
CET 403L	Ground Improvement Techniques (LAB)	0-1
CET 405	Design Assessment Tools	1-0
CET 405L	Design Assessment Tools (LAB)	0-1
CET 407	Building Codes and Compliance	3-0
CET 408	Drainage Technology	3-0
CET 409	Water Supply Systems	1-0
CET 409L	Water Supply Systems (LAB)	0-1

8th Semester

Course Code	Course Title	Cr. Hrs.16
CT 411	Supervised Industrial Training (Compulsory)	0-16

Program Learning Outcomes:

PLO-01: **Engineering Technology Knowledge:** An ability to apply knowledge of mathematics, natural science, Engineering Technology fundamentals and Engineering Technology specialization to defined and applied Engineering Technology procedures, processes, systems or methodologies.

PLO-02: **Problem Analysis:** An ability to identify, formulate, research literature and analyses broadly-defined Engineering Technology problems reaching substantiated conclusions using analytical tools appropriate to the discipline or area of specialization.

Program Learning Outcomes (PLOs)

PLO-03: **Design/Development of Solution:** An ability to design solutions for broadly- defined Engineering Technology problems and contribute to the design of systems, components or processes to meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.

PLO-04: **Investigation:** An ability to conduct investigations of broadly-defined problems; locate, search and select relevant data from codes, data bases and literature, design and conduct experiments to provide valid conclusions.

PLO-05: **Modern Tool Usage:** An ability to Select and apply appropriate techniques, resources, and modern technology and IT tools, including prediction and modeling, to broadly-defined Engineering Technology problems, with an understanding of the limitations.

PLO-06: **The Engineering Technologist and Society:** An ability to demonstrate understanding of the societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to Engineering Technology practice and solutions to broadly defined Engineering Technology problems.

PLO-07: **Environment and Sustainability:** An ability to understand and evaluate the sustainability and impact of Engineering Technology work in the solution of broadly defined Engineering Technology problems in societal and environmental contexts.

PLO-08: **Ethics:** Understand and commit to professional ethics and responsibilities and norms of Engineering Technology practice.

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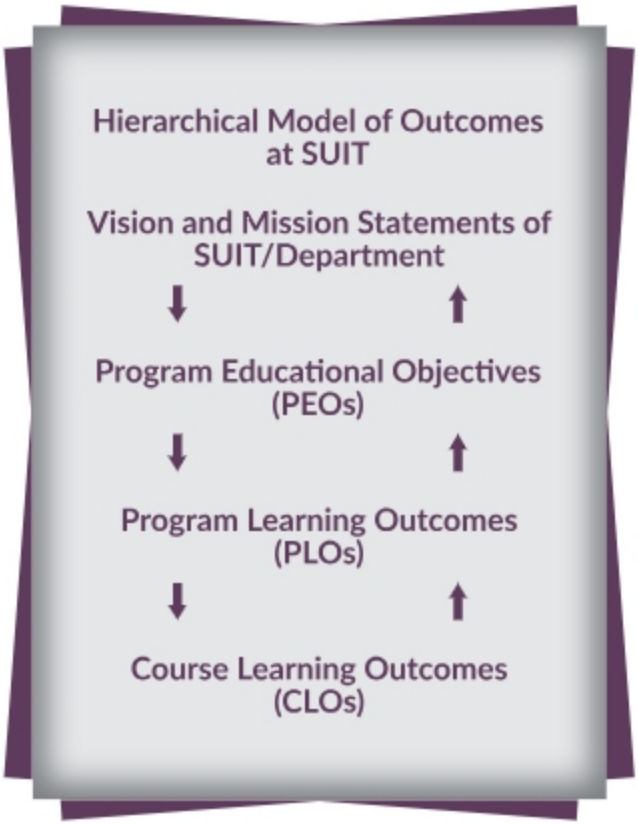
PLO-11: **Project Management:** An ability to demonstrate knowledge and understanding of Engineering Technology management principles and apply these to one's own work, as a member or leader in a team and to manage projects in multidisciplinary environments.

PLO-12: **Life-Long Learning:** An ability to recognize the need for, and have the ability to engage in independent and life-long learning in specialist Engineering Technologies.

Outcome Based Education (OBE) System

OBE is an educational process that focuses on what students can do or the qualities they should develop after they are taught. OBE involves the restructuring of curriculum, assessment and reporting practices in education to reflect the achievement of high order learning and mastery rather than accumulation of course credits. It requires that the students demonstrate that they have learnt the required skills and contents.

The department has established an OBE committee to successfully implement OBE system. The committee is responsible for developing the CLOs (Course Learning Outcomes) for the courses and rubrics for Laboratories and Final Year Projects (FYP). Several training sessions and workshops were conducted to train the faculty members and lab engineers to be able to adopt OBE system.



