Dr. A. Q. Khan Institute of Computer Sciences & Information Technology (KICSIT)

Sub Campus of

Institute of Space Technology (IST)

Prospectus Admissions 2025

BS Computer Engineering

Contents

BACHELOR OF SCIENCE IN COMPUTER ENGINEERING

DEPARTMENT OF COMPUTER ENGINEERING

1. Introduction

Dr. A. Q. Khan Institute of Computer Sciences and Information Technology (KICSIT), Kahuta is committed to offering quality education at an affordable cost. As a sub-campus of the Institute of Space Technology (IST), KICSIT is ideally located in a peaceful and secure environment. Free from the congestion of city life yet easily accessible from Rawalpindi and Islamabad, the institute offers a purpose-built, air-conditioned campus spread over more than 100 Kanals.

The Bachelor of Science in Computer Engineering (BSCE) program is accredited by the Pakistan Engineering Council (PEC) under the Washington Accord Level II (covering five batches from 2017–2021). The institute stands out with its ISO-based education-focused certification and Washington Accord Level II accreditation, ensuring international recognition. Strong industrial linkages with joint project supervision by industry, faculty, and students enhance practical exposure. Moreover, the integration of UN SDGs, Engineering Professional Competencies, and the updated 11 PLOs (as per International Engineering Alliance (IEA) v4.0) reflects the institute's commitment to global standards and future-ready graduates.

KICSIT is equipped with modern laboratories, well-furnished classrooms, and a library that houses a regularly updated collection of books across computer engineering and related domains. All labs have internet connectivity, and transport is provided to students and faculty from the twin cities at subsidized rates. The highly qualified faculty includes foreign-trained PhDs and experienced professionals with decades of industry exposure.

Despite being a relatively small institute, KICSIT has built an impressive track record. Its alumni are serving in government organizations, armed forces, multinational companies, and pursuing higher studies abroad. Students have also brought pride to the institute by securing top positions and awards in inter-university competitions.

With its strong academic foundation, supportive learning environment, and vibrant student community, KICSIT ensures that every student's journey here becomes a memorable and fruitful chapter of life.

Graduation Ceremony

2. Director's Message

Engr. Masood Khalid

Director Incharge KICSIT

Its my pleasure to welcome you at Dr. A. Q Khan Institute of Computer Sciences and Information Technology (KICSIT), Kahuta, a campus of Institute of Space Technology (IST), Islamabad.

KICSIT aims to offer quality education at an affordable cost. Currently, It offers four-year undergraduate programs in Bachelor of Science in Computer Engineering (BSCE) and Bachelor of Science in Computer Science (BSCS), as well as a Master's program in Computer Science. BSCE is accredited by PEC (Pakistan Engineering Council) and BSCS is accredited by NCEAC (National Computing Education Accreditation Council).

KICSIT is ideally located in an exclusively peaceful and secure environment. The Institute does have an elite faculty with foreign-qualified PhDs and MS degree-holders having decades of practical industrial experience, KICSIT is housed in its own purposefully-built air-conditioned campus.

In view of its increasing students strength and scope, the New Campus of KICSIT has been developed next to the lush green and scenic hills of Kahuta. This is on main Rawalpindi-Kahuta Road and covers an area of above 100 Kanals.

Though KICSIT is a small-size institute, yet by grace of Almighty it has a shining record in terms of students and alumni. A large number of alumni have joined Strategic Organizations, Armed Forces and Multinational Companies. In higher education, many studied and got degrees from

US, UK and other Foreign Universities. Also, KICSIT students have been competing well in the inter-university competitions and have won many awards in software, hardware and extracurricular areas, showing a nice grooming level prevalent here.

Thus, overall it is expected that our students find their stay at KICSIT a memorable and fruitful time period of their lives.

3. Computer Engineering

Computer Engineering is a dynamic field that bridges the gap between electrical engineering and computer science, focusing on the integration of hardware and software. At its core, it involves Digital System Design, where engineers architect the logic circuits and processors that power modern devices. This foundation extends into Embedded Systems, the specialized computing platforms tucked inside everything from smart appliances to industrial sensors, requiring precise optimization of memory and power.

The modern market is heavily driven by the "intelligence" of these systems. Artificial Intelligence (AI) has become a central pillar, with engineers designing hardware accelerators to handle massive neural networks. This intersects deeply with Digital Image Processing, which enables machines to interpret visual data—a critical component for technologies like facial recognition and medical diagnostics. While hardware remains central, the field embraces high-level software through Mobile Application Development and Web Design, ensuring that the backend power of a system is accessible through intuitive, high-performance user interfaces.

