

CAPITAL UNIVERSITY of Science and Technology



ANNUAL REPORT 2018-19





Annual Report 2018-19

Proposed Draft

Prepared by:

Office of Research Innovation and Commercialization

Capital University of Science & Technology ISLAMABAD

Patron

Prof. Muhammad Mansoor Ahmed

Chief Editor

Prof. Aamer Iqbal Bhatti

Members

Muhammad Farhan Muhammad Raheel Anjum Taaruf Ullah Khaweri

The purpose of this document is to spread awareness about Capital University of Science and Technology, Islamabad.

©All Copy Rights Reserved.

Annual Report 2018-19 Capital University of Science & Technology, Islamabad

TABLE OF CONTENTS

| Vice (| Vice Chancellor's Message 1 | | | | |
|--------|---|----|--|--|--|
| Execu | utive Summary | 2 | | | |
| | t the University | 4 | | | |
| | ur Mission | 4 | | | |
| | ision | 4 | | | |
| St | rategic Goals and Objectives | 4 | | | |
| 1 A | cademics | 6 | | | |
| 1. | 1 Academic Activities at CUST | 6 | | | |
| 1. | | 6 | | | |
| 1. | | 7 | | | |
| 1. | | 7 | | | |
| 1. | 5 Faculty of Management and Social sciences (FMSS) | 8 | | | |
| 1. | 6 Student's Intake in 2018-19 | 8 | | | |
| 1. | 7 Department wise Students Admittance in 2018-19 | 8 | | | |
| 1. | 8 Total Registered Students | 9 | | | |
| 1. | 9 Department wise Detail of Currently Registered Students | 9 | | | |
| 1. | 10 Students Graduated in 2018 | 10 | | | |
| 1. | 11 Students Graduated Till 14th Convocation-2018 | 10 | | | |
| 1. | 12 Faculty Strength | 11 | | | |
| | 13 14 th Convocation of Capital University of Science & Technology | 11 | | | |
| 1. | 14 Detail of Medals Awarded in 14 th Convocation | 12 | | | |
| 2 PI | hysical Infrastructure | 14 | | | |
| 2. | | 14 | | | |
| 2. | , | 14 | | | |
| 2. | | 15 | | | |
| 2. | | 17 | | | |
| 2. | | 17 | | | |
| 2. | · | 18 | | | |
| 2. | | 18 | | | |
| 2. | | 18 | | | |
| | | | | | |
| | echnological Infrastructure | 19 | | | |
| 3. | | 19 | | | |
| 3. | | 19 | | | |
| | 3.2.1 Main Features | 19 | | | |
| 3. | | 20 | | | |
| 3. | | 20 | | | |
| 3. | , | 21 | | | |
| 3. | 6 Digital Library | 22 | | | |
| 4 R | esearch Operations and Development | 23 | | | |
| 4. | | 23 | | | |
| 4. | · | 24 | | | |
| 4. | 3 Office of Research, Innovation and Commercialization (ORIC) | 25 | | | |

| | 4.4 | ORIC D | omains | 25 |
|---|------|----------|--|----|
| | | 4.4.1 | Research Operations | 25 |
| | | 4.4.2 | Technology Incubation and Innovation | 25 |
| | | 4.4.3 | Industrial Liaison | 26 |
| | 4.5 | Operati | ional Hierarchy of ORIC | 26 |
| | | 4.5.1 | Key Functions of ORIC | 26 |
| | | 4.5.2 | ORIC Advisory Board | 26 |
| | 4.6 | ORIC Re | esearch Committee | 27 |
| | 4.7 | CUST P | ublications | 28 |
| | 4.8 | Journal | Publications Trend | 28 |
| | 4.9 | Total Pu | ublications Trend | 28 |
| | 4.10 | Impact | Factor Publications in 2018-19 | 29 |
| | | 4.10.1 | Biosciences and Bioinformatics | 29 |
| | | 4.10.2 | Civil Engineering | 30 |
| | | 4.10.3 | Computer Science | 31 |
| | | 4.10.4 | Electrical Engineering | 33 |
| | | 4.10.5 | Management Sciences | 35 |
| | | 4.10.6 | Mathematics | 36 |
| | | 4.10.7 | Mechanical Engineering | 37 |
| | | 4.10.8 | Pharmacy | 38 |
| | | | | |
| 5 | | | • | 39 |
| | 5.1 | | | 39 |
| | 5.2 | | | 39 |
| | | 5.2.1 | Dynamic Bandwidth Aggregation in Heterogeneous Wireless Networks for Mission Critical Applications | |
| | | 5.2.2 | 3 , , , , , , , , , , , , , , , , , , , | 39 |
| | | 5.2.3 | , | 40 |
| | | 5.2.4 | · | 40 |
| | | 5.2.5 | · · · · · · · · · · · · · · · · · · · | 40 |
| | | 5.2.6 | , | 40 |
| | | 5.2.7 | Development of Radar Signal Processing (RSP) algorithms for Active Electronically Scanned Array | |
| | | | | 40 |
| | | 5.2.8 | , , | 40 |
| | | 5.2.9 | | 41 |
| | | | · | 41 |
| | | | | 41 |
| | | | | 41 |
| | | | , , , | 41 |
| | | | • | 41 |
| | | | , | 42 |
| | 5.3 | | | 42 |
| | | 5.3.1 | Framework for Control and Monitoring of Wireless Mesh Networks (WMN) using Software Defined Networking (SDN) | 42 |
| | | 5.3.2 | Core Components of the 4th Generation Telecom Infrastructure (IMS) | 42 |
| | | 5.3.3 | Vehicle Based Road/Environment Condition Warning System using Vehicular Ad hoc Networks (VANETs) | 43 |
| | | 5.3.4 | EduScope: A New Learning System | 43 |
| | | 5.3.5 | Design and Development of Hybrid IPv4 and IPv6 Network for QoS Enabled Video Streaming Multi- | |
| | | | cast Application | 43 |
| | 5.4 | Researc | ch Commercialization | 43 |

|) | Capa | • | iding and Technology Innovation | 44 |
|---|------|---------|--|----------|
| | 6.1 | | logy Innovation and Incubation | 44 |
| | 6.2 | Nation | al and International Conferences | 44 |
| | 6.3 | 7th CU | ST International Business Research Conference (CIBRC-2018) | 44 |
| | 6.4 | | ernational Conference on Biological and Computational sciences (C-BICS) | 45 |
| | 6.5 | 1st Con | nference of Mathematics (CUCoM-2018) | 45 |
| | 6.6 | Technic | cal Trainings, Workshops and Seminars | 46 |
| | | 6.6.1 | Seminar on "Impact of Enterprise System in Business Decision Making" | 46 |
| | | 6.6.2 | Seminar on "Climate Change Impacts: Science and Mitigation" | 46 |
| | | 6.6.3 | Seminar on "Entrepreneurial Ventures" | 47 |
| | | 6.6.4 | OBE Training Session for Faculty of Civil Engineering Department | 47 |
| | | 6.6.5 | Seminar on "Site Supervision and Entrepreneurship" | 47 |
| | | 6.6.6 | Seminar on "Endangered Species of Pakistan" | 47 |
| | | 6.6.7 | Seminar on "Industrial Applications of Tissue Culture Technology" | 47 |
| | | 6.6.8 | Seminar on "Interactive Education" | 48 |
| | | 6.6.9 | Bridge Building Competition | 48 |
| | | | Seminar on "Advertising Tactics" | 49 |
| | | | Seminar on "Introduction to CDM, Safe by Design and Influencing" | 49 |
| | | | Seminar on "Significance of Strategic Tools and Techniques in Current Era" | 49 |
| | | | Seminar on "Impact of Human Activities on Climate Change & Endangerment of Species" | 50 |
| | | | Seminar on "Motivation and Leadership" | 50 |
| | | | HR Forum on "Industrial Issues related to Human Resource Management" | 50 |
| | | | One-Day Workshop on Latex | 50 |
| | | | Three-Day Workshop on "Model Predictive Control" | 50 |
| | | | Seminar on "Genomics Approach in Drug Designing" | 51 |
| | | | Seminar on "Cyber Security: Next Defense Frontier" | 51 |
| | | | Three-Days "Autodesk Inventor Workshop" | 51 |
| | | | One-Day Workshop on Latex | 52 |
| | | | Seminar on "UNESCO Science Programs in the Context of Pakistan's Water Issue" | 52 |
| | | | Seminar on "Innovation, Entrepreneurship and Technology Management—New Domains for Ex- | 32 |
| | | 0.0.23 | panding the Scope of Control Science and Engineering" | 52 |
| | | 6624 | Seminar on "New Developments in Electric Motors and Drives" | 53 |
| | | | Three-Days "REVIT Essentials Short Course" | 53 |
| | | | Workshop on "Poster Writing" | 53 |
| | | | Seminar on "Entrepreneurship and Innovation" | 53 |
| | | 6.6.28 | Three-Days "Autodesk REVIT Electrical Workshop" | 54 |
| | | 6.6.29 | "Revit Architecture Fundamental Course" at BIM Center of Excellence | 54 54 |
| | | | Session with Director Research STMU, Islamabad | 54 54 |
| | | | | 54 54 |
| | 6.7 | | Health & Safety Trainings | 55 |
| | 6.7 | | ss Plan Competitions | |
| | | 6.7.1 | X-Pert Cup 2019, UMT, Lahore | 55 |
| | | 6.7.2 | Capital University of Science & Technology stood second in Web Application | 55 |
| | | 6.7.3 | Entrepreneurship Marketing Gala-2018 | 55 |
| | | 6.7.4 | ORIC Business Plan Competition | 55 |
| | | 6.7.5 | BIM Centre of Excellence (BIM-CoE) | 56 |
| | | 6.7.6 | Digital Advertising Awards 2019 – DAA'19 | 57 |
| | | 6.7.7 | PEBS Reservation System for Pak Express | 57 |
| | | 6.7.8 | Workshops Conducted by BIM Centre of Excellence | 58 |
| | | 6.7.9 | CS Business Incubation Center | 58 |
| | | | Capital Classified | 58 |
| | 6.8 | Comme | ercialization of Students Projects | 58 |

| | | 6.8.1 | Smart Hospital Management system | 58 |
|---|-------|-----------|---|----|
| | | 6.8.2 | Commercialization of Business Case FYPs | 59 |
| 7 | Colla | aboratio | ns and Linkage | 60 |
| | 7.1 | Nationa | al Collaborations | 60 |
| | | 7.1.1 | IdeaGist, Pakistan | 60 |
| | | 7.1.2 | National Testing Service Pakistan | 60 |
| | | 7.1.3 | University of Sciences and Technology (UST) Bannu | 60 |
| | | 7.1.4 | Career Pakistan | 60 |
| | | 7.1.5 | H-Cube Group of Companies | 61 |
| | | 7.1.6 | Heavy Industries Taxila (HIT) | 61 |
| | | 7.1.7 | Defense Science and Technology (DESTO) Rawalpindi | 61 |
| | | 7.1.8 | Sustainable Development Policy Institute | 61 |
| | 7.2 | Interna | tional Collaborations | 62 |
| | | 7.2.1 | The Shanghai-Islamabad-Belgrade joint innovation Center, China | 62 |
| | | 7.2.2 | Mayo Clinic Jacksonville | 62 |
| | | 7.2.3 | Graz University of Technology | 62 |
| | | 7.2.4 | Mevlana Exchange Programme | 62 |
| | | 7.2.5 | European Commissions Erasmus Mundus Programs | 62 |
| | | 7.2.6 | Bremen Research Cluster for Dynamics in Logistics of the University of Bremen | 62 |
| | | 7.2.7 | The Universita' degli studi di Brescia | 63 |
| | | 7.2.8 | Gheorge Asachi Technical University of IASI | 63 |
| | | 7.2.9 | SAP University Alliances | 63 |
| | | 7.2.10 | MoU between MAJU, UET Lahore and OHIO State University | 63 |
| | | 7.2.11 | Institute Telecom ParisTech, France | 63 |
| 8 | Stud | lent's Em | ployability and Placement | 64 |
| | 8.1 | Directo | rate of Corporate Linkages (DCL) | 64 |
| | 8.2 | Corpora | ate Advisory Council | 64 |
| | 8.3 | Major o | domains of DCL | 65 |
| | | 8.3.1 | Liaison with Industry and Chambers of Commerce | 65 |
| | 8.4 | CUST E | mployment Expo (CEE 2019) | 65 |
| | | 8.4.1 | Summarized Details of CEE 2019 | 66 |
| | | 8.4.2 | Alumni Relations | 66 |
| | | 8.4.3 | Advocacy and Image Building | 66 |
| | | 8.4.4 | Skills for life | 67 |
| | 8.5 | Manage | ement Trainee Recruitment Drive of Mezan Oil PVT Ltd | 67 |
| | 8.6 | Industr | ial Open House | 67 |
| | 8.7 | 9th Ind | ustrial Open House | 67 |
| | 8.8 | 8th Ind | ustrial Open House | 69 |
| 9 | Stud | lent's Ac | cess | 71 |
| | 9.1 | Studen | t's Access | 71 |
| | 9.2 | Studen | ts Enrollment | 71 |
| | 9.3 | Gender | wise Detail of student's Enrollment | 72 |
| | 9.4 | | Student (FS) Ratio | 72 |
| | 9.5 | • | · · · · · · · · · · · · · · · · · · · | 72 |
| | | | | |