Bachelor of Science in
Electrical Engineering Technology

Program Code	146
Number of Courses	43 + Project + SIT
Credit Hours	130

Minimum Duration	8 Semesters, 4 Years
Maximum Duration	16 Semesters, 8 Years
Minimum CGPA Required To Earn Degree	2.00

Eligibility:

3 Years Diploma of Associate Engineers from Technical Board in the relevant technology or F.Sc Pre-Engineering / Pre Medical from any Intermediate Board with at-least 50% marks or equivalent qualification.

Pre Medical Students must pass Deficiency courses of Mathematics of 6 Credit Hours with in the first year of their regular studies.

Candidates need to pass an aptitude Test / Interview conducted by the university.

Program Mission:

To impart technical education and training for producing Electrical Engineering Technologist capable of serving the society for sustainable development and professional growth.

Program Educational Objectives (PEOs) :

PEO-01: The graduates will have the knowledge, skills, and abilities to solve issues with modern technologies.

PEO-02: Technically qualified graduates with effective communication, management and entrepreneurial skills in order to meet industry's technology needs.

PEO-03: The graduates will exhibit professional integrity and commitment to social and responsibilities to make a positive contribution towards the society.

Scheme of Studies:

1st Semester

Course Code	Course Title	Cr. Hrs.16
GE102/104	Islamic Studies/ Social Ethics	2-0
MA 103	Calculus & Analytical Geometry	2-0
NS 101	Applied Physics	2-0
NS 101L	Applied Physics (LAB)	0-1
GE 101	Functional English (English-I)	3-0
EET 101	Linear Circuit Analysis	1-0
EET 101L	Linear Circuit Analysis (LAB)	0-1
EET 103L	Electrical Workshop (LAB)	0-2
CS 101	Information and Communication Technology	1-0
CS101L	Information and Communication Technology (LAB)	0-1
QT 100	Quran-e-Majeed Teaching (Audit Basis)	2-0
MA 112	Mathematics I*	3-0

*Mandatory course for Pre-Medical background, Non Credit Course.

2nd Semester

Course Code	Course Title	Cr. Hrs.17
GE 107	Communication Skills (Expository Writing)	3-0
MA 108	Differential Equations	2-0
NS 103	Applied Chemistry	2-0
NS 103L	Applied Chemistry (LAB)	0-1
EET 105	Electronic Devices and Circuits	2-0
EET 105L	Electronic Devices and Circuits (LAB)	0-1
PH 107	Environment, Health and Safety	1-0
CS 109	Introduction to Computer Programming	1-0
CS 109L	Introduction to Computer Programming (LAB)	0-2
GE 310	Techno-preneurship	2-0
MA 113	Mathematics II*	3-0

*Mandatory course for Pre-Medical background, Non Credit

3rd Semester

Course Code	Course Title	Cr. Hrs.14
GE 201	Ideology and Constitution of Pakistan (Pakistan Studies)	2-0
GE 311	Professional Ethics	2-0
MA 211	Linear Algebra	2-0
EET 201L	Technical Drawing (LAB)	0-1
EET 203	Signals and Systems	1-0
EET 203L	Signals and Systems (LAB)	0-1
EET 205	Logic Circuits and Applications	1-0
EET 205L	Logic Circuits and Applications (LAB)	0-2
EET 207	Electrical Network Analysis	1-0
EET 207L	Electrical Network Analysis (LAB)	0-1

4th Semester

Course Code	Course Title	Cr. Hrs.16
GE 205	Civics and Community Engagement	1-1
ENG 223	Technical & Scientific Writing	3-0
EET 209	Instrumentation and Measurements	2-0
EET 209L	Instrumentation and Measurements (LAB)	0-1
EET 211	Electrical Machines	2-0
EET 211L	Electrical Machines (LAB)	0-1
EET 213	Micro-Controller Systems	1-0
EET 213L	Micro-Controller Systems (LAB)	0-1
EET 215	Electrical Power Transmission	2-0
EET 215L	Electrical Power Transmission (LAB)	0-1

5th Semester

Course Code	Course Title	Cr. Hrs.17
EET 301	Control Technology	2-0
EET 301L	Control Technology (LAB)	0-1
EET 303	Communication Systems	2-0
EET 303L	Communication Systems (LAB)	0-1
EET 305	Electrical Power Distribution & Utilization	1-0
EET 305L	Electrical Power Distribution & Utilization (LAB)	0-1
EET 307	Switchgear & Protective Devices Technology	2-0
EET 307L	Switchgear & Protective Devices Technology (LAB)	0-1
EET 309	Renewable and Alternative Energy Technologies	2-0
EET 309L	Renewable and Alternative Energy Technologies (LAB)	0-1
RES 391	Project Part-I	0-3