The career opportunities in this field are vast and high-paying. Robotics stands as a premier application, merging AI and embedded systems for automation and healthcare. Beyond robotics, computer engineers are essential in Autonomous Vehicles, Sensors, and Internet of Things (IoT) infrastructure. As industries shift toward complete digital transformation, the demand for professionals who can navigate both the physical circuitry and the complex software layers continues to grow exponentially.

4. The Core of Our Education: Outcome-Based Excellence

At the Department of Computer Engineering, we implement the Outcome-Based Education (OBE) framework, a student-centric model that prioritizes what students can actually *do* upon graduation over traditional rote learning. This approach ensures our graduates are not just degree holders but professionally competent engineers ready for the global market.

1. Professional Competencies & Global Recognition

Our curriculum is designed around the Washington Accord standards, as prescribed by the Pakistan Engineering Council (PEC). This gives our graduates a significant edge on global mobility and industry readiness where Training focuses on analytical thinking, practical application, and leadership skills required by modern tech industries.

2. Program Learning Outcomes (PLOs):

By the time students graduate, they master **Program Learning Outcomes (PLOs)**, which define the attributes of a world-class engineer.

3. Knowledge Profiles (WKs): Deep Technical Foundation

To support these outcomes, our curriculum integrates specific **Knowledge Profiles (WKs)** that ensure a systematic, theory-based understanding of:

- Core natural sciences, conceptually-based mathematics, and engineering fundamentals.
- Specialized engineering knowledge including sustainable design, resource efficiency, and advanced research frameworks.

4. Impact on Sustainable Development Goals (SDGs)

We believe engineering is a tool for global good. Our OBE framework directly contributes to the United Nations Sustainable Development Goals (SDGs).

5. Quality Management System (QMS)

ISO 9001:2015 is the current international standard for a quality management system (QMS), providing a framework for organizations to consistently provide products and services that meet customer and regulatory requirements, while enhancing customer satisfaction through continuous improvement. It defines the requirements for a QMS, focusing on leadership engagement, risk-based thinking, and a process-based approach. Whereas ISO 21001:2018 is an education-focused QMS based on ISO 9001, providing specific requirements for educational organizations to enhance learner satisfaction and meet educational needs.

- *QMS (ISO 9001:2015)*
- *Education-Focused Quality Management System (QMS) (ISO 21001:2018)*

6. Industrial Advisory Board (IAB) in the Institute Quality Enhancement

The Industrial Advisory Board (IAB) plays a vital role in the quality enhancement of a university, especially in professional and technical education. Its contributions can be highlighted as follows:

- Bridging Academia and Industry: Provides feedback on curriculum relevance to ensure graduates meet current and future industry demands.
- Curriculum Development & Review: Suggests updates in courses, labs, and projects to align with emerging technologies and industrial practices.
- Skill Enhancement: Identifies gaps in student skills (technical, managerial, and soft skills) and advises on ways to enhance employability.
- Research & Development Linkages: Guides faculty and students toward solving real-world industrial problems, leading to applied research and innovation.
- Internship & Job Opportunities: Facilitates industry placements, internships, and collaborative projects for students.
- Accreditation & Quality Assurance: Provides external input that strengthens outcome-based education (OBE), program evaluations, and accreditation processes.
- Continuous Improvement: Acts as a feedback loop to measure program effectiveness and recommend quality improvements for teaching, learning, and research.

Industrial Advisory Board (IAB) - 2025

7. Vision of the Institute

Be a National torchbearer, in the realm of academics, through quality teaching, robust research and outreach – to produce leaders in the field of Space Science and Technology, in line with National aspirations.

8. Mission of the Institute

To provide a conducive environment for realization of the full potential of faculty and students.

- To provide a conducive environment for realization of the full potential of faculty and students.
- To produce competent, balanced and creative graduates capable of assuming leadership positions to tackle future national/international technological challenges
- To create awareness of and interest in Space Education at all societal tiers for sustainable national development.

9. Program Mission Statement

The mission of the program is to deliver computer engineering knowledge and problem-solving skills for enabling graduates to address the societal and industrial requirements through the latest technological innovations and advancements with strong professional skills and high moral values.

10. Program Educational Objectives (PEOs)

Program Educational Objectives (PEOs) define the long-term career and professional achievements that graduates are expected to attain a few years after completing the program. They provide a strategic direction for curriculum design and continuous improvement, ensuring that the program remains aligned with industry needs and societal expectations. PEOs reflect the

University's commitment to producing competent professionals, effective leaders, and lifelong learners.