| 10 | Qual | ity Assurance | 74 |
|----|-------|--|----|
| | 10.1 | Quality Enhancement Cell (QEC) | 74 |
| | 10.2 | Outcome Based Education (OBE) System at CUST | 74 |
| | | 10.2.1 Processes Involved in OBE System at CUST | 74 |
| | 10.3 | Continual Quality Improvement (CQI) Process | 75 |
| | 10.4 | QEC Events and Activities | 76 |
| | | 10.4.1 Institutional Performance Self Evaluation | 76 |
| | | 10.4.2 PhD/MS Self Review | 77 |
| | | 10.4.3 QAC Meetings | 77 |
| | | 10.4.4 Seminar on Preparation of Graduate SARs | 78 |
| | | 10.4.5 HEC Progress Review Meeting & Training of QECs | 78 |
| | | 10.4.6 One Day Seminar on Quality Assurance in Higher Education & University Ranking | 78 |
| 11 | Extra | a Curricular Activities | 80 |
| | 11.1 | Sports Budget 2018-19 | 80 |
| | 11.2 | Annual Sports Week 2019 | 80 |
| | | Faculty Games | 82 |
| | 11.4 | Inter-Departmental Sports Events for Boys | 83 |
| | | 11.4.1 Inter Faculty Hockey Tournament | 83 |
| | | 11.4.2 Inter-Departmental Snooker Tournament (Singles & Doubles) | 83 |
| | | 11.4.3 Inter Departmental Badminton Tournament | 84 |
| | | 11.4.4 Inter Departmental Squash Tournament | 85 |
| | | 11.4.5 Inter-Departmental Lawn Tennis Tournament (Singles & Doubles) | 85 |
| | | 11.4.6 Inter Departmental Basketball Tournament | 86 |
| | | 11.4.7 Inter Departmental Football Tournament | 86 |
| | | 11.4.8 Inter Departmental Volleyball Tournament | 87 |
| | 11.5 | Interdepartmental Sports Events of Girls | 88 |
| | | 11.5.1 Inter Departmental Badminton Tournament | 88 |
| | | 11.5.2 Inter Departmental Basketball Tournament | 88 |
| | | 11.5.3 Inter Departmental Lawn Tennis Tournament | 89 |
| | | 11.5.4 Inter Departmental Table Tennis Tournament | 89 |
| 12 | | munity Service and Social Work | 90 |
| | | Volunteers in Service Directorate (VIS) | 90 |
| | | Students Involvement Mechanism in Community Service | 90 |
| | | MoU's and Partner Organizations | 90 |
| | | VIS Community Service by CUST Students | 92 |
| | 12.5 | Social Events and Community Service by VIS-CUST | 92 |
| | | 12.5.1 "9th Mall of Humanity" organized by VIS Directorate-CUST & Helping Hand for Relief and Development | |
| | | 12.5.2 Orientation Session of VIS-CUST Volunteers | 93 |
| | | 12.5.3 "8th Mall of Humanity" organized by VIS-CUST & Akhuwat Clothes Bank | 94 |
| | | 12.5.4 First Aid Comprehensive Training Session | 94 |
| | | 12.5.5 Plantation Campaign by Office of the Chief Commissioner Islamabad, Helping Hand for Relief & De- | |
| | | velopment and CUST | 94 |
| | | 12.5.6 Oath Taking Ceremony of CUST-VIS Tabdeeli Society | 94 |
| | | 12.5.7 "7th Mall of Humanity" organized by VIS Directorate-CUST & Helping Hand for Relief and Development (HHRD) | 95 |
| | | 12.5.8 "ASER Training" organized by VIS Directorate-CUST & Development Alternatives | 95 |
| | | 12.5.9 Orientation Session of VIS-CUST Volunteers | 95 |
| | | 12.5.10 "First Aid Training" organized by "Pakistan Red Crescent Society" and "The NGO World" in collabo- | " |
| | | | 95 |

| | 12.5.11 Seminar on "The curse of plastic" organized by German Red Cross and Pakistan Red Crescent Society in collaboration with VIS Directorate-CUST | 96 |
|----|--|-----|
| | 12.5.12 Seminar on "Breast Cancer Awareness" organized by Shaukat Khanum Memorial Hospital and Research Centre and VIS Directorate-CUST | 96 |
| | 12.5.13 "6th Mall of Humanity" organized by VIS Directorate-CUST & Helping Hand for Relief and Develop- | 90 |
| | ment (HHRD) | 96 |
| | 12.5.14 Blood Donation Camp organized by VIS Directorate–CUST and Pakistan Thalassemia Welfare Society | 96 |
| | 12.5.15 "5th Mall of Humanity" organized by VIS-CUST & Helping Hand for Relief and Development (HHRD) | 97 |
| 13 | University Governance Structure | 98 |
| | 13.1 Board of Governors (BOG) | 98 |
| | 13.1.1 Major Authorities and Responsibilities | 98 |
| | | 99 |
| | 13.2.1 Major Authorities and Responsibilities | 99 |
| | 13.3 Academic Council | 99 |
| | 13.3.1 Major Authorities and Responsibilities | 100 |
| | 13.4 Board of advanced Studies and Research (BASR) | 100 |
| | 13.4.1 Major Authorities and Responsibilities | 01 |
| | | L01 |
| | | 01 |

Vice Chancellor's Message

It is my pleasure to introduce the Annual Report 2018-19 of Capital University of Science and Technology, Islamabad. The University was established with a vision to produce competent professionals, who could be instrumental in the development of a prosperous society. The University took this challenging task and devised its strategy to acquire the status of being classified as a provider for career oriented individuals, who can create a positive impact on the society. The University remained focused on its goal, and in a short span of time earned a respectable name in the field of higher education.

In an academic system, some of the vital organs that determine its quality include curriculum, faculty and teaching environment. Any compromise on these will be at the expense of the academic quality. At CUST, the curriculums followed by various Faculties for their degree programs have been carefully designed to cater the needs of local industry, without compromising global trends. Though we have got excellent infrastructure and other support facilities to execute our academic programs, but our main pride is our quality faculty. CUST faculty is highly professional, mission oriented



and motivated. Apart from project and case study based learning, we, at CUST, make a conscious effort to expose our students into a multi-fascist environment to groom their personality and interpersonal skills. Our success so far has been the result of superb team effort by active scholars and teachers, caring and committed staff, and hardworking and exceptionally motivated students.

It is pertinent to mention here that CUST offers a good number of graduate programs, primarily in the evening to accommodate the working professionals. These programs are offered in the field of engineering, computing and management sciences. R&D is a prime thrust of our graduate programs, especially in PhD studies. In this connection the University strives to maintain a good liaison with industry and other R&D organizations. Publications made by our graduate students in the journals of international repute are a source of satisfaction for us. The University believes in constant improvement; therefore in this connection, each degree program is assessed periodically against its pre-defined outcomes. This gives the University a chance to know the quality of its graduates apropos the requirements of the industry or employers. Based on stake holder's feedback, appropriate remedial actions are taken, where necessary, to stay abreast with technological and industrial needs.

In this fast changing world, irreversible changes have occurred, and our University stands ready to meet the challenges of improving economic and social well-being. The University is uniquely positioned to be innovative and capitalize on new ideas, approaches and technologies. We at CUST intend to provide our students with the key for unlocking the door to a prosperous and fulfilling future. Today, we have over 4000 alumni working in the country and abroad, and we are proud of the progress they have made, and the way they have contributed towards the betterment of humanity.

Prof. Dr. Muhammad Mansoor Ahmed PhD (UK), CEng (UK), FIEE(UK), SMIEEE (USA), Eur. Ing (Brussels)

Executive Summary

Capital University of Science and Technology (CUST), Islamabad a federally Chartered University established through an Act No XVI of 2015 of parliament is a research centered institute. The university is dedicated to accomplish the paramount standards in academics and research, attuned with global requirements of practicing different professions.

CUST offers a wide range of academic programs at undergraduate, post graduate and PhD levels. The programs are being offered by the academic departments under four major faculties including Engineering, Management & Social Sciences, Health & Life Sciences and Computing- Currently CUST is offering 29 programs at undergraduate, MS/MPhil and PhD levels in various fields of studies.

The university holds its convocation ceremonies on continual basis to recognize and acknowledge the academic achievements of graduating students. The 14th convocation of CUST was held on December 06, 2018. The chief guest on the auspicious occasion was former Finance Minister and Governor State Bank of Pakistan, Dr. Shamshad Akhtar. The guest of honor was a renowned scientist and founder of PAEC, Prof. Dr. Inam-Ur-Rahman. A total of 867 students were privileged to receive degree in their respective fields including 323 MS and 32 PhD scholars.

Capital University of Science & Technology provides the preeminent infrastructure and associated facilities to the students and employees to facilitate the academic activities at campus. The university always strives to provide the students with the best facilities and tools so that they can excel themselves in accordance with the corporate world and industrial requirements. The whole campus is connected through the computer systems, telephones, Local Area Network (LAN), Optical fiber network and WIFI Hot spot. The lecture halls, labs, auditoriums, conference halls and faculty & staff offices are provided with state of art computer systems and IT facilities.

The libraries at CUST have plentiful stock of books on all disciplines and subjects. There are study rooms and a Printing Room linked with library. The university has also provided online access to HEC Digital Library with admittance to around 1,58,000 online books and 23,000 journals.

CUST owns a comprehensive University Administration System consisting of Faculty and Staff Portals to accomplish all faculty and management related actions. Capital Management System (CMS) is an online system to manage all attendance related tasks and reports. CUST provides a dynamic and integrated Student Portal System for managing student academics including Program Registration, Course listing, Time-tabling, Course Attendance Management etc. The Online Admissions System provides support to the administration and admission seeking candidates by providing a faster, transparent and easy way of keeping records and use them for reference and further proceedings.

Capital University of Science and Technology has always been proactive in the field of practical research. It has been through the hard work of CUST faculty and extreme dedication of students that CUST has been successful in publishing its work in renowned Impact Factor (IF) National and International Journals. The continual growth in quality research publications in recent years showcases our resolve and persistence. We are constantly working to mediate with national as well as international academics, research and industrial organizations to facilitate and promote research culture at CUST.

The faculty and researchers of Capital University of Science & Technology are passionately motivated toward the Research and Development (R & D), and commercial projects of national prominence. The faculty members through their hard work and determination have accomplished a number of R & D projects at national and international level.

The university not only accomplishes research operations but also ensures continual activities in terms of capacity building. This is the foremost domain CUST is working on along with Office of Research, Innovation and Commercialization (ORIC). Numerous conferences, trainings, workshops and seminars are being conducted on regular basis to provide students, faculty members and professionals with the contemporary set of skills and technical tools.

"BIM Centre of Excellence" is a joint venture of Office of Research, Innovation and Commercialization (ORIC) and Civil Engineering Department CUST, which offers international level courses and certifications to academia and industry personnel. ORIC and Computer Science Department of CUST have also established the Incubation lab at university. The purpose of given incubation center is to provide a platform to Computer Science students where they can practice their technical, innovative and freelancing skills for comprehensible earning.

Changing dynamics of higher education require educational institutes to build alliances with academia and industry, to expand resources and pool of information available to students, faculty and other stakeholders. CUST continues to have mutual collaborations, linkages and agreements with leading institutes and organizations both nationally and internationally in larger interest of students and faculty. We have signed mutual agreements with academia and industry including leading

universities and organizations.

CUST continues to organize Employment Expo, Industrial Open House and Job Fairs on continual basis. The purpose of such events is the provision of a platform to the graduating engineers, programmers and young innovators of CUST to showcase their design projects & ideas, and prove their skills in front of renowned professionals from industry and academia.

Capital University of Science & Technology since its commencement, has tried its best to make quality education reachable to all students in Pakistan, including those from low and middle-income backgrounds. The university aims to provide equal prospects to all students in attaining their goals and targets irrespective of their financial positions or social status. Every year, the university allocates funds from its own resources in its budget exclusively for awarding scholarship. In FY 2018-19, an amount of Rs. 158.42 Million has been disbursed among 4113 eligible and deserving students through various scholarship schemes.

The university follows a comprehensive Outcomes Based Education (OBE) system in designing, execution and improvement of its academic programs. The three main processes involved in the overall OBE System at CUST include curriculum design process, which is done once in the start of an academic program and then the on-going processes of CQI are initiated for continuous improvement of the programs including OBE based assessment process and curriculum review process.

Sports have very significant role in raising healthy generations, public health protection, building social peace and harmony. Understanding the wide range benefits of sports is the primary reason that Capital University encourages sporting activities and is striving to promote the physical and mental well-being of students through interdepartmental sports and Annual Sports Week on continual basis for both boys and girls.

Social responsibility is an ethical framework which in context of an individual obliges him or her to act for the benefit of society at large. Capital University of Science & Technology has established Volunteers in Service Directorate (VIS) to inculcate social responsibility and volunteerism in students. The directorate aims to foster social responsibility among students and to instill a spirit of volunteerism in youth to make them realize the importance of their role in the betterment of society. For this purpose, every graduating student of CUST is obliged to volunteer 65 hours of community service in order to make him/her a socially responsible citizen. VIS continues to arrange social and community service activities on regular basis

The university has a very comprehensive and dynamic governance structure. The Board of Governors (BOG) is a supreme body which governs and administrates managerial, academic and financial matters of the university, and lays down policies for the Institute. The Executive Committee is the executive body of the University and exercises general supervision over affairs and management of the University. The Academic Council is the principal academic body of the University and has the power to lay down proper standards of instruction, research and examinations and to regulate and promote the academic life of the university. CUST has numerous other bodies working in various domains to conduct the smooth course of university procedures.

Capital University of Science & Technology has apportioned a handsome amount of resources for its viable and market-based initiatives that allows it to start new programs, spend on infrastructure development and to sustain these initiatives with continual provision of resources. The university strives to work continuously to provide quality education to the students in terms of associated facilities and resources, and facilitation of its staff and employees in better interest of society.

Prof. Aamer Iqbal Bhatti Dean Research & Innovation

About the University

Capital University of Science & Technology (CUST) is established by a federal charter and vested with the authority to award degrees at various levels in all disciplines. It started functioning in 1998 as Islamabad Campus of Mohammad Ali Jinnah University (MAJU) Karachi and achieved its recognition in the country and abroad by maintaining excellent academic standards.