6th Semester

Course Code	Course Title	Cr. Hrs.18
MGT 302	Project Management	3-0
EET 311	Industrial Drives and PLC	2-0
EET 311L	Industrial Drives and PLC (LAB)	0-1
EET 313	Electrical Safety	2-0
EET 313L	Electrical Safety (LAB)	0-1
EET 315	Smart Grid Technology	2-0
EET 315L	Smart Grid Technology (LAB)	0-1
MA 317	Numerical Analysis	2-0
MA 317L	Numerical Analysis (LAB)	0-1
RES 392	Project Part-II	0-3

7th Semester

Course Code	Course Title	Cr. Hrs.16
MGT 402	Leadership and Personal Grooming	2-0
EET 401	Robotics Technology	2-0
EET 401L	Robotics Technology (LAB)	0-1
EET 403	Electrical Appliances Repair	2-0
EET 403L	Electrical Appliances Repair (LAB)	0-1
EET 405	Fiber Optics Technology	2-0
EET 405L	Fiber Optics Technology (LAB)	0-1
EET 407	High Voltage Technology	2-0
EET 407L	High Voltage Technology (LAB)	0-1
CS 441	Artificial Intelligence	1-0
CS 441L	Artificial Intelligence (LAB)	0-1

8th Semester

Course Code	Course Title	Cr. Hrs.16
EET 411	Supervised Industrial Training (Compulsory)	0-16

Program Learning Outcomes:

PLO-01: **Engineering Technology Knowledge:** An ability to apply knowledge of mathematics, natural science, Engineering Technology fundamentals and Engineering Technology specialization to defined and applied Engineering Technology procedures, processes, systems or methodologies.

PLO-02: **Problem Analysis:** An ability to identify, formulate, research literature and analyses broadly-defined Engineering Technology problems reaching substantiated conclusions using analytical tools appropriate to the discipline or area of specialization.

Program Learning Outcomes (PLOs)

PLO-03: **Design/Development of Solution:** An ability to design solutions for broadly- defined Engineering Technology problems and contribute to the design of systems, components or processes to meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.

PLO-04: **Investigation:** An ability to conduct investigations of broadly-defined problems; locate, search and select relevant data from codes, data bases and literature, design and conduct experiments to provide valid conclusions.

PLO-05: **Modern Tool Usage:** An ability to Select and apply appropriate techniques, resources, and modern technology and IT tools, including prediction and modeling, to broadly-defined Engineering Technology problems, with an understanding of the limitations.

PLO-06: **The Engineering Technologist and Society:** An ability to demonstrate understanding of the societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to Engineering Technology practice and solutions to broadly defined Engineering Technology problems.

PLO-07: **Environment and Sustainability:** An ability to understand and evaluate the sustainability and impact of Engineering Technology work in the solution of broadly defined Engineering Technology problems in societal and environmental contexts.

PLO-08: **Ethics:** Understand and commit to professional ethics and responsibilities and norms of Engineering Technology practice.

PLO-09: **Individual and Team Work:** An ability to Function effectively as an individual, and as a member or leader in diverse teams.

PLO-10: **Communication:** An ability to communicate effectively on broadly defined Engineering Technology activities with the Engineering Technologist community and with society at large, by being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PLO-11: **Project Management:** An ability to demonstrate knowledge and understanding of Engineering Technology management principles and apply these to one's own work, as a member or leader in a team and to manage projects in multidisciplinary environments.

PLO-12: **Life-Long Learning:** An ability to recognize the need for, and have the ability to engage in independent and life-long learning in specialist Engineering Technologies.

Outcome Based Education (OBE) System

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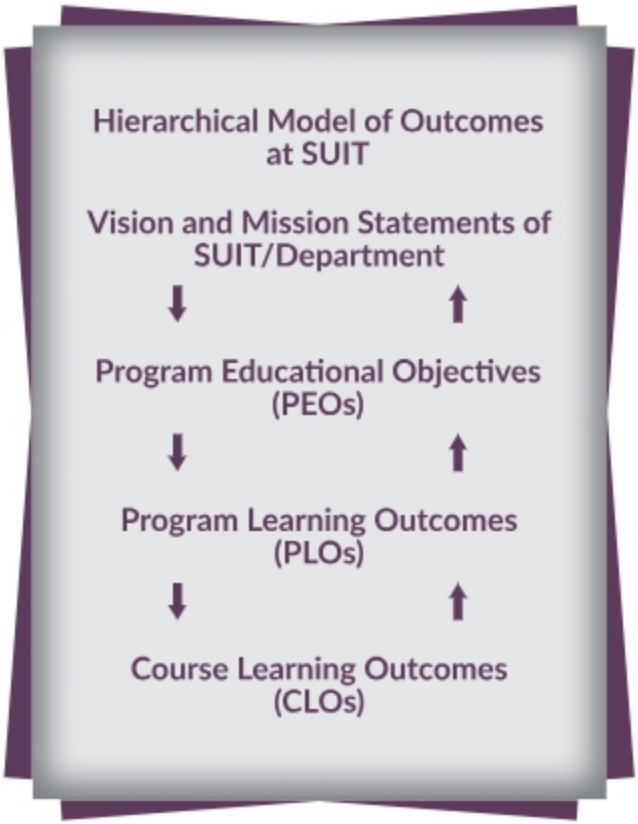