PEO 1: Ability to solve real-world engineering problems by using their knowledge and skills in various fields of computer engineering and its associated disciplines.

PEO 2: Ability to work as an individual and in a team with ethical and social responsibilities.

PEO 3: Ability to adapt to emerging fields through continuous professional advancement and learning.

11. Program Learning Outcomes (PLOs) Fall 2025 and Onwards

Program Learning Outcomes (PLOs) define the knowledge, skills, and competencies that students are expected to achieve upon successful completion of a degree program. They provide a clear framework for academic planning, teaching, and assessment, ensuring alignment between curriculum design and educational objectives. PLOs also reflect the program's commitment to preparing graduates for professional practice and lifelong learning.

1. Engineering Knowledge

Apply knowledge of mathematics, natural science, engineering fundamentals and Engineering specialization to the solution of complex engineering problems (WK1-WK4).

2. Problem Analysis

identify, formulate, conduct research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences (WK1-WK4).

3. Design / Development of Solutions

An ability to design solutions for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations (WK5).

4. Investigation

Conduct investigation of complex Engineering problems using research-based knowledge and research methods, including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions (WK-8).

5. Tool Usage

Create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modeling, to complex engineering activities, with an understanding of the limitations (WK-2 and WK-6).

6. The Engineer and the World

Analyze and evaluate sustainable development impacts to society, the economy, sustainability, health and safety, legal frameworks, and the environment while solving complex engineering problems (WK-1, WK-5, and WK-7).

7. Ethics

Apply ethical principles and commit to professional ethics and norms of engineering practice and adhere to relevant national and international laws. Demonstrate an understanding of the need for diversity and inclusion (WK-9).

8. Individual and Collaborative Team Work

Function effectively as an individual, and as a member or leader in diverse and inclusive teams and in multi-disciplinary, face-to-face, remote and distributed settings (WK-9).

9. Communication

Communicate effectively and inclusively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, and make effective presentations, taking into account cultural, language, and learning differences (WK-1 and WK-9).

10. Project Management and Finance

Demonstrate knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, to manage projects in multidisciplinary environments (WK-2 and WK- 5).

11. Lifelong Learning

Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change (WK-8 and WK-9).

12. Knowledge and Attitude Profile

The Knowledge and Attitude Profile outlines the essential subject knowledge and professional attitudes that students are expected to develop during their academic journey. It serves as a guiding framework for curriculum design and learning activities, ensuring that graduates possess both strong theoretical foundations and positive professional values. This profile reflects the program's commitment to producing competent, ethical, and socially responsible graduates.

In order to inculcate different dimensions of thinking mathematical, computational, design and creativeness among students in Cognitive, Psychomotor and Affective domains, the curriculum is designed to cover the following 9x knowledge and attitude profiles. These profiles reflect an indicated volume of learning and the work attitude against which graduates must be able to perform.

- **WK1:** A systematic, theory-based understanding of the natural sciences applicable to the discipline and awareness of relevant social sciences
- **WK2:** Conceptually-based mathematics, numerical analysis, data analysis, statistics and formal aspects of computer and information science to support detailed analysis and modelling applicable to the discipline
- **WK3:** A systematic, theory-based formulation of engineering fundamentals required in the engineering discipline
- **WK4:** Engineering specialist knowledge that provides theoretical frameworks and bodies of knowledge for the accepted practice areas in the engineering discipline; much is at the forefront of the discipline.
- **WK5:** Knowledge, including efficient resource use, environmental impacts, whole-life cost, re-use of resources, net zero carbon, and similar concepts, that supports engineering design and operations in a practice area

- **WK6:** Knowledge of engineering practice (technology) in the practice areas in the engineering discipline
- **WK7:** Knowledge of the role of engineering in society and identified issues in engineering practice in the discipline, such as the professional responsibility of an engineer to public safety and sustainable development
- **WK8:** Engagement with selected knowledge in the current research literature of the discipline, awareness of the power of critical thinking and creative approaches to evaluate emerging issues
- **WK9:** Ethics, inclusive behavior and conduct. Knowledge of professional ethics, responsibilities, and norms of engineering practice. Awareness of the need for diversity by reason of ethnicity, gender, age, physical ability etc. with mutual understanding and respect, and of inclusive attitudes

13. Professional Engineering Competencies (EC's)

Professional Engineering Competencies describe the practical abilities, ethical standards, and professional behaviors that students are expected to develop throughout their studies. These competencies ensure that graduates are capable of applying engineering knowledge to real-world problems while adhering to professional, social, and ethical responsibilities. They highlight the program's commitment to producing industry-ready engineers with strong technical and professional skills.