In recognition to its academic strength, infrastructure and financial viability, the President of the Islamic Republic of Pakistan, on 28th Sep. 2015, gave assent to a bill converting it into a law, passed by the Parliament of Pakistan referred to as 'Capital University of Science and Technology Act' which transformed MAJU, Islamabad Campus into Capital University of Science and Technology (CUST). As per CUST Act, it is a comprehensive Institution which can have faculties including, but not limited to, Engineering, Medicines, Natural Sciences, Management, Computing, Humanities and Arts.

Capital University of Science & Technology is a dynamic institution that acts as a catalyst of change to mold the society in cast of knowledge based economy by pro-actively contributing towards the troika of industry, academia and the government. These multi-dimensional objectives are achieved by flourishing a culture of research and innovation in the university. CUST is famous for research excellence and solving real-world problems through a network of partnerships and collaborations.

The University is investing heavily in facilities, technology and faculty development to promote research in a meaning-ful and purposeful manner. CUST has a multidisciplinary research culture with specialization in the field of Engineering, Bio Sciences, Computing and Social Sciences. Currently, CUST has four Faculties: Faculty of Engineering; Faculty of Computing, Faculty of Health & Life Sciences and Faculty of Management and Social Sciences. Faculty of Engineering has three Departments: Electrical Engineering; Mechanical Engineering and Civil Engineering. Faculty of Computing has Department of Computer Sciences and Department of Mathematics. Faculty of Health & Life Sciences has Department of Biosciences and Pharmacy. In the Faculty of Management and Social Sciences, we have Department of Management Sciences and Psychology.

To ensure the acceptability of our graduates in local as well as in foreign institutions, the University has adopted a widely accepted semester system and offers BS, MS and PhD degrees in compliance to the international norms and standards. Further, the academic programs are accredited by the respective accreditation bodies of the country. CUST aims to bring the highest possible excellence in research and innovation to transform understanding of humanity, the world we live in and the universe around us.

Our Mission

"To be recognized as a leading institution for producing competent professionals who are instrumental in development of a prosperous society."

Vision

"Capital University of Science and Technology, through the pursuit of excellence in an ethical environment, is committed to providing to a diverse student population the intellectual and technological tools necessary to meet the challenges of the future.

Strategic Goals and Objectives

- To assist the students to expand their intellectual horizons by providing them with new skills and innovative ideas
- To encourage the students to be useful and equal partners in the new world order, by acquiring professional and technological skills that compare in all respects to international standards
- ♦ To enrich the personal and professional acumen of the students by appointing, recruiting and retaining a highly qualified and competent faculty
- ♦ To provide facilities, resources and services that ensure an environment conducive to intellectual growth, research and learning for the students

| \$ | To improve students' interpersona skills | l communication, | democratic, | leadership, | analytical ability | y and creative thinki | ng |
|-----------|--|------------------|-------------|-------------|--------------------|-----------------------|----|
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

1. Academics

1.1. Academic Activities at CUST

Capital University of Science and Technology (CUST) is a small but research focused institute. CUST attracts students of high intellectual caliber and energy who contribute to the strength and academic excellence of our community. Its curriculum offers students an ample opportunity to pursue their future goals. With a variety of Engineering, Management, Computer Science, Mathematics, Biosciences and Bioinformatics programs, the students are guided to engage themselves in self-exploration and collaboration with other students in ways that prepare them to meet the challenges of practical life. CUST offers a wide range of academic programs at undergraduate, graduate and post graduate levels. The number of programs offered during 2018-19 is 29, which includes 11 undergraduate, 11 postgraduate and 7 PhD Programs.





The programs are being offered by the academic departments under four major faculties:

- ⋄ Faculty of Computing (FoC)
- Faculty of Engineering (FoE)
- Faculty of Health and Life Sciences (FHLS)
- Faculty of Management and Social Sciences (FMSS)

1.2. Faculty of Computing (FoC)

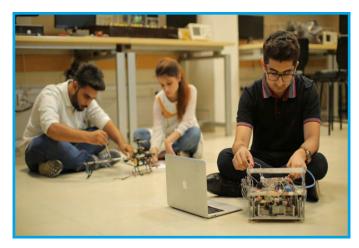
The faculty of Computing (FoC) aims at producing quality graduates in the applied sciences like computing & mathematics, who can meet the challenges of the time, and transform their knowledge into real value for the benefit of the society. To achieve this objective, we have a team of highly qualified, competent and dedicated faculty members.

Academic excellence is not possible without a quality research & development (R&D) environment. There are a number of R&D groups and laboratories which are involved in different research projects. The R&D facilities are available to train our students on applied aspects of the disciplines. The faculty has also established a strong liaison with R&D organizations and the industry. There are over 1000 alumni of the faculty, who are contributing effectively in the industry & academia, and thus paying their due share towards national growth.

Programs Offered in FoC

| S.No. | Undergraduate Level | Postgraduate Level | Research Degree Level |
|-------|-------------------------|---------------------|-----------------------|
| 1 | BS Computer Science | MS Computer Science | PhD Computer Science |
| 2 | BS Software Engineering | MPhil Mathematics | PhD Mathematics |





1.3. Faculty of Engineering (FoE)

The Faculty of Engineering (FoE) aims at producing engineers and researchers, who are equipped with knowledge and expertise to meet the challenges of dynamic and evolving engineering domains. The academic program is supported by well-equipped labs that strengthen the applied aspect of the discipline, and provides hand-on skills to future engineers and researchers. The Faculty of Engineering currently offers programs in Electrical Engineering, Civil Engineering, Mechanical Engineering and Engineering Management.

The students are being prepared for a career in industry or research, by providing them with a thorough foundation of the fundamental concepts and analytical tools of contemporary engineering domains. The Faculty envisions of contributing towards a knowledge – based economy of the country, with skilled professionals having curious minds, learning attitude and ethical behaviors, who are ready to undertake engineering challenges of our society.

Programs Offered in FoE

| S.No. | Undergraduate Level | Postgraduate Level | Research Degree Level |
|-------|---------------------------|---------------------------|----------------------------|
| 1 | BS Electrical Engineering | MS Electrical Engineering | PhD Electrical Engineering |
| 2 | BS Mechanical Engineering | MS Mechanical Engineering | PhD Mechanical Engineering |
| 3 | BS Civil Engineering | MS Civil Engineering | PhD Civil Engineering |
| 4 | - | MS Engineering Management | - |

1.4. Faculty of Health and Life Sciences (FHLS)

The faculty of Health and Life Sciences (FHLS) aims at producing quality graduates in the applied Biosciences, Biotechnology and microbiology. The curriculum is designed to meet the current and future challenges in this area. Keeping in view the current transition of Biosciences, the department offers undergraduate and graduate programs in Bio informatics and Biosciences with the focus to produce professionals capable of dealing with biological problems.

The department promotes excellence in interdisciplinary biological research by encouraging independent and original work and training. Furthermore, to enhance the hands-on experience, several courses are supported by wet lab and research based assignments. To accomplish this, the department has a well-equipped wet lab facility with state-of-the-art equipment.

Programs Offered in FHLS

| S.No. | Undergraduate Level | Postgraduate Level | Research Degree Level |
|-------|---------------------|--------------------|-----------------------|
| 1 | BS Biosciences | MS Biosciences | PhD Biosciences |
| 2 | BS Microbiology | - | - |
| 3 | BS Biotechnology | - | - |





1.5. Faculty of Management and Social sciences (FMSS)

The Faculty of management and Social Sciences (FMSS) is committed to deliver competent, creative, responsible business leaders and productive citizens. Faculty of management and social sciences offers a comprehensive suite of programs. These programs equip emerging leaders with the knowledge, research insights and personal effectiveness skills to make an impact on business and society.

A special emphasis has been given on business curriculum to create business leaders with high competence and ethical values. The curriculum is augmented to focus on student's ability to frame, analyze and communicate efficiently and effectively in solving unstructured business problem through industry driven research. A unique combination of classroom experience and corporate training has been adopted in business studies to augment managerial skills, self-confidence and decision making.

Programs Offered in FMSS

| S.No. | Undergraduate Level | Postgraduate Level | Research Degree Level |
|-------|--------------------------------------|------------------------------------|-------------------------|
| 1 | BS Accounting & Finance | MS Management Sciences | PhD Management Sciences |
| 2 | Bachelors in Business Administration | Masters in Business Administration | - |
| 3 | - | MS Project Management | - |
| 4 | BS Psychology | - | - |

1.6. Student's Intake in 2018-19

The following table presents the significant information regarding student's intake in 2018-19 at undergraduate, post graduate and PhD levels. The prominent students' admittance is a proof of their credence on the institute.

| S.No. | Category | Students Admitted |
|-------|---------------|-------------------|
| 1 | Undergraduate | 989 |
| 2 | Postgraduate | 536 |
| 3 | PhD | 36 |

The students not only took interest at undergraduate levels in various disciplines but also at postgraduate and PhD levels. The significant students' enrollment at research degree programs (MS/Phil and PhD) indicates the munificent availability of faculty, research labs and other associated facilities in the campus.

1.7. Department wise Students Admittance in 2018-19

The following table depicts the significant information regarding student's intake in 2018-19 in various departments. The students were admitted in 15 different disciplines at undergraduate, post graduate and PhD levels.

| S.No. | Department | Registered Students |
|-------|--------------------------------|---------------------|
| 1 | Electrical Engineering | 87 |
| 2 | Mechanical Engineering | 103 |
| 3 | Civil Engineering | 151 |
| 4 | Engineering Management | 18 |
| 5 | Software Engineering | 163 |
| 6 | Computer Science | 310 |
| 7 | Mathematics | 54 |
| 8 | Accounts & Finance | 35 |
| 9 | Business Administration | 242 |
| 10 | Management Sciences | 80 |
| 11 | Psychology | 75 |
| 12 | Project Management | 120 |
| 13 | Biosciences | 54 |
| 14 | Biotechnology | 53 |
| 15 | Microbiology | 16 |

The noticeable students' admissions in various fields of studies are a proof of their confidence over the institute teaching standards and academic facilities.

1.8. Total Registered Students

The following table presents the significant information about the total number of registered students currently enrolled in the university at various levels.

| S.No. | Category | Registered Students |
|-------|---------------|---------------------|
| 1 | Undergraduate | 3297 |
| 2 | Postgraduate | 1302 |
| 3 | PhD | 168 |

The students are not only registered at undergraduate levels in various disciplines but also at postgraduate and PhD levels. The significant students' strength at research degree programs shows the accessibility of faculty, research labs and other facilities.

1.9. Department wise Detail of Currently Registered Students

The information about totals students currently enrolled in the university in various disciplines and fields is detailed below. The students are studying in 17 different disciplines at undergraduate, post graduate and PhD levels.

| S.No. | Department | Registered Students |
|-------|--------------------------------|---------------------|
| 1 | Electrical Engineering | 413 |
| 2 | Mechanical Engineering | 388 |
| 3 | Civil Engineering | 414 |
| 4 | Engineering Management | 62 |
| 5 | Software Engineering | 615 |
| 6 | Computer Science | 987 |
| 7 | Mathematics | 176 |
| 8 | Accounts & Finance | 74 |
| 9 | Business Administration | 811 |
| 10 | Management Sciences | 224 |

| 11 | Psychology | 75 |
|----|--------------------|-----|
| 12 | Project Management | 222 |
| 13 | Biosciences | 171 |
| 14 | Biotechnology | 93 |
| 15 | Microbiology | 35 |

The noticeable students' admissions in various fields of studies are a proof of their confidence over the institute teaching standards and academic facilities.

1.10. Students Graduated in 2018

The following table presents the statistical detail about the students' graduation in 2018-19 in different departments. The students were graduated in 12 diverse fields of study at undergraduate, post graduate and PhD levels.

| S.No. | Department | Students Graduated |
|-------|-------------------------|--------------------|
| 1 | Electrical Engineering | 88 |
| 2 | Mechanical Engineering | 86 |
| 3 | Civil Engineering | 42 |
| 4 | Engineering Management | 18 |
| 5 | Computer Science | 163 |
| 6 | Mathematics | 22 |
| 7 | Finance & Economics | 12 |
| 8 | Business Administration | 263 |
| 9 | Management Sciences | 94 |
| 10 | Project Management | 36 |
| 11 | Biosciences | 10 |
| 12 | Bio-informatics | 32 |

A total of 866 students graduated in 2018 in different fields and at various study levels. The students from all the four faculties graduated with honor and ambition to serve the country and play their promising role in society through their learned skills and resolve.

1.11. Students Graduated Till 14th Convocation-2018

The following table depicts the statistical data about the totals students graduated from Capital University and Science & Technology till 14th Convocation in 2018. The students were graduated in 11 diverse fields of study at undergraduate, post graduate and PhD levels under four faculties.

| S.No. | Department | Students Graduated |
|-------|------------------------------|--------------------|
| 1 | Electrical Engineering | 1084 |
| 2 | Mechanical Engineering | 271 |
| 3 | Civil Engineering | 50 |
| 4 | Engineering Management | 70 |
| 5 | Computer Science & Engineer- | 1518 |
| | ing | |
| 6 | Mathematics | 83 |
| 7 | Finance & Economics | 29 |
| 8 | Business Administration | 3484 |
| 9 | Management Sciences | 1020 |
| 10 | Project Management | 58 |
| 11 | Bioinformatics & Biosciences | 251 |

A total of 7918 students have graduated from the university so far in different fields and serving the country in variant sectors. The alumni of CUST is working in different walks of life and playing its prospective role in development of country and society with honor and dignity.

The students are graduated at all levels i.e. undergraduate, postgraduate and PhD levels in various fields of study.