Bachelor of Science in
Architectural Engineering Technology

Program Code	253
Number of Courses	42 + Project + SIT
Credit Hours	132
Minimum Duration	8 Semesters, 4 Years
Maximum Duration	16 Semesters, 8 Years
Minimum CGPA Required To Earn Degree	2.00

Eligibility:

3 Years Diploma of Associate Engineers from Technical Board in the relevant technology or F.Sc Pre-Engineering / Pre Medical from any Intermediate Board with at-least 50% marks or equivalent qualification.

Pre Medical Students must pass Deficiency courses of Mathematics of 6 Credit Hours with in the first year of their regular studies.

Candidates need to pass an aptitude Test / Interview conducted by the university.

Program Mission:

To impart technical education and training for producing Architectural Engineering Technologist capable of serving the society for sustainable development and professional growth.

Program Educational Objectives (PEOs) :

PEO-01: The graduates will have the knowledge, skills, and abilities to solve issues with modern technologies in the field of Architectural Engineering Technology.

PEO-02: The graduates will have an effective communication and management abilities in order to meet industry's technology needs.

PEO-03: The graduates will exhibit professional integrity and commitment to social and ethical responsibilities.

PEO-04: The graduates will demonstrate professionalism and to nurture entrepreneurial and continuous professional development abilities.

Scheme of Studies:

1st Semester

Course Code	Course Title	Cr. Hrs.16
GE102/104	Islamic Studies / Social Ethics	2-0
MA 103	Applied Mathematics I	3-0
AET 101L	Basics of Design (LAB)	0-2
AET 103	Technical Drawing-I	1-0
AET 103L	Technical Drawing-I (LAB)	0-1
AET 105	Elementary Surveying	1-0
AET 105L	Elementary Surveying (LAB)	0-2
AET 107	History of Architecture	2-0
PH 106	Occupational Health and Safety Management	2-0
QT 100	Quran-e-Majeed Teaching (Audit Basis)	2-0
MA 112	Mathematics I*	3-0

*Mandatory course for Pre-Medical background, Non Credit Course.

2nd Semester

Course Code	Course Title	Cr. Hrs.17
GE 107	Communication Skills (Expository Writing)	3-0
CS 101	Information and Communication Technology	1-0
CS 101L	Information and Communication Technology (LAB)	0-1
MA 104	Applied Mathematics II	3-0
AET 109	Building Construction Technology-I	1-0
AET 109L	Building Construction Technology-I (LAB)	0-2
AET 111	Technical Drawing-II	1-0
AET 111L	Technical Drawing-II (LAB)	0-2
AET 113	Applied Mechanics	2-0
AET 113L	Applied Mechanics (LAB)	0-1
MA 113	Mathematics II*	3-0

*Mandatory course for Pre-Medical background, Non Credit

3rd Semester

Course Code	Course Title	Cr. Hrs.18
GE 201	Ideology and Constitution of Pakistan (Pakistan Studies)	2-0
AET 201	Urban Planning	1-0
AET 201L	Urban Planning (LAB)	0-1
AET 203	Architectural Design	1-0
AET 203L	Architectural Design (LAB)	0-2
AET 205L	Computer Aided Design-I (LAB)	0-2
AET 207	Building Systems & Services-I	2-0
AET 207L	Building Systems & Services-I (LAB)	0-1
AET 209	Strength of Materials	2-0
AET 209L	Strength of Materials (LAB)	0-1
AET 211	Theory of Structures	3-0

4th Semester

Course Code	Course Title	Cr. Hrs.18
GE 205	Civics and Community Engagement	1-1
ENG 223	Technical & Scientific Writing	3-0
AET 213	Building Construction Technology-II	2-0
AET 213L	Building Construction Technology-II (LAB)	0-1
AET 215	Sustainability in Buildings	2-0
AET 215L	Sustainability in Buildings (LAB)	0-1
AET 217	Building Systems & Services-II	2-0
AET 217L	Building Systems & Services-II (LAB)	0-1
AET 219L	Computer Aided Design-II (LAB)	0-2
AET 221L	Building Information Modelling (LAB)	0-2