The Professional Engineering Competencies (EC's) are given as follows:

- **EC1:** Comprehend and apply advanced knowledge of the widely-applied principles underpinning good practice
- **EC2:** Comprehend and apply advanced knowledge of the widely-applied principles underpinning good practice specific to the jurisdiction of practice
- **EC3:** Define, investigate and analyze complex problems using data and information technologies where applicable

- **EC4:** Design or develop solutions to complex problems considering a variety of perspectives and taking account of stakeholder views
- **EC5:** Evaluate the outcomes and impacts of complex activities
- **EC6:** Recognize the foreseeable economic, social, and environmental effects of complex activities and seek to achieve sustainable outcomes
- **EC7:** Meet all legal, regulatory, and cultural requirements and protect public health and safety in the course of all activities
- **EC8:** Conduct activities ethically
- **EC9:** Manage part or all of one or more complex activities
- **EC10:** Communicate and collaborate using multiple media clearly and inclusively with a broad range of stakeholders in the course of all activities.
- **EC11:** Undertake CPD activities to maintain and extend competences and enhance the ability to adapt to emerging technologies and the ever-changing nature of work.
- **EC12:** Recognize complexity and assess alternatives in light of competing requirements and incomplete knowledge. Exercise sound judgement in the course of all complex activities
- **EC13:** Be responsible for making decisions on part or all of complex activities

14. Sustainable Development Goals (SDGs)

The United Nations Sustainable Development Goals (SDGs) provide a global framework for addressing key challenges such as quality education, innovation, sustainability, and social responsibility. By aligning academic programs with the SDGs, the University ensures that teaching, research, and community engagement contribute meaningfully to national and global development priorities. This integration prepares graduates to become responsible professionals and active contributors to a sustainable future.

The United Nations Sustainable Development Goals (SDGs) for mapping with the institute mission, vision, courses, design projects, internships, community services, etc. are given as follows:

1. No Poverty

End poverty in all its forms everywhere by ensuring social protection, equal access to resources, and economic growth.

2. Zero Hunger

End hunger, achieve food security, and promote sustainable agriculture to ensure everyone has access to nutritious food.

3. Good Health and Well-being

Ensure healthy lives and promote well-being for people of all ages by improving healthcare, reducing diseases, and addressing mental health.

4. Quality Education

Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

5. Gender Equality

Achieve gender equality and empower all women and girls by eliminating discrimination, violence, and barriers to equal opportunities.

6. Clean Water and Sanitation

Ensure availability and sustainable management of water and sanitation for all by improving water quality, efficiency, and access.

7. Affordable and Clean Energy

Ensure access to affordable, reliable, sustainable, and modern energy for all by promoting renewable energy and energy efficiency.

8. Decent Work and Economic Growth

Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all.

9. Industry, Innovation, and Infrastructure

Build resilient infrastructure, promote sustainable industrialization, and foster innovation to support economic development.

10. Reduced Inequality

Reduce inequality within and among countries by addressing income disparities and ensuring equal opportunities for all.

11. Sustainable Cities and Communities

Make cities and human settlements inclusive, safe, resilient, and sustainable by improving housing, transport, and urban planning.

12. Responsible Consumption and Production

Ensure sustainable consumption and production patterns by reducing waste, improving resource efficiency, and promoting sustainability.

13. Climate Action

Take urgent action to combat climate change and its impacts by reducing carbon emissions and strengthening climate resilience.

14. Life Below Water

Conserve and sustainably use the oceans, seas, and marine resources to protect biodiversity and prevent pollution.

15. Life on Land

Protect, restore, and promote sustainable use of terrestrial ecosystems, combat desertification, halt biodiversity loss, and prevent deforestation.

16. Peace, Justice, and Strong Institutions

Promote peaceful and inclusive societies, ensure access to justice, and build accountable and transparent institutions.

17. Partnerships for the Goals

Strengthen global partnerships to support and achieve the SDGs by improving international cooperation, finance, and capacity-building.