1.12. Faculty Strength

Capital University of Science & Technology has highly qualified faculty and teaching staff. The faculty members deliver the most recent knowledge about the various disciplines in accordance with the present day requirements. The following statistics present the current faculty strength in the University.

| S.No. | Department | Faculty Strength |
|-------|------------------------------|------------------|
| 1 | Electrical Engineering | 25 |
| 2 | Mechanical Engineering | 26 |
| 3 | Civil Engineering | 23 |
| 4 | Computer Science | 29 |
| 5 | Software Engineering | 22 |
| 6 | Mathematics | 18 |
| 7 | Health & Life Sciences | 21 |
| 8 | Management & Social Sciences | 39 |

The teachers not only provide the updated and practical knowledge about the courses but are also quite active in academic research and development activities.

1.13. 14th Convocation of Capital University of Science & Technology





Capital University of Science and Technology, Islamabad held its 14th convocation on December 06, 2018. The chief guest on the auspicious occasion was former Finance Minister and Governor State Bank of Pakistan, Dr. Shamshad Akhtar. The guest of honor was a renowned scientist and founder of PAEC, Prof. Dr. Inam-Ur-Rahman. The Chancellor CUST, Mian Amer Mahmood and Vice Chancellor, Dr. M. Mansoor Ahmed also graced the occasion.

A total of 867 students received their degrees. Altogether 32 PhD scholars had the honor to receive their degree from 4 faculties. Other than that, 323 scholars received their MS degrees in their respective fields. A total of 32 students secured Gold Medal, 12 students conferred the Silver Medal and 10 students received the Bronze Medal.

The Jinnah gold Medal was awarded to Mr. Faraz Kaiser Malik for his outstanding performance in both the curricular ad extra-curricular activities. The convocation concluded amidst the cheers of the graduating students.

This was followed by a lavish lunch arranged for the students, guests and faculty. The function ended at a memorable note for students, faculty and guests.

1.14. Detail of Medals Awarded in 14th Convocation

The medals were awarded to high achievers of all department s and those who graduated with distinction by honorable guests. The department wise information of students awarded with distinctive medals is detailed below.

Faculty of Computing (FoC)

| BS(CS) | | | | | |
|--------|-----------------------|------------------|---------------|--|--|
| S.No. | Name | Batch | Medal Awarded | | |
| 1 | Asifa Kanwal | 37 th | Gold | | |
| 2 | Ahsan Javed | 38 th | Bronze | | |
| 3 | Muhammad Waseem Ullah | 38 th | Silver | | |
| 4 | Mehwish Riaz | 38 th | Gold | | |
| MS(CS |) | | | | |
| 5 | Rizwan Yasin | 36 th | Gold | | |
| 6 | Sana Aurangzeb | 37 th | Gold | | |
| MPhil(| MPhil(Maths) | | | | |
| 5 | Waqar Younas | 8 th | Gold | | |
| 6 | Sumaira Bibi | 8 th | Gold | | |

Faculty of Engineering (FoE)

| BS(EE) | BS(EE) | | | |
|--------|-------------------------|------------------|---------------|--|
| S.No. | Name | Batch | Medal Awarded | |
| 1 | Noor Ul Ain | 37 th | Silver | |
| 2 | Syed Muhammad Abu Turab | 37 th | Silver | |
| 3 | Samreen Ajmal Kayani | 37 th | Gold | |
| BS(ME | E) | | | |
| 4 | Abdullah Muhammad | 4 th | Bronze | |
| 5 | Faraz Kaiser Malik | 4 th | Silver | |
| 6 | Hassan Farooq Ahmed | 4 th | Gold | |
| BS(CE) | | | | |
| 7 | Abrar Ahmad | 1 th | Gold | |
| MS(M | E) | | | |
| 8 | Abubakar Ayub | 8 th | Gold | |
| MS(CE | E) | | | |
| 9 | Sadia Afzal | 3 rd | Gold | |
| MS(EM) | | | | |
| 10 | Madiha Abrar | 8 th | Gold | |
| 11 | Mehreen Arif | 9 th | Gold | |
| | | | | |

Faculty of Health and Life Sciences (FHLS)

| BS BI | | | |
|-------|------------------|------------------|---------------|
| S.No. | Name | Batch | Medal Awarded |
| 1 | Atiatul Wahab | 26 th | Bronze |
| 2 | Shaukat Khan | 26 th | Silver |
| 3 | Ayesha Aftab | 26 th | Gold |
| 4 | Ahmad Zafar Baig | 27 th | Gold |

| MS BI | | | | |
|-------|-----------------|------------------|------|--|
| 5 | Sehar Aslam | 17 th | Gold | |
| MS BS | MS BS | | | |
| 6 | Malik Sadaf Ali | 3 rd | Gold | |
| 7 | Anila Sajjad | 4 th | Gold | |

Faculty of Management and Social Sciences (FMSS)

| BBA | | | | |
|--------|-------------------------|------------------|---------------|--|
| S.No. | Name | Batch | Medal Awarded | |
| 1 | Hajra Masood | 32 nd | Bronze | |
| 2 | Anam Tariq | 32 nd | Silver | |
| 3 | Syed Hassan Ali | 32 nd | Gold | |
| 4 | Wasif Nawaz Janjua | 33 rd | Bronze | |
| 5 | Kasha Mateen | 33 rd | Silver | |
| 6 | Maria Sarfaraz | 33 rd | Gold | |
| BS F 8 | k E | | | |
| 7 | Adeel Ahmed | 4 th | Bronze | |
| 8 | Muhammad Ajmal | 4 th | Silver | |
| 9 | Sharayar Cheema | 4 th | Gold | |
| MBA- | R | | | |
| 10 | Ain Ul Saba | 38 rd | Bronze | |
| 11 | Mehwish Abdul Quyyum | 38 th | Silver | |
| 12 | Kiran Israr | 38 rd | Gold | |
| 13 | Muhammad Ahsan Siddiqui | 39 th | Bronze | |
| 14 | Ramsha Khan | 39 rd | Silver | |
| 15 | Maryam Arooj | 39 th | Gold | |
| MBA- | P | | | |
| 16 | Arslan Gulraz | 22 nd | Bronze | |
| 17 | Nadia Amin | 22 nd | Silver | |
| 18 | Muhammad Haider Zamir | 22 nd | Gold | |
| 19 | Maria Amin | 22 nd | Gold | |
| 20 | Amber Qadeer | 23 rd | Bronze | |
| 21 | Sana Mehboob | 23 rd | Silver | |
| 22 | Qurat-Ul-Ain | 23 rd | Gold | |
| MBA- | G | | | |
| 23 | Ahmed Ali Raza | 15 th | Gold | |
| 24 | Khadija Babar | 16 th | Gold | |
| MS(PI | | | | |
| 25 | Sadia Abbasi | 2 nd | Gold | |
| 26 | Amina Binat -I-Yousaf | 3 rd | Gold | |
| MS(N | MS(MGMT) | | | |
| 27 | lqra anwar | 24 th | Gold | |
| 28 | Arooj Khalid Butt | 25 th | Gold | |
| | | | | |

2. Physical Infrastructure

2.1. Physical Infrastructure

Capital University of Science & Technology provides the preeminent infrastructure and associated facilities to the students and employees to facilitate the academic activities at campus. The university construction and developmental projects are student oriented and are focused to facilitate them with the state of art services.

The university always strives to provide the students with the best facilities and tools so that they can excel themselves in accordance with the corporate world and industrial requirements. The following table depicts the physical infrastructure of university in brief.

| S.No. | Description | No of Floors | Covered Area (Sq.ft.) |
|---------|-----------------------|--------------|-----------------------|
| 1 | Block A | 4 | 25246.88 |
| 2 | Block B | 4 | 36406.88 |
| 3 | Block C | 3 | 13242.88 |
| 4 | Block D | 3 | 13242.88 |
| 5 | Block E | 4 | 36406.88 |
| 6 | Block F | 4 | 36406.88 |
| 7 | Block G | 4 | 24612 |
| 8 | Block H | 4 | 25246.88 |
| 9 | Block I | 4 | 12000 |
| 10 | Block J | 4 | 25246.88 |
| 11 | Guards Residence | 4 | 7424 |
| 12 | Forging Mech. Shop | 2 | 5640 |
| 13 | Cafeteria Pump Room | 1 | 2285 |
| 14 | Main Gate Reception | 1 | 779.37 |
| 15 | Food Street Shops | 1 | 1011.75 |
| 16 | Check Posts | 1 | 224 |
| 17 | Electrical Panel Room | 1 | 321.75 |
| 18 | Electric Meter Room | 1 | 360 |
| 19 | Driver Waiting Room | 1 | 311.75 |
| Total C | Covered Area | | 203922.9 sq. ft. |

2.2. Lecture Halls

There are a total of 32 state of art lecture halls provided each with the following instructional facilities:





- 1 PC
- 2 Multimedia projector
- 3 Internet connection
- 4 White Board
- 5 Markers
- 6 Speakers

2.3. Laboratory Equipment

Students cannot excel in any particular technological area unless they have has hands on practical experience along with theoretical subject matter. CUST has provided the students with the state of art lab facilities to meet the challenges of modern world. The lab equipment is updated on continual basis in accordance with industry, technology and market requirements.

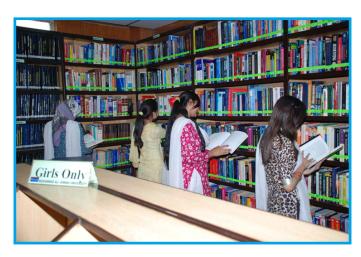
| CUST Laboratories Detail | | | |
|---------------------------------|---|------------|--|
| Labs Specification | Detail | Venue | |
| Computing | i. Main Computer Lab | (A- Block) | |
| | ii. Main Computer Lab | (H-Block) | |
| | iii. Instruction Lab-01 | (B-Block) | |
| | iv. Instruction Lab-02 | (B-Block) | |
| | v. Instruction Lab-03 | (B-Block) | |
| | vi. FPGA Lab | (F-Block) | |
| | vii. Research Mechanical Engineering Lab | (F-Block) | |
| | viii. Research Mathematics Lab | (F-Block) | |
| | ix. Instruction Lab-04 | (F-Block) | |
| | x. HPC Lab | (E-Block) | |
| | xi. CAD Lab | (E-Block) | |
| | xii. CS Project Lab-1 | (E-Block) | |
| | xiii. Wireless Communication Research | (C-Block) | |
| | xiv. Management Sciences Lab | (F-Block) | |
| | xv. CORDE Research Lab | (C-Block) | |
| | xvi. Semantic Computing Research Lab | (B-Block) | |
| | xvii. Network and Telecomm Research Lab | (B-Block) | |
| | xviii. Bioinformatics Computing Lab | (B-Block) | |
| | xix. EE Project Lab | (E-Block) | |
| | xx. Operating Systems Lab | (B-Block) | |
| | xxi. Machine Vision & Pattern Recognition Lab | (B-Block) | |
| | xxii. Digital Signal Processing Lab | (B-Block) | |
| | xxiii. Analogue Electronics Lab | (B-Block) | |
| | xxiv. Digital Electronics Lab | (B-Block) | |
| | xxv. Control and Automation Lab | (B-Block) | |
| Bioinformatics and Bio sciences | i. WET lab | (B-Block) | |
| | ii. Tissue Culture Lab | (B-Block) | |
| | iii. Bioinformatics and Bio sciences Research Lab | (B-Block) | |

| Electrical / Electronic Engineering | i. Electrical Machines Lab | (B-Block) |
|-------------------------------------|--|-----------|
| | ii. Control Systems Lab | (B-Block) |
| | iii. Digital Electronics Lab | (B-Block) |
| | iv. Communication Systems Lab | (B-Block) |
| | v. Analogue Electronics Lab – 1 | (B-Block) |
| | vi. Analogue Electronics Lab – 2 | (B-Block) |
| | vii. Digital Signal Processing Lab | (B-Block) |
| | viii. Power Systems Lab – 1 | (F-Block) |
| | ix. Power Systems Lab – 2 | (F-Block) |
| | x. Project Lab | (E-Block) |
| Mechanical Engineering | i. Statics Lab | (E-Block) |
| | ii. Dynamics Lab | (E-Block) |
| | iii. Mechanics of Materials Lab | (E-Block) |
| | iv. Heat and Mass Transfer Lab | (E-Block) |
| | v. Fluid Mechanics Lab | (F-Block) |
| | vi. Precision Engineering & Metrology Lab | (F-Block) |
| | vii. Mechanics of Machines Lab | (F-Block) |
| | viii. Thermodynamics Lab | (G-Block) |
| | ix. Refrigeration and Air Conditioning Lab | (G-Block) |
| | x. Mechanical Vibrations Lab | (F-Block) |
| | xi. Manufacturing Processes Lab | (G-Block) |
| | xii. Mechanical Workshop | (F-Block) |
| | xiii. Internal Combustion Engines Lab | (G-Block) |
| | xiv. Engineering Drawings and Graphics Lab | (E-Block) |
| | xv. CAD Lab | (E-Block) |
| Civil Engineering | i. Civil Engineering Materials Lab | (H-Block) |
| | ii. Fluid Mechanics Lab | (F-Block) |
| | iii. Soil Mechanics Lab | (H-Block) |
| | iv. Geotechnical Lab | (H-Block) |
| | v. Drawing Hall | (E-Block) |
| | vi. Highway Lab | (H-Block) |
| | vii. Irrigation & Hydrology Lab | (H-Block) |
| | viii. Environmental Engineering Lab | (H-Block) |
| | ix. Structural Lab | (H-Block) |
| | x. Survey Store | (H-Block) |
| | xi. STM Room | (STM) |
| | xii. Instruction Lab | (H-Block) |
| | xiii. Engineering Mechanics Lab | (E-Block) |

2.4. Libraries

There are a total of two libraries in CUST with ample stock of books on all disciplines and subjects. The main campus library is located in A-Block while the other one is located in H- Block. There are two study rooms and a Printing Room linked with library. The university has also provided online access to HEC Digital Library with admittance to around 1,58,000 online books and 23,000 journals.