5th Semester

Course Code	Course Title	Cr. Hrs.18
AET 301	Concrete Technology	2-0
AET 301L	Concrete Technology (LAB)	0-2
AET 303	Construction Contracts, Codes & Regulations	3-0
AET 305	Technological Building Analysis	2-0
AET 305L	Technological Building Analysis (LAB)	0-1
AET 309	Quantity Surveying & Estimation	1-0
AET 309L	Quantity Surveying & Estimation (LAB)	0-2
GE 309	Sociology for Technologist	2-0
RES 391	Project Part-I	0-3

6th Semester

Course Code	Course Title	Cr. Hrs.15
AET 311	Building Conservation & Rehabilitation	2-0
AET 311L	Building Conservation & Rehabilitation (LAB)	0-1
AET 313	Geotechnical & Foundation Engineering	2-0
AET 313L	Geotechnical & Foundation Engineering (LAB)	0-1
AET 315	Steel Structures	2-0
GE 310	Techno-preneurship	2-0
GE 311	Professional Ethics	2-0
RES 392	Project Part-II	0-3

7th Semester

Course Code	Course Title	Cr. Hrs.14
CS 441	Artificial Intelligence	1-0
CS 441L	Artificial Intelligence (LAB)	0-1
AET 401	Building Plumbing Design	2-0
AET 401L	Building Plumbing Design (LAB)	0-1
AET 403	Site Planning and Development	2-0
AET 403L	Site Planning and Development (LAB)	0-1
AET 405	Landscape Design	2-0
AET 405L	Landscape Design (LAB)	0-1
AET 407	Integrated Building Design	2-0
AET 407L	Integrated Building Design (LAB)	0-1

8th Semester

Course Code	Course Title	Cr. Hrs.16
AET 411	Supervised Industrial Training (Compulsory)	0-16

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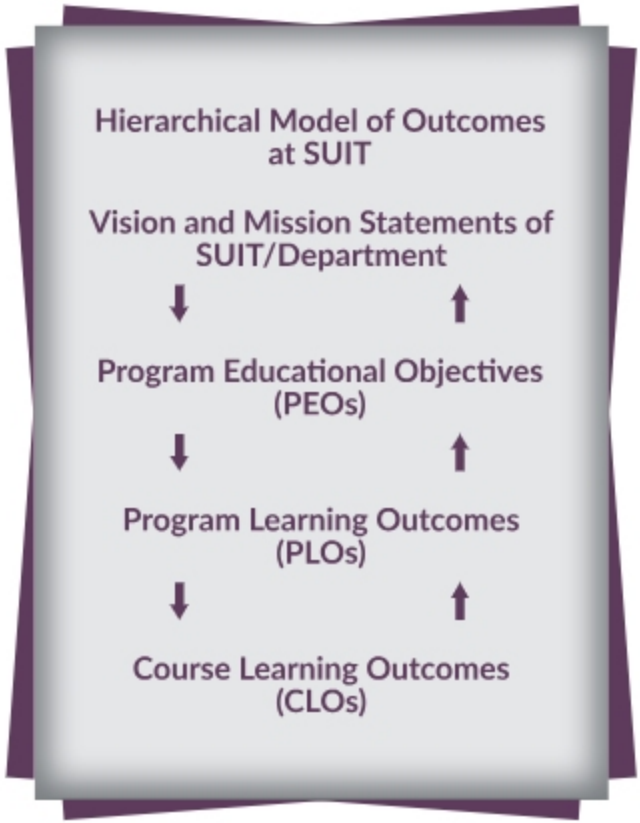

Bachelor of Science in
Information Security Engineering Technology

Program Code	254
Number of Courses	40 + Project + SIT
Credit Hours	134
Minimum Duration	8 Semesters, 4 Years
Maximum Duration	16 Semesters, 8 Years
Minimum CGPA Required To Earn Degree	2.00

Eligibility:

3 Years Diploma of Associate Engineers from Technical Board in the relevant technology or F.Sc Pre-Engineering / Pre Medical from any Intermediate Board with at-least 50% marks or equivalent qualification.

Pre Medical Students must pass Deficiency courses of Mathematics of 6 Credit Hours with in the first year of their regular studies.

Candidates need to pass an aptitude Test / Interview conducted by the university.

Program Mission:

To impart technical education and training for producing Information Security Engineering Technologist capable of serving the society for sustainable development and professional growth.

Program Educational Objectives (PEOs) :

PEO-01: The graduates will have the knowledge, skills, and abilities to solve issues with modern technologies in the field of Information Security Engineering Technology.

PEO-02: The graduates will have an effective communication and management abilities in order to meet industry's technology needs.

PEO-03: The graduates will exhibit professional integrity and commitment to social and ethical responsibilities.

PEO-04: The graduates will demonstrate professionalism and to nurture entrepreneurial and continuous professional development abilities.