15. Admission Criteria

1. Matric/ Equivalent Certificate (Science) with minimum 60% marks
2. FSC Pre-Engineering/ ICS/ Equivalent Certificate with minimum 60% overall marks (Part-1 and Part-2 combined)
3. Minimum 33% Obtained Marks in Entry Test acceptable for IST
4. Candidates with HSSC Pre-Medical backgrounds can apply after completing an 8-week condensed Mathematics course

General Eligibility Requirements for Diploma Holders

1. A candidate seeking admission for the holders of Diploma of Associate Engineer, the candidate should have passed diploma examination from a Board of Technical Education in the relevant technology with minimum 60% overall marks.
2. Candidates applying for Diploma of Associate Engineer shall not be eligible unless their DAE discipline is in relevant technology as specified below:

Relevant Diploma:

1. Computer Information Tech.
2. Computer
3. Telecommunication
4. Electrical
5. Electronics
6. Software
7. Radar Technology
8. Automation
9. Radio Technology
10. Instrumentation/Instrumentation & Process Control

16. Program Structures and Curriculum

Curriculum of Bachelor of Science in Computer Engineering Fall 2025 and Onwards

Semester I - Subjects	**Credit Hours**			**Prerequisite**
	Theory	**Lab**	**Total**	
Calculus and Analytical Geometry	3	0	3	Nil
Islamic Studies / Ethics	2	0	2	Nil
Computer Fundamentals	2	0	2	Nil
Computer Fundamentals Lab	0	1	1	Nil
Applied Physics	2	0	2	Nil
Applied Physics Lab	0	1	1	Nil
Functional English	3	0	3	Nil
Workshop Practice	0	1	1	Nil
Understanding of Holy Quran I	0	1	1	Nil
Pakistan Studies	2	0	2	Nil
Total	**14**	**4**	**18**	
Semester II - Subjects	**Credit Hours**			**Prerequisite**
	Theory	**Lab**	**Total**	
Linear Algebra	2	0	2	Nil
Circuit Analysis	3	0	3	Applied Physics
Circuit Analysis Lab	0	1	1	
Computer Programming	3	0	3	Computer Fundamentals
Computer Programming Lab	0	1	1	
Communication Skills (Arts and Humanities Elective)	2	0	2	Nil
Electronic Devices and Circuits	3	0	3	Applied Physics
Electronic Devices and Circuits Lab	0	1	1	
Understanding of Holy Quran II	0	1	1	Understanding of Holy Quran I
Safety Health and Environment	1	0	1	Nil
Total	**14**	**4**	**18**	
Semester III - Subjects	**Credit Hours**			**Prerequisite**
	Theory	**Lab**	**Total**	

Discrete Structures	3	0	3	Nil
Digital Logic Design	3	0	3	Nil
Digital Logic Design Lab	0	1	1	
Object Oriented Programming	3	0	3	Computer Programming
Object Oriented Programming Lab	0	1	1	
Complex Variables and Transforms	3	0	3	Calculus and Analytical Geometry
Engineering Drawing	0	1	1	Nil
Expository Writing	3	0	3	Nil
Total	**15**	**3**	**18**	
Semester IV - Subjects	**Credit Hours**			**Prerequisite**
	Theory	**Lab**	**Total**	
Differential Equations	3	0	3	Calculus and Analytical Geometry
Data Structures and Algorithms	3	0	3	Object Oriented Programming
Data Structures and Algorithms Lab	0	1	1	
Signals & Systems	3	0	3	Nil
Signals & Systems Lab	0	1	1	
Computer Architecture and Organization	3	0	3	Nil
Computer Architecture and Organization Lab	0	1	1	Nil
Entrepreneurship	2	0	2	Nil
Total	**14**	**3**	**17**	
Semester V - Subjects	**Credit Hours**			**Prerequisite**
	Theory	**Lab**	**Total**	
Microprocessors and Interfacing	3	0	3	Digital Logic Design
Microprocessors and Interfacing Lab	0	1	1	Digital Logic Design
Digital Signal Processing	3	0	3	Signals and Systems
Digital Signal Processing Lab	0	1	1	Signals and Systems
Computer Communication and Networks	3	0	3	Data Structures and Algorithms

Computer Communication and Networks Lab	0	1	1	Data Structures and Algorithms
Operating Systems	3	0	3	Data Structures and Algorithms
Operating Systems Lab	0	1	1	Data Structures and Algorithms
Ideology and Constitution of Pakistan	2	0	2	Nil
Total	**14**	**4**	**18**	
Semester VI - Subjects	**Credit Hours**			**Prerequisite**
	Theory	**Lab**	**Total**	
Database Management Systems	3	0	3	Data Structures and Algorithms
Database Management Systems Lab	0	1	1	Data Structures and Algorithms
Software Engineering	3	0	3	Data Structures and Algorithms
CEDE-I	3	0	3	Nil
CEDE-I Lab	0	1	1	Nil
CEDE-II	3	0	3	Nil
CEDE-II Lab	0	1	1	Nil
Probability Methods in Engineering	3	0	3	Calculus and Analytical Geometry
Total	**15**	**3**	**18**	
Semester VII - Subjects	**Credit Hours**			**Prerequisite**
	Theory	**Lab**	**Total**	
Engineering Project Management	2	0	2	Nil
Digital Systems Design	3	0	3	Digital Logic Design
Digital Systems Design Lab	0	1	1	Digital Logic Design
CEDE-III	3	0	3	Nil Nil
CEDE-III Lab	0	1	1	Nil
Natural Science/Math Elective Numerical Analysis	3	0	3	
Design Project I	0	3	3	Nil
	11	**5**	**16**	