2.5. Conference and Workshop Rooms

Capital University of Science & Technology has three Conference and Workshop Rooms. The main Conference Room is located in D-Block which is reserved for high level meetings like Board of Governance, Executive Committee, Academic Council etc.





The Workshop Room located in B-Block and Conference Room located in F-Block are reserved for other departmental or industrial meetings. The project and defense presentations of students are also held here. These rooms are provided with all required facilities like:

- 1 Computer Systems
- 2 Multimedia projector
- 3 Internet connection
- 4 White Board
- 5 Markers
- 6 Speakers

2.6. Auditoriums

Capital University has two main Auditoriums located in A-Block namely, A-1 and A-2. The auditoriums are reserved for academic and co-curricular activities. The lectures and exams are also held in these rooms. The auditoriums also host various events like workshops, seminars, trainings and other such academic and social activities. The auditoriums are equipped with:

- 1 Computer Systems
- 2 Multimedia projector
- 3 Internet connection
- 4 White Board
- 5 Markers
- 6 Speakers

2.7. Project and Study Rooms

To facilitate the students in their project work, separate Project Rooms are allocated in each department with adequate facilities. The students without any disturbance can concentrate on their particular tasks there. Similarly study rooms can benefit students in their lecture revision and exams preparation.





2.8. Security Measures

To safeguard the students and employees, so that they can attain education and perform their duties adequately without any distress, maximum security measures are being exercised in the campus which includes:

- Video surveillance in all covered areas
- Two security check-posts
- Walk-through gates
- · For security guards, MOU with a security company
- More than 440 CCTV Cameras

3. Technological Infrastructure

3.1. IT Support

Strengthening and up gradation of computer labs, libraries and academic facilities are essential for achieving excellence in skill set of students. The university has therefore spent huge amount in upgrading and setting up IT infrastructure. CUST has centralized IT Support Center whose sole purpose is the provision of IT facilities to every one within university.

IT support Department manages and maintains the Computer labs, CCTV Cameras, Multimedia, WIFI and Telephone systems within university. The whole campus is connected through the computer systems, telephones, Local Area Network (LAN), Optical fiber network and WIFI Hot spot.





The lecture halls, labs, auditoriums, conference halls and faculty & staff offices are provided with state of the art computer systems and IT facilities. Every block has its separate IT support Room with well equipped and skilled experts. Following is the brief summary of IT facilities at CUST.

| S.No. | Equipment | Number |
|-------|-----------------------|--------|
| 1 | Computer Systems | 1375 |
| 2 | CCTV Cameras | 445 |
| 3 | Multimedia Projectors | 127 |
| 4 | Telephone Extensions | 249 |
| 5 | General IT Labs | 2 |
| 6 | Teaching IT Labs | 7 |

3.2. Capital Management System (CMS)

Capital Management System (CMS) is an online system to manage all attendance related tasks and reports. CMS provides dynamic and integrated solutions to smoothly run and streamline the university and employees attendance related operations.

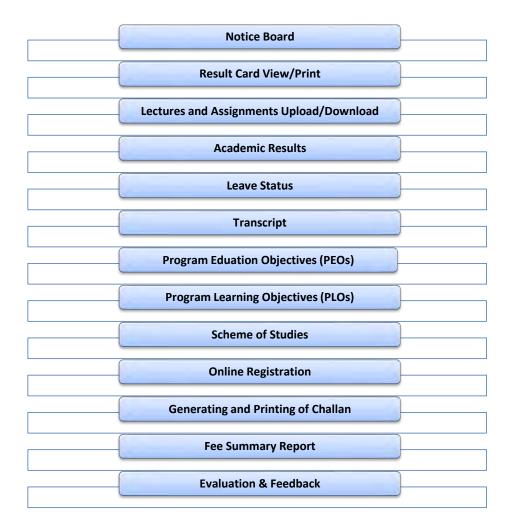
Main Features

- Daily Check-in/Check-out Status
- Daily Attendance Report
- Monthly Attendance Report
- Leave Application Submission System
- Monthly working hour Calculation
- Self Appraisal Module

- Evaluation Report
- Employees Record
- Individual Employee leave and Attendance History
- Leave Report
- Student and Staff Forms

3.3. Student Portal

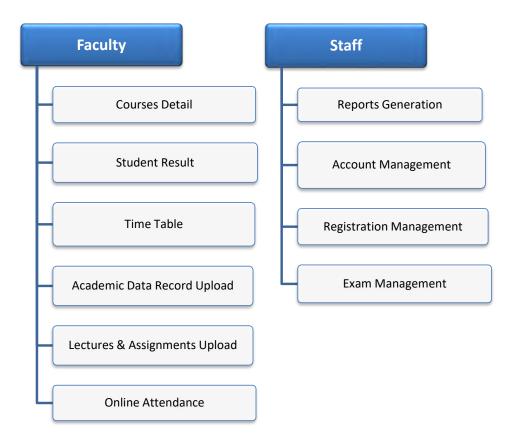
CUST Data Base Administration System provides a dynamic and integrated Student Portal System for managing Student Academics, including Program Registration, Course listing, Time-tabling, Course Attendance Management, Resource Management, Exams, Feedback and other activities. The student Portal maintains, update and provide accurate personal and academic information about all current and past students with in university.



3.4. Faculty and Staff Portal

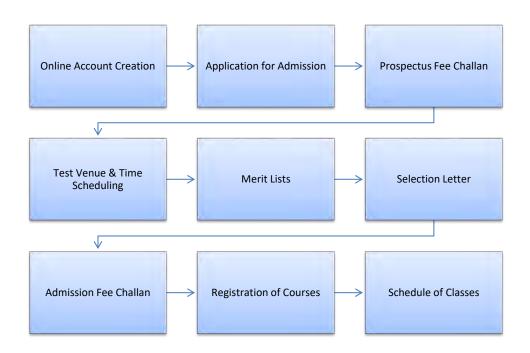
CUST owns a comprehensive University Administration System consisting of Faculty and Staff Portals to accomplish all faculty and management related actions. The portal allows faculty members to manage their academic activities and access the updated data about the students.

Similarly administrative departments like Registration, Exams Office, Accounts Office etc. can manage their tasks using the given portal.



3.5. Online Admissions system

The Online Admissions System has automated the Institute's admission structure with associated operation and functionality. It provides support to the administration and admission seeking candidates by providing a faster, transparent and easy way of keeping records and use them for reference and further proceedings. CUST has a robust Online Admissions System which offers various features like student admission, fee collection, seat allocation, canceling the admission etc.



3.6. Digital Library

The purpose of HEC Digital Library facility in CUST is to provide faculty members, researchers and students within university with access to international scholarly literature based on electronic (online) delivery, providing access to high quality, peer-reviewed journals, databases, articles and e-Books across a wide range of disciplines.





The e-books support program will allow researchers to access most of the important text and reference books electronically in a variety of subject areas. Around 75,000 number of electronic content is available through the Digital Library Program. The Higher Education Commission (HEC) has made available 1,58,000 online books in addition to 23,000 journals to researchers within public and private universities in Pakistan under the Digital Library Program.

4. Research Operations and Development

4.1. CUST Research Groups

CUST has numerous well reputed Research Groups working in each constituent department, which are doing extensive applied research on novel ideas and industrial problems. The research is done in close collaboration with R&D organizations and industry, and supported by the national & international funding agencies.

The major objective for the formulations of the Research Groups at CUST is to instigate faculty members and researchers to develop a research culture and benefit the society with its prolific outcomes. The Research Groups are working in following key areas.

| Faculty of Computing (FoC) | | |
|----------------------------|--|------------------|
| S.No. | Research Area | Department |
| 1 | Data Science and Artificial Intelligence | Computer Science |
| 2 | Information Security and Forensics | Computer Science |
| 3 | Parallel Computing and Networks | Computer Science |
| 4 | Design and Machine | Computer Science |
| 5 | Algebra and Cryptography | Mathematics |
| 6 | Celestial Mechanics and General Relativity | Mathematics |
| 7 | Fluid and Wave Mechanics | Mathematics |
| 8 | Functional Analysis | Mathematics |

| Faculty of Engineering (FoE) | | |
|------------------------------|------------------------------------|------------------------|
| S.No. | Research Area | Department |
| 1 | Power Systems | Electrical Engineering |
| 2 | Digital System Design | Electrical Engineering |
| 3 | Control Systems | Electrical Engineering |
| 4 | Signal and Image Processing | Electrical Engineering |
| 5 | Telecommunications and Networks | Electrical Engineering |
| 6 | Microelectronics and Microwaves | Electrical Engineering |
| 7 | Industrial and Systems Engineering | Mechanical Engineering |
| 8 | Thermo-fluids | Mechanical Engineering |
| 9 | Control and Automation | Mechanical Engineering |
| 10 | Design and Machine | Mechanical Engineering |
| 11 | Structural Engineering | Civil Engineering |
| 12 | Water Resources and Environment | Civil Engineering |
| 13 | Construction Management | Civil Engineering |
| 14 | Geotechnical Engineering | Civil Engineering |

| Faculty of Health & Life Sciences (FHLS) | | | |
|--|---------------------------------|-------------|--|
| S.No. | Research Area | Department | |
| 1 | Bio-remediation and Degradation | Biosciences | |
| 2 | Cancer Cytogenetic | Biosciences | |

| 3 | Genetic Engineering | Biosciences |
|---|---|-------------|
| 4 | Phytochemistry | Biosciences |
| 5 | Drug Discovery and Development | Pharmacy |
| 6 | Drug Formulation and Drug Delivery | Pharmacy |
| 7 | Clinical Pharmacy and Pharmacy Practice | Pharmacy |
| 8 | Natural Products Research | Pharmacy |

| Faculty of Management & Social Sciences (FMSS) | | |
|--|--|---------------------|
| S.No. | Research Area | Department |
| 1 | Financial Market | Management Sciences |
| 2 | Organizational Behavior | Management Sciences |
| 3 | Governance, Social Responsibility and Ethics | Management Sciences |
| 4 | Consumer Behavior | Management Sciences |





4.2. Industrial Outreach Committees

To fulfill the OBE criteria No. 09 of Pakistan Engineering council and uphold industry-academia linkage, Departmental Outreach committees of Faculty of Engineering are constituted. Currently three Industrial Outreach Committees of Electrical, Mechanical and Civil Engineering Department are working.

Each committee is headed by a convener and constitutes specific members and a secretary. The major purpose of these committees is the establishment of Academia-Industry Linkage and playing a productive role in graduates' employability. Following are the key responsibilities of Outreach Committees.

- To identify local industries and define mechanism for having feedback from industries
- To take measures to improve the employability of our graduates in the local Industry
- To look for supervision/consultancy for faculty members with the industry
- To propose consultancy frame work beneficial for both university and industry
- To provide help in project proposals to the faculty members
- To look for equipment and sponsors from industry along with joint supervision for FYPs

4.3. Office of Research, Innovation and Commercialization (ORIC)

The Office of Research, Innovation and Commercialization (ORIC), CUST provides strategic and operational support to the University's research activities/program and has a central role in facilitating the University's research outcomes. The objective of ORIC at CUST is motivation of university researchers to innovate and collaborate with the stake-holders leading to resource generation through commercialization.

4.4. ORIC Domains

ORIC at CUST is working under following major domains:

- Research Operations
- Technology Incubation and Innovation
- Industrial Liaisons





Research Operations

ORIC has the responsibility of guaranteeing that all research programs and policies reflect the core values of academic freedom, professional integrity, ethical conduct and full compliance with all policies, legal requirements and operational standards of the university. During its short span of time ORIC has worked on facilitating its faculty and students in doing quality research. ORIC plays its prospective role to reward faculty and researchers through Research Honorarium and assisting them to acquire research grants from various funding agencies. To depict the research culture in a presentable way, research group posters have been designed and displayed by ORIC in all departments across the University. ORIC has also maintained a comprehensive data base of University publications published at national and international Journals & Conferences.

Technology Incubation and Innovation

Capacity building is the topmost precedence of ORIC. We guarantee that technical workshops, seminars and business plan competitions are conducted on continual basis so that students remain well equipped with modern tools and skills vital for the industry.

ORIC has worked on establishment of Incubation and Business centers to inculcate the culture of innovation and commercialization through entrepreneurship among the youth and nourishing them to be a productive entity. CS Incubation Lab and BIM Centre of Excellence are recent examples of Business Centers established that are working with full proficiency.



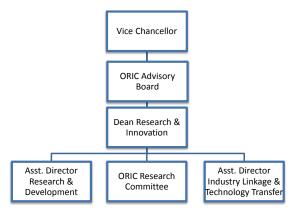


Industrial Liaison

In pursuit of academia-industry linkage MOUs and joint agreements on spheres of mutual interest are signed with various national/international organizations. A number of ventures are done with industry through mutual collaborations and joint projects. ORIC has a central role in facilitating university's research outcomes and Technology Incubation & Innovation activities.

4.5. Operational Hierarchy of ORIC

ORIC at CUST is headed by Vice Chancellor and works as per following operational hierarchy.



Key Functions of ORIC

- Promoting and enhancing cross-cutting and multi-disciplinary research initiatives
- Increasing and diversifying external research funding
- Improving integration of research and education at all levels of the university
- Improving translation of research into the public benefit
- Strengthening university-industry relationships
- Promoting entrepreneurship, technology-transfer and commercialization activities.
- To manage campus-wide data of the publications of the University faculty.
- To manage the data base of R & D Projects, Collaborations and MOUs of University.

ORIC Advisory Board

To enhance the research activities of university and to move towards commercialization, ORIC Advisory Board was established. The board members have significant innovation and commercialization experience in the industry. The purpose

of Advisory Board is strategic guidance about innovation, commercialization and industry requirements, and promotion of CUST in the local Industry. The Advisory board Meeting is held once in a year.