Scheme of Studies:

1st Semester

Course Code	Course Title	Cr. Hrs.17
GE102/104	Islamic Studies/ Social Ethics	2-0
CS 101	Information and Communication Technology	1-0
CS 101L	Information and Communication Technology (LAB)	0-1
IST 101	Computer Programming	2-0
IST 101L	Computer Programming (LAB)	0-2
MA 103	Applied Mathematics I	3-0
NS 101	Applied Physics	2-0
NS 101L	Applied Physics (LAB)	0-1
GE 101	Functional English (English-I)	3-0
QT 100	Quran-e-Majeed Teaching (Audit Basis)	2-0
MA 112	Mathematics I*	3-0

*Mandatory course for Pre-Medical background, Non Credit Course.

2nd Semester

Course Code	Course Title	Cr. Hrs.18
GE 107	Communication Skills (Expository Writing)	3-0
IST 103	Object Oriented Programming	2-0
IST 103L	Object Oriented Programming (LAB)	0-1
MA 104	Applied Mathematics II	3-0
IST 105	Digital Electronics	2-0
IST 105L	Digital Electronics (LAB)	0-1
IST 107	Software Engineering	2-0
IST 107L	Software Engineering (LAB)	0-1
IST 109	Data Structures and Algorithms	2-0
IST 109L	Data Structures and Algorithms (LAB)	0-1
MA 113	Mathematics II*	3-0

*Mandatory course for Pre-Medical background, Non Credit

3rd Semester

Course Code	Course Title	Cr. Hrs.17
GE 201	Ideology and Constitution of Pakistan (Pakistan Studies)	2-0
IST 201	Computer Networks	2-0
IST 201L	Computer Networks (LAB)	0-2
IST 203	Web Development Technologies	1-0
IST 203L	Web Development Technologies (LAB)	0-2
IST 205	Database Systems	2-0
IST 205L	Database Systems (LAB)	0-1
MA 203	Probability and Statistics	3-0
IST 207	Artificial Intelligence	1-0
IST 207L	Artificial Intelligence (LAB)	0-1

4th Semester

Course Code	Course Title	Cr. Hrs.17
GE 205	Civics and Community Engagement	1-1
ENG 223	Technical & Scientific Writing	3-0
IST 209	Operating Systems	2-0
IST 209L	Operating Systems (LAB)	0-1
IST 211	Information Security	2-0
IST 211L	Information Security (LAB)	0-1
IST 213	Computer Architecture and Organization	2-0
IST 213L	Computer Architecture and Organization (LAB)	0-1
IST 215	Systems and Network Administration	1-0
IST 215L	Systems and Network Administration (LAB)	0-2

5th Semester

Course Code	Course Title	Cr. Hrs.18
IST 301	Error Correction and Coding Techniques	3-0
IST 303	Wireless Networks Security	1-0
IST 303L	Wireless Networks Security (LAB)	0-2
IST 305	Cloud Computing and IoT	2-0
IST 305L	Cloud Computing and IoT (LAB)	0-2
GE 311	Professional Ethics	2-0
MGT 345	Organizational Behaviour	3-0
RES 391	Project Part-I	0-3

6th Semester

Course Code	Course Title	Cr. Hrs.17
GE 310	Techno-preneurship	2-0
IST 313	Digital Forensics and Laws	2-0
IST 313L	Digital Forensics and Laws (LAB)	0-1
IST 315	IT Security Audit and Evaluation	2-0
IST 315L	IT Security Audit and Evaluation (LAB)	0-1
EET 309	Renewable and Alternative Energy Technologies	2-0
EET 309L	Renewable and Alternative Energy Technologies (LAB)	0-1
IST 317	Web Application Security	3-0
RES 392	Project Part-II	0-3

7th Semester

Course Code	Course Title	Cr. Hrs.14
PH 107	Environment, Health and Safety	1-0
IST 401	Blockchain Technology and Security	2-0
IST 401L	Blockchain Technology and Security (LAB)	0-1
IST 403	Smart Surveillance Systems	2-0
IST 403L	Smart Surveillance Systems (LAB)	0-1
IST 405	Ethical Hacking and Penetration Testing	2-0
IST 405L	Ethical Hacking and Penetration Testing (LAB)	0-1
IST 407	Cryptography	1-0
IST 407L	Cryptography (LAB)	0-1
BIN 407	Bioinformatics	1-0
BIN 407L	Bioinformatics (LAB)	0-1

8th Semester

Course Code	Course Title	Cr. Hrs.16
IST 411	Supervised Industrial Training (Compulsory)	0-16

Program Learning Outcomes:

PLO-01: **Engineering Technology Knowledge:** An ability to apply knowledge of mathematics, natural science, Engineering Technology fundamentals and Engineering Technology specialization to defined and applied Engineering Technology procedures, processes, systems or methodologies.

PLO-02: **Problem Analysis:** An ability to identify, formulate, research literature and analyses broadly-defined Engineering Technology problems reaching substantiated conclusions using analytical tools appropriate to the discipline or area of specialization.