Semester VIII - Subjects	Credit Hours			Prerequisite
	Theory	Lab	Total	
Social Science Elective – (Sociology and Development)	2	0	2	Nil
Civics and Community Engagement	2	0	2	Nil
CEDE -IV	3	0	3	
CEDE –IV Lab	0	1	1	Nil
MDEE – I (2+1 or 3+0)	2	0	2	
MDEE – I Lab	0	1	1	Nil
MDEE – II (2+1 or 3+0)	2	0	2	Nil
MDEE – II Lab	0	1	1	
Design Project II	0	3	3	Nil
Total	**11**	**6**	**17**	

Total Credit Hours: 140

List of Electives

The list of electives is not limited to the following courses and can be extended or modified by the Faculty Board of Studies (FBS) as per requirements.

Computer Engineering Depth Electives (CEDE) (3+1)

Subject Title	Cr. Hr		
	Lec.	Lab	Total
Artificial Intelligence	3	0	3
Artificial Intelligence Lab	0	1	1
Network Security and Cryptography	3	0	3
Network Security and Cryptography Lab	0	1	1
Wireless and Mobile Networks	3	0	3
Wireless and Mobile Networks Lab	0	1	1
Software Project Management	3	0	3
Software Project Management Lab	0	1	1
Parallel and Distributed Computing	3	0	3
Parallel and Distributed Computing Lab	0	1	1
Embedded Systems	3	0	3
Embedded Systems Lab	0	1	1

Systems Programming	3	0	3
Systems Programming Lab	0	1	1
Digital Image Processing	3	0	3
Digital Image Processing Lab	0	1	1
Concepts of Internet of Things	3	0	3
Concepts of Internet of Things Lab	0	1	1
Machine Learning	3	0	3
Machine Learning Lab	0	1	1
High Performance Computing	3	0	3
High Performance Computing Lab	0	1	1
Control Systems	3	0	3
Control Systems Lab	0	1	1
Design & Analysis of Algorithms	3	0	3
Design & Analysis of Algorithms Lab	0	1	1
Hardware Design for DSP and ML	3	0	3
Hardware Design for DSP and ML Lab	0	1	1
Web Design and Development	3	0	3
Web Design and Development Lab	0	1	1

Multi-Disciplinary Engineering Electives (MDEE) (Both 2+1 or 3+0 can be opted)

Subject Title	Cr. Hr		
	Lec.	Lab	Total
Communication Systems	2	0	2
Communication Systems Lab	0	1	1
Fault Tolerant Computing	2	0	2
Fault Tolerant Computing Lab	0	1	1
Neural Networks and Fuzzy Logic	2	0	2
Neural Networks and Fuzzy Logic Lab	0	1	1
Robotics	2	0	2
Robotics Lab	0	1	1
Multimedia Systems	3	0	3
Human Computer Interaction (UI/UX)	3	0	3
Block Chain Technologies and Applications	3	0	3
Mobile Application Development	2	0	2
Mobile Application Development Lab	0	1	1
Virtual Reality	3	0	3
Software Quality Assurance	3	0	3
Instrumentation and Controls	3	0	3
VLSI Design	2	0	2
VLSI Design Lab	0	1	1
Data Warehousing and Mining	2	0	2

Data Warehousing and Mining Lab	0	1	1
GIS and Remote Sensing	3	0	3
Biomedical Engineering	3	0	3
Business Process Re-engineering	3	0	3

Arts and Humanities Electives (2+0)

Subject Title	Cr. Hr		
	Lec.	Lab	Total
Communication Skills	2	0	2
Beginners Spanish	2	0	2
Elementary Arabic	2	0	2
Elementary French	2	0	2
Elementary Chinese	2	0	2
History	2	0	2
Philosophy	2	0	2
Professional Ethics	2	0	2