The board is supervised by Vice Chancellor and comprises of following members.

| Dr. Abdul Shakoor Amjad | (CEO, RWR, Islamabad) |
|-------------------------|---|
| Dr. Muhammad Iqbal | (Deputy DG NESCOM) |
| Dr. Shahid Nasir | (Director, Finite Engineering) |
| Dr. Muhammad Ismail | (Director, IBGE and KRL Hospital) |
| Muhammad Shahid Shafiq | (CTO, Elixir Technologies Islam- abad) |
| Dr. Riaz Ahmad Mufti | (Professor, SMME NUST) |
| Dr. Arshad Hassan | (Dean FMSS, CUST) |

4.6. ORIC Research Committee

ORIC Research Committee is constituted at CUST to oversee the operations and functions of ORIC. The Committee provides feedback and actively contributes towards ORIC activities and progress.





The ORIC Research Committee Meeting takes place once in two months to review the progress of ORIC and contribute effectively towards its betterment as per HEC requirements. Prof. Dr. Aamer Iqbal Bhatti, Dean Research & Innovation is convener of the committee.

The Committee consists of following members.

| 1 | Dr. Umer Amir Khan | Assistant Professor Electrical Engineering Dept. |
|---|--------------------------|---|
| 2 | Dr. Khawar Naveed | Associate Professor, Mechanical Engineering Dept. |
| 3 | Dr. Majid Ali | Associate Professor, Civil Engineering Dept. |
| 4 | Dr. Muhammad Azhar Iqbal | Associate Professor, Computer Science Dept. |
| 5 | Dr. Abdul Rahman Kashif | Associate Professor, Mathematics Dept. |
| 6 | Dr. Muzaffar Asad | Assistant Professor Management Science Dept. |
| 7 | Dr. Mahboob Alam | Assistant Professor Pharmacy Dept. |
| 8 | Dr. Sahar Fazal | Associate Professor, Biosciences Dept. |

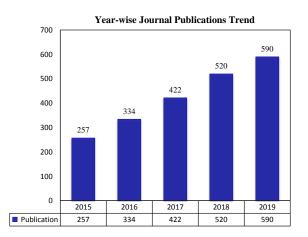
4.7. CUST Publications

Apart from keeping high standards in teaching, research at CUST is methodically pursued and befittingly rewarded. Our research output is en-rooted with national needs and contributes towards social and economical development of the country. We are constantly working to mediate with national as well as international academics, research and industrial organizations to facilitate and promote research culture at CUST.

4.8. Journal Publications Trend

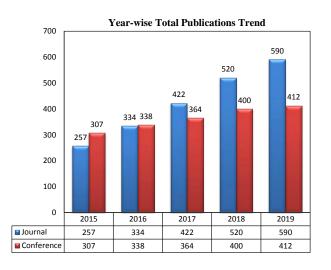
Capital University of Science and Technology has always been proactive in the field of practical research. It has been through the hard work of CUST faculty and extreme dedication of students that CUST has been successful in publishing its work in renowned Impact Factor (IF) National and International Journals.

The continual growth in quality research publications in recent years showcases our resolve and persistence. The following graph depicts the impact factor publications trend in terms of total publications ranging 2015 till date.



4.9. Total Publications Trend

The following graphs depict the increase in total publications trend of CUST faculty in recent years. The numbers include both the impact factor and conference publications accomplished over the year.



1002 ■ 2015 ■ 2016 ■ 2017 ■ 2018 ■ 2019

920

Total Publications Trend (Journal and Conference)

4.10. Impact Factor Publications in 2018-19

Biosciences and Bioinformatics

- 1 M. T. Khan, A. C. Kaushik, A. I. Bhatti, Y. J. Zhang, S. Zhang, A. J. Wei, S. I. Malik, and D. Q. Wei, "Marine natural products and drug resistance in latent tuberculosis," Marine Drugs, vol. 17, no. 10, p. 549, 2019.
- 2 A. U. Rehman, M. T. Khan, H. Liu, A. Wadood, S. I. Malik, and H.-F. Chen, "Exploring the pyrazinamide drug resistance mechanism of clinical mutants t370p and w403g in ribosomal protein s1 of mycobacterium tuberculosis," Journal of chemical information and modeling, vol. 59, no. 4, pp. 1584-1597, 2019.
- 3 M. T. Khan, A. Khan, A. U. Rehman, Y. Wang, K. Akhtar, S. I. Malik, and D.-Q. Wei, "Structural and free energy landscape of novel mutations in ribosomal protein s1 (rpsa) associated with pyrazinamide resistance," Scientific reports, vol. 9, no. 1, p. 7482, 2019.
- 4 M. T. Khan and S. I. Malik, "Structural dynamics behind variants in pyrazinamidase and pyrazinamide resistance," Journal of Biomolecular Structure and Dynamics, pp. 1-19, 2019.
- 5 S. I. Malik, S. Ali, N. Masood, T. Nadeem, A. S. Khan, and M. T. Afzal, "Pyrazinamide resistance and mutations in pncA among isolates of Mycobacterium tuberculosis from Khyber Pakhtunkhwa, Pakistan," BMC infectious diseases, vol. 19, no. 1, p. 116, 2019.
- 6 M. T. Khan, A. C. Kaushik, S. I. Malik, S. Ali, and D. Wei, "Artificial neural networks for prediction of tuberculosis disease," Frontiers in microbiology, vol. 10, no. 1, p. 395, 2019.
- 7 I. Younus, H. Ismail, E. D. Chahat Batool Rizvi, K. Saba, B. Mirza, and M. Tahir, "Antioxidant, analgesic and anti-inflammatory activities of in vitro and field-grown iceberg lettuce extracts," Journal of Pharmacy & Pharmacognosy Research, vol. 7, no. 5, pp. 343-355, 2019.
- 8 E. Dilshad, S. S. Tazeem, Z. Bashir, A. H. Iqbal, A. S. Khokhar, N. Zahra, M. A. Khan, H. Ismail, and M. Shabbir, "Silver nanoparticles of aloe vera gel as strong therapeutic candidates," Int. J. Biosci, vol. 15, no. 1, pp. 60-73, 2019.
- 9 H. Ali, M. A. Khan, W. K. Kayani, E. Dilshad, R. Rani, and R. S. Khan, "Production of biomass and medicinal metabolites through adventitious roots in ajuga bracteosa under different spectral lights," Journal of Photochemistry and Photobiology B: Biology, vol. 193, pp. 109-117, 2019.
- 10 A. Kanwal, S. Fazal, A. I. Bhatti, M. Ullah, and M. A. Khalid, "Pubmedinfo crawler: An innovative extraction process that leads towards biological information mining," Meta Gene, vol. 20, p. 100550, 2019.
- 11 E. Dilshad, N. Zahra, Z. Nooruddin, A. A. Butt, and S. M. Bakhtiar, "Single-cell editing: The crispr/cas9 and applications," in Single-Cell Omics. Elsevier, 2019, pp. 397-415, 2019.
- 12 M. T. Khan, S. I. Malik, S. Ali, A. S. Khan, T. Nadeem, M. T. Zeb, N. Masood, and M. T. Afzal, "Prevalence of pyrazinamide resistance in Khyber Pakhtunkhwa, Pakistan," Microbial Drug Resistance, vol. 24, no. 9, pp. 1417-1421, 2018.
- 13 Y. Wang, A. Hussain, S. I. Malik, and D. Q. Wei, "Pyrazinamide resistance and mutations L19R, R140H, and E144K in Pyrazinamidase of Mycobacterium tuberculosis," Journal of cellular biochemistry, vol. 120, no. 5, pp. 7154-7166, 2018.
- 14 M. T. Khan, S. I. Malik, A. I. Bhatti, S. Ali, A. S. Khan, M. T. Zeb, T. Nadeem, and S. Fazal, "Pyrazinamide-resistant mycobacterium tuberculosis isolates from Khyber Pakhtunkhwa and rpsA mutations," Journal of Biological Regulators and Homeostatic Agents, vol. 32, no. 3, pp. 705-709, 2018.
- 15 A. Munir, S. Azam, S. Fazal, and A. I. Bhatti, "Evaluation of the whole body physiologically based pharmacokinetic (wb-pbpk) modeling of drugs," Journal of Theoretical Biology, vol. 451, pp. 1-9, 2018.
- 16 M. R. Azam, S. Fazal, M. Ullah, and A. I. Bhatti, "System-based strategies for p53 recovery," IET Systems Biology, vol. 12, no. 3, pp. 101-107, 2018.

- 17 A. Kanwal and S. Fazal, "Construction and analysis of protein-protein interaction network correlated with ankylosing spondylitis," Gene, vol. 638, pp. 41-51, 2018.
- 18 A. Munir, S. Azam, S. Aslam, A. Mehmood, G. M. Shah, S. Amjad, M. Younis, and S. Fazal, "Computational design of small interfering rnas and small hairpin rnas to silence mutated p53 gene expressions," Informatics in Medicine Unlocked, vol. 12, pp. 1-5, 2018.
- 19 N. Noureen, S. Fazal, A. M. Qaider, and A. Tanvir, "Hcvs: Pinpointing chromatin states through hierarchical clustering and visualization scheme," Current Bioinformatics, vol. 14, no. 2, pp. 148-156, 2018.
- 20 W. K. Kayani, B. H. Kiani, E. Dilshad, and B. Mirza, "Biotechnological approaches for artemisinin production in artemisia," World Journal of Microbiology and Biotechnology, vol. 34, no. 4, pp. 54-67, 2018.
- 21 A. Munir, S. Hussain, and E. Dilshad, "Silver nanoparticles conjugated with neurotrophin 3 upregulate myelin gene transcription pathway," Journal of theoretical biology, vol. 459, pp. 111-118, 2018.
- 22 S. Hussain, J. Z. K. Khattak, M. Ismail, Q. Mansoor, and M. H. Khan, "Molecular charac-terization of deafness in autosomal recessive pedigrees of Khyber Pakhtunkhwa Pakistan," Pakistan Journal of Pharmaceutical Sciences, vol. 31, no. 1, pp. 51-56, 2018.
- 23 M. T. Khan, A. U. Rehaman, M. Junaid, S. I. Malik, and D. Q. Wei, "Insight into novel clinical mutants of RpsA-S324F, E325K, and G341R of mycobacterium tuberculosis associated with pyrazinamide resistance," Computational and structural biotechnology journal, vol. 16, pp. 379-387, 2018.
- 24 M. Anum, S. I. Malik, and K. A. Malik, "Proteome mining for the identification of putative drug targets for human pathogen clostridium tetani," Current Bioinformatics, vol. 14, pp. 1-9, 2018.
- 25 A. Munir, S. I. Malik, and K. A. Malik, "De-novo ligand design against mutated Huntington gene by ligand-based pharmacophore modeling approach," Current computer aided drug design, vol. 15, pp. 1-10, 2018.

Civil Engineering

- 1 I. Hassan and I. Waqar, "Reducing water demands by adopting harvesting and recycling techniques in pakistan," Journal of Biodiversity and Environmental Sciences (JBES), vol. 14, no. 4, pp. 79-88, 2019.
- 2 S. S. S. Gardezi and N. Shafiq, "Operational carbon footprint prediction model for conventional tropical housing: a Malaysian prospective," International Journal of Environmental Science and Technology, pp. 1-10, 2019.
- 3 F. Qamar, T. Thomas, and M. Ali, "Assessment of mechanical properties of fibrous mortar and interlocking soil stabilized block (issb) for low-cost masonry housing," Materials de Construction, vol. 69. no. 336, p. 201, 2019.
- 4 M. Khan and M. Ali, "Improvement in concrete behavior with fly ash, silica-fume and coconut fibers," Construction and Building Materials, vol. 203, pp. 174-187, 2019.
- 5 M. U. Farooqi and M. Ali, "Effect of pre-treatment and content of wheat straw on energy absorption capability of concrete," Construction and Building Materials, vol. 224, pp. 572-583, 2019.
- 6 T. Hussain and M. Ali, "Improving the impact resistance and dynamic properties of jute fiber reinforced concrete for rebars design by considering tension zone of FRC," Construction and Building Materials, vol. 213, pp. 592-607, 2019.
- 7 M. Khan and M. Ali, "Effect of super plasticizer on the properties of medium strength concrete prepared with coconut fiber," Construction and Building Materials, vol. 182, pp. 703-715, 2018.
- 8 M. U. Farooqi and M. Ali, "Contribution of plant fibers in improving the behavior and capacity of reinforced concrete for structural applications," Construction and Building Materials, vol. 182, pp. 94-107, 2018.
- 9 F. Qamar, T. Thomas, and M. Ali, "Use of natural fibrous plaster for improving the out of plane lateral resistance of mortarless interlocked masonry walling," Construction and Building Materials, vol. 174, pp. 320-329, 2018.

- 10 M. Khan and M. Ali, "Effectiveness of hair and wave polypropylene fibers for concrete roads," Construction and Building Materials, vol. 166, pp. 581-591, 2018.
- 11 M. Ali, "Role of post-tensioned coconut-fibre ropes in mortar-free interlocking concrete construction during seismic loadings," KSCE Journal of Civil Engineering, vol. 22, no. 4, pp. 1336-1343, 2018.
- 12 M. Ahmed and T. Mahmood, "Elastic-displacement-based multi-modal pushover analysis in high-rise core wall buildings," Proceedings of the Institution of Civil Engineers Structures and Buildings, vol. 171, no. 10, pp. 778-799, 2018.