Program Learning Outcomes (PLOs)

PLO-03: **Design/Development of Solution:** An ability to design solutions for broadly- defined Engineering Technology problems and contribute to the design of systems, components or processes to meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.

PLO-04: **Investigation:** An ability to conduct investigations of broadly-defined problems; locate, search and select relevant data from codes, data bases and literature, design and conduct experiments to provide valid conclusions.

PLO-05: **Modern Tool Usage:** An ability to Select and apply appropriate techniques, resources, and modern technology and IT tools, including prediction and modeling, to broadly-defined Engineering Technology problems, with an understanding of the limitations.

PLO-06: **The Engineering Technologist and Society:** An ability to demonstrate understanding of the societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to Engineering Technology practice and solutions to broadly defined Engineering Technology problems.

PLO-07: **Environment and Sustainability:** An ability to understand and evaluate the sustainability and impact of Engineering Technology work in the solution of broadly defined Engineering Technology problems in societal and environmental contexts.

PLO-08: **Ethics:** Understand and commit to professional ethics and responsibilities and norms of Engineering Technology practice.

PLO-09: **Individual and Team Work:** An ability to Function effectively as an individual, and as a member or leader in diverse teams.

PLO-10: **Communication:** An ability to communicate effectively on broadly defined Engineering Technology activities with the Engineering Technologist community and with society at large, by being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PLO-11: **Project Management:** An ability to demonstrate knowledge and understanding of Engineering Technology management principles and apply these to one's own work, as a member or leader in a team and to manage projects in multidisciplinary environments.

PLO-12: **Life-Long Learning:** An ability to recognize the need for, and have the ability to engage in independent and life-long learning in specialist Engineering Technologies.

Outcome Based Education (OBE) System

OBE is an educational process that focuses on what students can do or the qualities they should develop after they are taught. OBE involves the restructuring of curriculum, assessment and reporting practices in education to reflect the achievement of high order learning and mastery rather than accumulation of course credits. It requires that the students demonstrate that they have learnt the required skills and contents.

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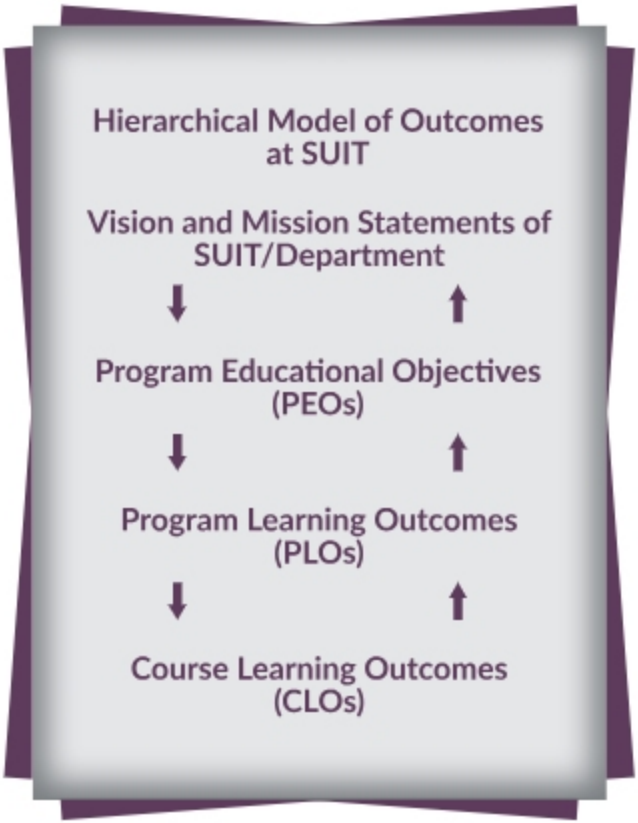

Bachelor of Science in
Mechanical Engineering Technology

Program Code	148
Number of Courses	39 + Project + SIT
Credit Hours	135

Minimum Duration	8 Semesters, 4 Years
Maximum Duration	16 Semesters, 8 Years
Minimum CGPA Required To Earn Degree	2.00

Eligibility:

3 Years Diploma of Associate Engineers from Technical Board in the relevant technology or F.Sc Pre-Engineering / Pre Medical from any Intermediate Board with at-least 50% marks or equivalent qualification.

Pre Medical Students must pass Deficiency courses of Mathematics of 6 Credit Hours with in the first year of their regular studies.

Candidates need to pass an aptitude Test / Interview conducted by the university.

Program Mission:

To impart technical education and training for producing Mechanical Engineering Technologist capable of serving the society for sustainable development and professional growth.

Program Educational Objectives (PEOs) :

PEO-01: The graduates will have knowledge, skills, and abilities to solve issues with modern technologies.