Social Science Electives

Subject Title	Cr. Hr		
	Lec.	Lab	Total
Social Science Elective			
Social Psychology	2	0	2
Critical Thinking	2	0	2
Sociology and Development	2	0	2
Sociology for Engineers	2	0	2
Organizational Behavior	2	0	2
Human Resource Management	2	0	2
Engineering Law	2	0	2
Engineering Economics	2	0	2
Financial Management	2	0	2
Marketing Management	2	0	2
Leadership and Personal Grooming	2	0	2

Natural Science/Math Electives (3+0)

Subject Title	Cr. Hr		
	Lec.	Lab	Total
Multivariable Calculus	3	0	3
Discrete Mathematics	3	0	3
Numerical Analysis	3	0	3
Applied Chemistry	3	0	3
Biology	3	0	3

17. Program Credit Hrs and Award Criteria

Total Credit Hours 140

18. Detail of the Faculty

1. Dr. Waqar Farooq

   Associate Professor

   MSc with Distinction, University of Bradford, UK

   PhD College of EME, NUST

   Area of Specialization: Computer Engineering

2. Dr. Usman Ali Gulzari

   Assistant Professor

   MSc Comsats Islamabad

   PhD Comsats Islamabad

   Area of Specialization: Computer Engineering

3. Dr. Sidra Kanwal

   Assistant Professor

   MSc Comsats Islamabad

   PhD Comsats Islamabad

   Area of Specialization: Electrical Engineering

4. Engr. Muhammad Waqas

   Assistant Professor

   MS NUST

   PhD (In progress) UET Taxila

   Area of Specialization: Electrical Engineering

5. Engr. Mughees Sarwar Awan

   Assistant Professor

   MS CASE Islamabad

   PhD (In progress) UET Taxila

   Area of Specialization: Electrical Engineering

6. Engr. Sohail Ahmad

   Lecturer

   MS Computer Engineering UET Taxila

   PhD (In progress) UET Taxila

   Area of Specialization: Computer Engineering

7. Engr. Ahmed Bin Javed

   Lecturer

   MS Computer Engineering Comsats Islamabad

   Area of Specialization: Computer Engineering

8. Engr. Shahinza Manzoor

   Lecturer

   MS EE IST Islamabad

   BS KICSIT, Kahuta

   Area of Specialization: Computer Engineering

9. Engr. Muneeba Mubarik

   Lecturer

   MS CS KICSIT

   BS KICSIT, Kahuta

Area of Specialization: Computer Engineering

10. Engr. Eman Arshad

    Lab Engineer

    BS KICSIT, Kahuta

    Area of Specialization: Computer Engineering

11. Engr. Hajra Bibi

    Lab Engineer

    BS KICSIT, Kahuta

    Area of Specialization: Computer Engineering

12. Engr. Muniza Mukhtar

    Lab Engineer

    BS KICSIT, Kahuta

    Area of Specialization: Computer Engineering

19. Student Activities and Involvement in Activities

The students are encouraged to participate in curricular and extracurricular activities. The activities are held within KICSIT as well as outside the institute. KICSIT has a fine record of winning competitions held at different universities.

KICSIT Winners at Inter-University Competitions Excite Cup 2024

Olympiad HITEC Competitions

Olympiad NUST Achievements

Visio Spark Comsats Wah Competitions Achievement

Students Industrial Projects Achievements

Sports Week

Industrial Visit at NASTP

Industrial Visit at RWR Private Limited

Engineering Final Projects Evaluation by External Team

20. Alumni Meetup

An Alumni Meetup is organized to provide a valuable platform for graduates from various batches to reconnect with their alma mater, faculty, and peers. The event facilitated meaningful interaction and exchange of experiences, where alumni shared their professional achievements, industry insights, and constructive feedback on the academic programs. Their input served as an important source for curriculum review and quality enhancement, ensuring that the program remains responsive to evolving industry trends and societal needs. The meetup also strengthened institutional linkages with industry through alumni networks, fostering opportunities for collaborative projects, internships, and career development for current students.

KICSIT Alumni Meetup 2025

21. Students Transport

The University has a dedicated transport to ensure safe, reliable, and convenient commuting for students. This aims to reduce travel difficulties, improve punctuality, and provide a comfortable journey to and from campus. The service reflects the institute's commitment to student welfare and accessibility." The transport facility is provided to all students coming from Rawalpindi, Islamabad and Kahuta on a very subsidized rate.

22. Library

The University Library is a central pillar of academic life, designed to support teaching, learning, and research activities across all disciplines. It houses a rich collection of books, journals, reference materials, and digital resources that cater to the diverse needs of students and faculty members. Equipped with modern facilities, quiet study areas, and online access to scholarly databases, the library provides an environment that encourages independent learning and critical thinking. Through its services and resources, the University Library plays a vital role in promoting academic excellence, intellectual growth, and a culture of lifelong learning within the university community.