Computer Science

- 1 I. Ihsan and M. A. Qadir, "CCRO: Citation's Context & Reasons Ontology," IEEE Access, vol. 7, pp. 30,423-30,436, 2019.
- 2 M. U. Sadiq, M. M. Yousaf, L. Aslam, M. Aleem, S. Sarwar, and S. W. Jaffry, "Nvpd: novel parallel edit distance algorithm, correctness, and performance evaluation," Cluster Computing, pp. 1-16, 2019.
- 3 M. Ullah, M. A. Islam, R. Khan, M. Aleem, and M. A. Iqbal, "Obsecure logging (oslo): A framework to protect and evaluate the web search privacy in health care domain," Journal of Medical Imaging and Health Informatics, vol. 9, no. 6, pp. 1181-1190, 2019.
- 4 R. Khan, M. A. Islam, M. Ullah, M. Aleem, and M. A. Iqbal, "Privacy exposure measure: A privacy-preserving technique for health-related web search," Journal of Medical Imaging and Health Informatics, vol. 9, no. 6, pp. 1196-1204, 2019.
- 5 F. Shahid, M. Aleem, M. A. Islam, M. A. Iqbal, M. M. Yousaf et al., "A review of technological tools in teaching and learning computer science," Eurasia Journal of Mathematics, Science and Technology Education, vol. 15, no. 11, pp. 1-17, 2019.
- 6 A. Hussain, M. Aleem, M. A. Iqbal, and M. A. Islam, "Investigation of cloud scheduling algorithms for resource utilization using cloudsim." Computing & Informatics, vol. 38. no. 3, pp. 525-554, 2019.
- 7 M. A. Iqbal, M. Aleem, M. Ibrahim, S. Anwar, and M. A. Islam, "Amazon cloud computing platform EC2 and VANET simulations," International Journal of Ad Hoc and Ubiquitous Computing, vol. 30, no. 3, pp. 127-136, 2019.
- 8 Y. N. Khalid, M. Aleem, U. Ahmed, M. A. Islam, and M. A. Iqbal, "Troodon: A machine-learning based load-balancing application scheduler for CPU-GPU system," Journal of Parallel and Distributed Computing, vol. 132, pp. 79-94, 2019.
- 9 M. Aleem, R. Prodan, M. A. Islam, and M. A. Iqbal, "On the parallel programmability of java symphony for multi-cores and clusters," International Journal of Ad Hoc and Ubiquitous Computing, vol. 30, no. 4, pp. 247-264, 2019.
- 10 A. Hussain, M. Aleem, M. A. Iqbal, and M. A. Islam, "SLA-RALBA: cost-efficient and resource-aware load balancing algorithm for cloud computing," The Journal of Supercomputing, vol. 75, no. 10, pp. 6777-6803, 2019.
- 11 M. Ameer and M. T. Afzal, "Evaluation of h-index and its qualitative and quantitative variants in neuroscience," Scientometrics, pp. 1-21, 2019.
- 12 U. Ahmed, H. Waqas, and M. T. Afzal, "Pre-production box-office success quotient forecasting," Soft Computing, pp. 1-19, 2019.
- 13 R. Ghani, F. Qayyum, M. T. Afzal, and H. Maurer, "Comprehensive evaluation of h-index and its extensions in the domain of mathematics," Scientometrics, vol. 118, no. 3, pp. 809-822, 2019.
- 14 Q. U. Ain, H. Riaz, and M. T. Afzal, "Evaluation of h-index and citation intensity based variants in the field of mathematics," Scientometrics, vol. 111, pp. 187-211, 2019.
- 15 M. T. Ikram and M. T. Afzal, "Aspect based citation sentiment analysis using linguistic patterns for better comprehension of scientific knowledge," Scientometrics, vol. 119, no. 1, pp. 73-95, 2019.

- 16 R. Habib and M. T. Afzal, "Sections-based bibliographic coupling for research paper recommendation," Scientometrics, vol. 119, no. 2, pp. 643-656, 2019.
- 17 S. R. Aziz, T. Khan, and A. Nadeem, "Experimental validation of inheritance metrics' impact on software fault prediction," IEEE Access, vol. 7, pp. 85,262-85,275, 2019.
- 18 H. Rafiq, M. Aleem, and M. A. Islam, "On the evaluation of android malware detectors," Sukkur IBA Journal of Computing and Mathematical Sciences, vol. 2, no. 1, pp. 20-28, 2018.
- 19 H. Murtaza, M. A. Iqbal, M. A. Islam, and M. Aleem, "Content-aware reliable and energy-efficient MAC (CARE-MAC) protocol for wireless body area networks," Ad Hoc & Sensor Wireless Networks, vol. 41, no. 3, pp. 267-294, 2018.
- 20 M. A. Iqbal, B. Dai, M. A. Islam, M. Aleem, and N.S. Vo, "Topology-based flow oriented adaptive network coding-aware routing scheme for VANETs," KSII Transactions on Internet & Information Systems, vol. 12, no. 5, pp. 2044-2062, 2018.
- 21 M. Ibrahim, M. A. Iqbal, M. Aleem, and M. A. Islam, "SIM-cumulus: An academic cloud for the provisioning of Network-Simulation-as-a-Service (NSaaS)," IEEE Access, vol. 6, pp. 27313-27323, 2018.
- 22 A. Hussain, M. Aleem, A. Khan, M. A. Iqbal, and M. A. Islam, "RALBA: A computation-aware load balancing scheduler for cloud computing," Cluster Computing, vol. 21, no. 3, pp. 1667–1680, 2018.
- 23 Y. N. Khalid, M. Aleem, R. Prodan, M. A. Iqbal, and M. A. Islam, "E-OSched: A load balancing scheduler for heterogeneous multicores," The Journal of Super computing, vol. 74, no. 10, pp. 5399–5431, 2018.
- 24 M. A. Jaffar, M. S. Zia, M. Hussain, A. B. Siddiqui, S. Akram, and U. Jamil, "An ensemble shape gradient features descriptor based nodule detection paradigm: A novel model to augment complex diagnostic decisions assistance," Multimedia Tools and Applications, vol.77, no. 10, pp. 1-27, 2018
- 25 S. U. R. Khan, M. A. Islam, M. Aleem, and M. A. Iqbal, "Temporal specificity based text classification for information retrieval," Turkish Journal of Electrical Engineering & Computer Science, vol. 26, no. 6, pp. 2916-2927 2018.
- 26 M. Raheel, S. Ayaz, and M. T. Afzal, "Evaluation of h-index, its variants and extensions based on publication age & citation intensity in civil engineering," Scientometrics, vol. 114, no. 3, pp. 1107-1127, 2018.
- 27 M. T. Ikram, M. T. Afzal, and N. A. Butt, "Automated citation sentiment analysis using high order n-grams: A preliminary investigation," Turkish Journal of Electrical Engineering & Computer Sciences, vol. 26, no. 4, pp. 1922-1932, 2018.
- 28 S. Haider, M. Tanvir Afzal, M. Asif, H. Maurer, A. Ahmad, and A. Abuarqoub, "Impact analysis of adverbs for sentiment classification on twitter product reviews," Concurrency and Computation: Practice and Experience, vol. 30, no. 16, pp. 4956-4971, 2018.
- 29 F. Qayyum and M. T. Afzal, "Identification of important citations by exploiting research articles metadata and cue-terms from content," Scientometrics, vol. 118, no. 1, pp. 21-43, 2018.
- 30 A. Y. Khan, A. S. Khattak, and M. T. Afzal, "Extending co-citation using sections of research articles," Turkish Journal of Electrical Engineering & Computer Sciences, vol. 26, no. 6, pp. 3345-3355, 2018.
- 31 R. Ahmad and M. T. Afzal, "CAD: an algorithm for citation anchors detection in research papers," Scientometrics, vol. 117, no. 3, pp. 1405-1423, 2018.
- 32 A. Hussain, M. Aleem, M. A. Islam, and M. A. Iqbal, "A rigorous evaluation of state of-the-art scheduling algorithms for cloud computing," IEEE Access, vol. 6, pp. 75033-75047, 2018.
- 33 S. U. R. Khan, M. A. Islam, M. Aleem, M. A. Iqbal, and U. Ahmed, "Section-based focus time estimation of news articles," IEEE Access, vol. 6, pp. 75452-75460, 2018.

Electrical Engineering

- 1 U. F. Ahmed and M. M. Ahmed, "A 3-D potential model to assess DC characteristics of Si FinFETs," Journal of Computational Electronics, vol. 18, no. 3, pp. 893-905, 2019.
- 2 Z. Ahmed, M. M. Ahmed, M. B. Ihsan, A. A. Chaudhary, and J. K. Arif, "Novel dual band patch antenna with gap coupled composite right/left-handed transmission line," International Journal of Microwave and Wireless Technologies, vol. 11, no. 1, pp. 87-93, 2019.
- 3 S. Fatima, U. Rafique, U. F. Ahmed, and M. M. Ahmed, "A global parameters extraction technique to model organic field effect transistors output characteristics," Solid State Electronics, vol. 152, pp. 81-92, 2019.
- 4 S. U. Rehman, U. F. Ahmed, M. M. Ahmed, and M. N. Khan, "Temperature dependent analytical DC Model for Wide Bandgap MESFETs," IEEE Access, vol. 7, pp. 49,702-49,711, 2019.
- 5 I. Ullah and M. Ashraf, "Sliding mode control for performance improvement of shunt active power filter," SN Applied Sciences, vol. 1, no. 6, p. 531, 2019.
- 6 R. Irfan, H. ur Rasheed, W. A. Toor, and M. Ashraf, "Performance analysis of adaptive algorithms for space-time adaptive processor (stap) in phased array radar," The Journal of Engineering, pp. 1-5, 2019.
- 7 A. R. Yasin, M. Ashraf, and A. I. Bhatti, "A novel Filter Extracted Equivalent Control based Fixed Frequency Sliding Mode Approach for power electronic converters," Energies, vol. 12, no. 5, p. 853, 2019.
- 8 A. R. Yasin, M. Ashraf, A. I. Bhatti, and A. A. Uppal, "Fixed frequency sliding mode control of renewable energy resources in DC micro grid," Asian Journal of Control, vol. 21, no. 4, pp. 2074-2086, 2019.
- 9 R. Anjum, A. I. Bhatti, A. Yar, and Q. Ahmed, "Cyclic torque imbalance detection in gasoline engines using a uniform second-order sliding mode observer," Proceedings of the Institution of Mechanical Engineers, Part D: Journal of Automobile Engineering, 2019.
- 10 M. Tahir, I. A. Taj, P. A. Assuncao, and M. Asif, "Fast video encoding based on random forests," Journal of Real-Time Image Processing, pp. 1-21, 2019.
- 11 N. I. Ratyal, I. A. Taj, M. Sajid, N. Ali, A. Mahmood, and S. Razzaq, "Three dimensional face recognition using variance-based registration and subject-specific descriptors," International Journal of Advanced Robotic Systems, vol. 16, no. 3, p. 1729881419851716, 2019.
- 12 N. Ratyal, I. A. Taj, M. Sajid, A. Mahmood, S. Razzaq, S. H. Dar, N. Ali, M. Usman, M. J. A. Baig, and U. Mussadiq, "Deeply learned pose invariant image analysis with applications in 3d face recognition," Mathematical Problems in Engineering, vol. 2019, pp. 1-21, 2019.
- 13 T. Zia, M. Ghafoor, S. A. Tariq, and I. A. Taj, "Robust fingerprint classification with bayesian convolutional networks," IET Image Processing, vol. 13, no. 8, 2019.
- 14 M. F. Iqbal, M. Zahid, D. Habib, and L. K. John, "Efficient prediction of network traffic for real-time applications," Journal of Computer Networks and Communications, vol. 2019, pp. 1-11, 2019.
- 15 A. Jafar, A. I. Bhatti, S. M. Ahmad, and N. Ahmed, "H1 optimization-based robust decoupling control algorithm in linear parameter varying systems using hadamard weighting," Transactions of the Institute of Measurement and Control, vol. 41, no. 7, pp. 1833-1848, 2018.
- 16 A. M. Chaudhry, A. A. Uppal, Y. M. Alsmadi, A. I. Bhatti, and V. I. Utkin, "Robust multi- objective control design for underground coal gasification energy conversion process," Interna-tional Journal of Control, vol. 91, no. 8, pp. 1-17, 2018.
- 17 U. Rafique and S. U. Din, "Beveled-shaped super-wideband planar antenna," Turkish Journal of Electrical Engineering and Computer Sciences, vol. 26, no. 5, pp. 2417-2425, 2018.