PEO-02: Technically qualified growth with effective communication, management abilities, and entrepreneur skills in order to meet industry's technological needs.

PEO-03: The graduates will exhibit professional integrity and commitment to social and ethical responsibilities to make a positive contribution towards the society.

Scheme of Studies:

1st Semester

Course Code	Course Title	Cr. Hrs.17
GE 102/104	Islamic Studies/ Social Ethics	2-0
MA 103	Applied Mathematics I	3-0
NS 101	Applied Physics	2-0
NS 101L	Applied Physics (LAB)	0-1
MET 101	Technical Drawing and Graphics	1-0
MET 101L	Technical Drawing and Graphics (LAB)	0-2
GE 101	Functional English (English-I)	3-0
MET 103	Workshop Technology	1-0
MET 103L	Workshop Technology (LAB)	0-2
QT 100	Quran-e-Majeed Teaching (Audit Basis)	2-0
MA 112	Mathematics I*	3-0

*Mandatory course for Pre-Medical background, Non Credit Course.

2nd Semester

Course Code	Course Title	Cr. Hrs.17
GE 107	Communication Skills (Expository Writing)	3-0
CS 101	Information and Communication Technology	1-0
CS 101L	Information and Communication Technology (LAB)	0-1
NS 103	Applied Chemistry	2-0
NS 103L	Applied Chemistry (LAB)	0-1
MET 105	Applied Mechanics	2-0
MET 105L	Applied Mechanics (LAB)	0-1
MET 107	Basic Electrical & Electronics	2-0
MET 107L	Basic Electrical & Electronics (LAB)	0-2
MET 109	Introduction to Industrial Management	2-0
MA 113	Mathematics II*	3-0

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3rd Semester

Course Code	Course Title	Cr. Hrs.17
GE 201	Ideology and Constitution of Pakistan (Pakistan Studies)	2-0
MET 201	Computer Aided Drafting and Modeling (LAB)	0-2
MET 203	Industrial Materials	2-0
MET 203L	Industrial Materials (LAB)	0-1
MET 205	Mechanics of Material	2-0
MET 205L	Mechanics of Material (LAB)	0-1
MET 207	Applied Thermodynamics	3-0
MET 207L	Applied Thermodynamics (LAB)	0-1
CS 109	Introduction to Computer Programming	1-0
CS 109L	Introduction to Computer Programming (LAB)	0-2

4th Semester

Course Code	Course Title	Cr. Hrs.17
GE 205	Civics and Community Engagement	1-1
ENG 223	Technical & Scientific Writing	3-0
MET 209	Machine Design	2-0
MET 211	Fluid Mechanics and Hydraulic Machines	3-0
MET 211L	Fluid Mechanics and Hydraulic Machines (LAB)	0-1
MA 205	Probability and Statistics	2-0
MA 205L	Probability and Statistics (LAB)	0-1
MET 213	Industrial Maintenance and Safety	2-0
MET 213L	Industrial Maintenance and Safety (LAB)	0-1

5th Semester

Course Code	Course Title	Cr. Hrs.18
MET 301	Heat and Mass Transfer	2-0
MET 301L	Heat and Mass Transfer (LAB)	0-1
MET 303	Energy and Power Technologies	2-0
MET 303L	Energy and Power Technologies (LAB)	0-1
MET 305	Manufacturing Processes	2-0
MET 305L	Manufacturing Processes (LAB)	0-1
MGT 309	Project Management	2-0
MGT 309L	Project Management (LAB)	0-1
ECO 201	Fundamentals of Applied Economics	3-0
RES 391	Project Part-I	0-3

6th Semester

Course Code	Course Title	Cr. Hrs.17
MET 311	Instrumentation and Control	2-0
MET 311L	Instrumentation and Control (LAB)	0-1
MET 313	Mechanical Vibration	2-0
MET 313L	Mechanical Vibration (LAB)	0-1
MET 315	Heating, Air-Condition and Ventilation Technologies	2-0
GE 315L	Heating, Air-Condition and Ventilation Technologies (LAB)	0-1
GE 310	Techno-preneurship	2-0
MGT 312	Total Quality Management	2-0
MGT 312L	Total Quality Management (LAB)	0-1
RES 392	Project Part-II	0-3

7th Semester

Course Code	Course Title	Cr. Hrs.16
MET 401	Metal Technology	2-0
MET 401L	Metal Technology (LAB)	0-1
MET 403	Metrology	2-0
MET 403L	Metrology (LAB)	0-1
MET 405	Hybrid Engines and their Technology	2-0
MET 405L	Hybrid Engines and their Technology (LAB)	0-1
MET 407	Robotics and AI	2-0
MET 407L	Robotics and AI (LAB)	0-1
MET 409	Automobile Technology	3-0
MET 409L	Automobile Technology (LAB)	0-1

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