23. Hostel

The University offers premium hostel facilities at the IST Islamabad, Main Campus, designed to provide a secure and conducive living environment. Students benefit from dedicated campus transport, ensuring seamless connectivity between the hostel and academic blocks. These integrated facilities empower students to focus on their academic excellence while enjoying easy access to the capital city's diverse.

24. ORIC

ORIC is Higher Education Commission (HEC) strategic initiative to promote high quality research activities and link research activities to academia as well as Industry. ORIC-KICSIT was established in May 2018, ORIC has mandate to enhance and promote the environment of research at KICSIT. Academia-Industry Linkage setup under ORIC was Established in June 2020. We became part of & Business Incubation Center (BIC) of Institute of Space Technology (IST) in March 2021.

ORIC-KICSIT have two working domains.

1. Research Management (Research Publications & Research Grants along with Research Centers).
2. Innovation & Commercialization (Academia-Industry Linkage setup, Faculty consultancy, MOU's & Business Incubation Center IST).

Vision

Envision to promote, integrate research & innovation activities at KICSIT

Mission

1. Strengthen academia-industry relationship to promote technology-transfer and commercialization activities.
2. Design and development of business and incubation center.
3. Inculcating entrepreneurship among graduates.
4. Enhancing research culture and development program.
5. Promoting inter / cross disciplinary research.

ORIC Projects Funds (Dean IST (L), Manager ORIC (R))

ORIC Manager KICSIT

Mr. Kashif Munir

Email: kashif.munir@ist.edu.pk

25. Advanced AI & GPU Computing Infrastructure

KICSIT provides students and researchers with priority access to a world-class AI-based GPU server facility. Designed to meet the demands of modern deep learning and generative AI, this infrastructure offers 24/7 availability, ensuring that complex model training can continue

uninterrupted at any hour. This facility bridges the gap between theoretical classroom learning and the high-speed computational demands of the global AI industry.

Research and Development Lab

26. World-Class Engineering Laboratories: Bridging Theory and Innovation

Computer Engineering labs serve as the heartbeat of technical excellence, providing a hands-on environment where students master the skills required by the global tech industry. These facilities are designed to evolve with the rapid pace of technology, ensuring students move beyond the classroom to solve real-world challenges.

Core Facilities & Training Focus

The Computer Engineering laboratory serves as a high-tech ecosystem where the Outcome-Based Education (OBE) framework is put into practice, bridging the gap between theoretical knowledge and professional excellence. Designed to meet the standards of the Pakistan

Engineering Council (PEC) and the Washington Accord, these facilities enable students to achieve critical Program Learning Outcomes (PLOs)—such as Modern Tool Usage (PLO-5) and Investigation (PLO-4)—through hands-on experimentation with industry-standard hardware and software. By engaging in complex problem-solving and project-based learning, students develop the professional competencies and Knowledge Profiles (WKs) required to address global challenges, including the United Nations Sustainable Development Goals (SDGs) related to innovation and sustainable infrastructure. Ultimately, our labs function as centers of excellence, preparing future engineers to lead in a digital age with a commitment to ethics, society, and lifelong learning.

Digital Logic Design (DLD) Lab

The Foundation: Students begin their journey here, mastering the fundamental "building blocks" of all modern electronics. Training focuses on breadboarding, logic gates, and integrated circuits (ICs) to understand the DNA of computational hardware.

Digital System Design (DSD) Lab

The State-of-the-Art: This lab transitions students into advanced system architecture. Using high-end **FPGA boards and Hardware Description Languages (Verilog/VHDL)**, students design complex, high-speed digital systems, simulating the workflows used by industry.

Computer Lab (AI & High-Performance Computing)

The Future: Home to our 24/7 GPU Server Facility, this lab is the hub for AI, Machine Learning, and Software Engineering. Students utilize massive computational power to train neural networks and develop scalable software, gaining proficiency in industry-standard frameworks.

Applied Physics Lab

The Science: Innovation requires a deep understanding of the physical world. This lab allows students to explore physics—the essential scientific principles that allow hardware to function and communicate.

The Role of Labs in Student Development

Our labs are more than just classrooms; they are **incubators for innovation**. By integrating state-of-the-art technology with 24/7 accessibility, we ensure our graduates possess:

Technical Mastery: Hands-on experience with hardware and software.

Problem-Solving Agility: The ability to troubleshoot complex systems under real-world conditions.

Industry Readiness: A portfolio of work developed on the same infrastructure used by industry.