- 18 S. Naz, R. N. B. Rais, P. A. Shah, S. Yasmin, A. Qayyum, S. Rho, and Y. Nam, "A dynamic caching strategy for CCN-based MANETs," Computer Networks, vol. 142, pp. 93-107, 2018.
- 19 K. A. Khaliq, S. M. Raza, O. Chughtai, A. Qayyum, and J. Pannek, "Experimental validation of an accident detection and management application in vehicular environment," Computers & Electrical Engineering, vol. 71, pp. 137-150, 2018.
- 20 M. Raza, N. Aslam, H. L. Minh, S. Hussain, Y. Cao, and N. M. Khan, "A critical analysis of research potential, challenges, and future directives in industrial wireless sensor networks," IEEE Communications Surveys & Tutorials, vol. 20, no. 1, pp. 39-95, 2018.
- 21 M. Y. M. Mirza, N. M. Khan, A. Jamal, and R. Ramer, "Characterization of spatial reflection co-efficient for ground-to-aircraft and satellite-to-aircraft communication." Applied Computa-tional Electromagnetics Society Journal, vol. 33, no. 1, pp. 56-68, 2018.
- 22 M. Y. Wani, and N. M. Khan, "Characterization of 3D elliptical spatial channel model for MIMO mobile-to-mobile communication environment" Wireless Personal Communications, vol. 94, no. 4, pp. 6325-6344, 2018.
- 23 M. Y. Wani, M. Riaz, and N. M. Khan, "Geometrical modeling of scattering environment for highways in umbrella cell based MIMO communication systems," Wireless Personal Communications, vol. 101, no. 1, pp. 59-74, 2018.
- 24 A. Yasin, M. Ashraf, and A. Bhatti, "Fixed frequency sliding mode control of power converters for improved dynamic response in dc micro-grids," Energies, vol. 11, no. 10, p. 2799, 2018.
- 25 M. Rashad, M. Ashraf, A. I. Bhatti, D. M. Minhas, and B. A. Ahmed, "Mathematical modeling and stability analysis of DC micro-grid using SM hysteresis controller," International Journal of Electrical Power & Energy Systems, vol. 95, pp. 507-522, 2018.
- 26 M. Rashad, U. Raoof, M. Ashraf, and B. Ashfaq Ahmed, "Proportional load sharing and stability of dc micro-grid with distributed architecture using SM controller," Mathematical Problems in Engineering, vol. 2018, pp. 1-16, 2018.
- 27 M. Sajid, I. A. Taj, U. I. Bajwa, and N. I. Ratyal, "Facial asymmetry-based age group estimation: Role in recognizing age-separated face images," Journal of forensic sciences, vol. 63, no. 6, pp. 1727-1749, 2018.
- 28 M. Asif, I. A. Taj, S. M. Ziauddin, M. B. Ahmad, and M. Tahir, "An efficient framework for prediction parameters selection in advanced video coding," IEEE Access, vol. 6, pp. 25277-25291, 2018.
- 29 M. Ghafoor, S. Iqbal, A. Tariq, I. A. Taj, and M. N. Jafri, "Efficient fingerprint matching using graphical processing unit," IET Image Processing, vol. 12, no. 2, p.274, 2018.
- 30 N. Ratyal, I. Taj, U. Bajwa, and M. Sajid, "Pose and expression invariant alignment based multi-view 3D face recognition." KSII Transactions on Internet & Information Systems, vol. 12, no. 10, pp. 4903-4929, 2018.
- 31 W. Abbasi, F. U. Rehman, and I. Shah, "Smooth super twisting sliding mode based steering control for nonholonomic systems transformable into chained form," Kybernetika, vol. 54, no. 3, pp. 476-495, 2018.
- 32 S. ud Din and F. U. Rehman, "Synchronization of a novel 4-D hyperchaotic rikitake dynamo system along with unknown parameters via adaptive integral sliding mode," Journal of Control Engineering and Applied Informatics, vol. 20, no. 1, pp. 108-118, 2018.
- 33 S. ud Din, F. U. Rehman, and Q. Khan, "Smooth super-twisting sliding mode control for the class of underactuated systems," PloS one, vol. 13, no. 10, p. e0203667, 2018.
- 34 I. Shah and F. U. Rehman, "Smooth second order sliding mode control of a class of underactu-ated mechanical systems," IEEE Access, vol. 6, pp. 7759-7771, 2018.
- 35 S. Rehman, M. M. Ahmed, U. Rafique, and M. N. Khan, "A nonlinear model to assess DC/AC performance reliability of submicron SiC MESFETs," Journal of Computational Electronics, vol. 17, no. 3, pp. 1199-1209, 2018.

- 36 Z. Ahmed, M. M. Ahmed, and M. B. Ihsan, "A novel differential fed high gain patch antenna using resonant slot loading," Radio Engineering, vol. 27, no. 3, pp. 662-670, 2018.
- 37 Z. Ahmed, M. M. Ahmed, M. B. Ihsan, A. A. Chaudhary, and J. K. Arif, "Novel dual band patch antenna with gap coupled composite right/left-handed transmission line," International Journal of Microwave and Wireless Technologies, vol. 11, no. 1, pp. 87-93, 2018.
- 38 M. N. Khan, U. F. Ahmed, M. M. Ahmed, and S. Rehman, "An improved model to assess temperature-dependent DC characteristics of submicron GaN HEMTs," Journal of Computa-tional Electronics, vol. 17, no. 2, pp. 653-662, 2018.
- 39 M. Riaz, M. M. Ahmed, U. Rafique, and U. F. Ahmed, "Assessment of intrinsic small signal parameters of submicron SiC MESFETs," Solid-State Electronics, vol. 139, pp. 80-87, 2018.
- 40 U. Qazi, M. R. Ali, and A. Moqueet, "An estimation of the impact of uninterpretable power supply systems on electricity distribution utility of Pakistan," Journal of Basic and Applied Sciences, vol. 14, pp. 92-97, 2018.
- 41 S. M. Shah, R. Samar, and M. A. Z. Raja, "Fractional-order algorithms for tracking rayleigh fading channels," Nonlinear Dynamics, vol. 92, no. 3, pp. 1243-1259, 2018.
- 42 Z. Masood, K. Majeed, R. Samar, and M. A. Z. Raja, "Design of epidemic computer virus model with effect of quarantine in the presence of immunity," Fundamenta Informaticae, vol. 161, no. 3, pp. 249-273, 2018.
- 43 A. Yar, A. I. Bhatti, and Q. Ahmed, "First principle based control oriented model of a gasoline engine including multicylinder dynamics," Control Engineering Practice, vol. 70, pp. 63-76, 2018.
- 44 A. Yar, A. I. Bhatti, and Q. Ahmed, "First principle based control oriented gasoline engine model including lumped cylinder dynamics," Journal of Dynamic Systems, Measurement, and Control, vol. 140, no. 8, pp. 1-9, 2018.
- 45 A. Jafar, A. I. Bhatti, A. S. M, and N. Ahmed, "Robust gain scheduled control algorithm for lab helicopter: An LMI based approach," IMECH Journal of Systems and Control Engineering, vol.232, no. 5, pp. 558-571, 2018.

Management Sciences

- 1 L. Muhammad et al., "Mediating role of customer forgiveness between perceived justice and satisfaction," Journal of Retailing and Consumer Services, vol. 52, p. 101886, 2019.
- 2 L. Muhammad, "Do service firm employee and customer relations matter for customer forgiveness in service recovery?" Asia Pacific Journal of Marketing and Logistics, 2019.
- 3 E. Ishaq, S. Bashir, A. K. Khan, M. M. Hassan, and R. Zakarira, "Epistemic curiosity and perceived workload: a moderated mediation model of achievement striving and overwork climate," The International Journal of Human Resource Management, pp. 1-24, 2019.
- 4 A. Sarwar, S. Bashir, and A. Karim Khan, "Spillover of Workplace Bullying Into Family Incivility: Testing a Mediated Moderation Model in a Time-Lagged Study," Journal of Interpersonal Violence, p. 0886260519847778, 2019.
- 5 B. Javed, A. K. Khan, S. Arjoon, M. Mashkoor, and A. U. Haque, "Openness to experience, ethical leadership, and innovative work behavior," The Journal of Creative Behavior, vol. 52, no. 2, pp. 1-15, 2018.
- 6 M. B. Saeed, M. M. Iqbal, and K. S. Syed, "Corporate governance mechanisms and conser-vatism; evidence from Pakistan," NICE Research Journal of Social Sciences, vol. 11, no. 1, pp. 18-38, 2018.
- 7 A. Khan and M. M. R. Naqvi, "The impact of internalized stigma at workplace through inter-linking mechanism of self-esteem of tuberculosis patients in Pakistan," Journal of Managerial Sciences, vol. 9, pp. 323-342, 2018.
- 8 Q. Hayat and M. M. R. Naqvi, "Job strain, employee greed, and employee envy: Moderating role of self-monitoring in the banking sector of Pakistan," Journal of Managerial Sciences, vol. 9, pp. 221-224, 2018.

- 9 B. Javed, M. Y. A. Rawwas, S. Khandai, K. Shahid, and H. H. Tayyeb, "Ethical leadership, trust in leader and creativity. The mediated mechanism and an interacting effect," Journal of Management & Organization, vol. 24, no. 3, pp. 388-405, 2018.
- 10 J. Ahmed and M. Mughal, "They earn and send; we spend: Consumption patterns of Pakistani migrant households," International Journal of Social Economics, vol. 45, no. 7, pp. 1092-1108, 2018.
- 11 S. Rizwan, J. Ahmed, and R. Rasiah, "The devil made me do it: Environmental factors leading to corporate financial fraud," Journal of Managerial Sciences, vol. 11, no. 3, pp. 321-353, 2018.
- 12 S. Fatima and M. A. Zafar, "Servant leadership and meaningfulness at work: The contingency effect of leader ethical sensitivity," Pakistan Journal of Social Sciences, vol. 38, no. 1, pp. 12-22, 2018.
- 13 M. Khalid, S. Bashir, A. K. Khan, and N. Abbas, "When and how abusive supervision leads to knowledge hiding behaviors. An islamic work ethics perspective," Leadership & Organization Development Journal, vol. 39, no. 6, pp. 794-806, 2018.
- 14 S. A. Khattak and S. Bashir, "Evaluation of union commitment in public sector organizations of Pakistan: A time lagged study," Abasyn University Journal of Social Sciences, vol. 11, no. 1, pp. 131-149, 2018.
- 15 A. Majeed and S. Ahmed, "Do board audit and cultural dynamics affect firm performance? evidence from karachi Meezan index," Journal of Islamic Business and Management, vol. 8, no. 2, pp. 465-479, 2018.

Mathematics

- 1 F. Mehmood, R. Ali, and N. Hussain, "Contractions in fuzzy rectangular b-metric spaces with application," Journal of Intelligent & Fuzzy Systems, vol. 37, no. 3, pp. 1-11, 2019.
- 2 M. Zia and R. Ali, "Cryptanalysis and improvement of blind signcryption scheme based on elliptic curve," Electronics Letters, vol. 55, no. 8, pp. 457-459, 2019.
- 3 S. Hussain, K. Mehmood, M. Sagheer, and A. Ashraf, "Mixed convective magnetonanofluid flow over a backward facing step and entropy generation using extended darcy-brinkman-forchheimer model," Journal of Thermal Analysis and Calorimetry, pp. 1-21, 2019.
- 4 S. Hussain and S. E. Ahmed, "Steady natural convection in open cavities filled with a porous medium utilizing buongiorno's nanofluid model," International Journal of Mechanical Sciences, vol. 157, pp. 692-702, 2019.
- 5 S. Hussain and S. E. Ahmed, "Unsteady mhd forced convection over a backward facing step including a rotating cylinder utilizing fe3o4-water ferrofluid," Journal of Magnetism and Magnetic Materials, vol. 484, pp. 356-366, 2019.
- 6 S. Atif, S. Hussain, and M. Sagheer, "Effect of viscous dissipation and joule heating on mhd radiative tangent hyperbolic nanofluid with convective and slip conditions," Journal of the Brazilian Society of Mechanical Sciences and Engineering, vol. 41, no. 4, p. 189, 2019.
- 7 S. Hussain, H. F. Oztop, K. Mehmood, and M. E. Ali, "Mixed convection and entropy production in a nanofluid-filled closed space with inclined magnetic field," Journal of Thermal Analysis and Calorimetry, vol. 137, no. 5, pp. 1725-1755.
- 8 S. M. Atif, S. Hussain, and M. Sagheer, "Magnetohydrodynamic stratified bioconvective flow of micropolar nanofluid due to gyrotactic microorganisms," AIP Advances, vol. 9, no. 2, p. 025208, 2019.
- 9 S. M. Atif, S. Hussain, and M. Sagheer, "Heat and mass transfer analysis of timedependent tangent hyperbolic nanofluid flow past a wedge," Physics Letters A, vol. 383, no. 11, pp. 1187-1198, 2019.
- 10 M. Atlas, S. Hussain, and M. Sagheer, "Entropy generation and unsteady Casson fluid flow squeezing between two parallel plates subject to Cattaneo-Christov heat and mass flux," The European Physical Journal Plus, vol. 134, no. 1, p. 33, 2019.

- 11 J. U. Satti, M. Afzal, and R. Nawaz, "Scattering analysis of a partitioned wave-bearing cavity containing different material properties," Physica Scripta, vol. 94, no. 11, p. 115223, 2019.
- 12 T. Nawaz, M. Afzal, and R. Nawaz, "The scattering analysis of trifurcated waveguide involving structural discontinuities," Advances in Mechanical Engineering, vol. 11, no. 7, p. 1687814019829282, 2019.
- 13 D. C. Lu, M. Ramzan, M. Bilal, J. D. Chung, and U. Farooq, "Numerical investigation of 3D MHD rotating flow with binary chemical reaction, activation energy and non-fourier heat flux," Communications in Theoretical Physics, vol. 70, no. 1, pp. 89-96, 2018.
- 14 D. C. Lu, M. Ramzan, M. Bilal, J. D. Chung, and U. Farooq, "Upshot of chemical species and nonlinear thermal radiation on oldroyd-Bnanofluid flow past a bi-directional stretched surface with heat generation/absorption in a porous media," Communications in Theoretical Physics, vol. 70, no. 1, pp. 71-80, 2018.
- 15 T. Sajid, M. Sagheer, S. Hussain, and M. Bilal, "Darcy-forchheimer flow of Maxwell nanofluid flow with nonlinear thermal radiation and activation energy," AIP Advances, vol. 8, no. 3, p. 035102, 2018.
- 16 M. Sagheer, M. Bilal, S. Hussain, and R. N. Ahmed, "Thermally radiative rotating magneto-nanofluid flow over an exponential sheet with heat generation and viscous dissipation: A comparative study," Communications in Theoretical Physics, vol. 69, no. 3, pp. 317-329, 2018.
- 17 S. Atif, S. Hussain, and M. Sagheer, "Numerical study of mhd micropolar carreaunanofluid in the presence of induced magnetic field," AIP Advances, vol. 8, no. 3, p. 035219, 2018.
- 18 M. Atlas, S. Hussain, and M. Sagheer, "Entropy generation and squeezing flow past a riga plate with cattaneo-christov heat flux," Bulletin of the Polish Academy of Sciences: Technical Sciences, vol. 66, no. 3, pp. 291-300, 2018.
- 19 S. Shah, S. Hussain, and M. Sagheer, "Thermal stratification effects on mixed convective maxwell fluid flow with variable thermal conductivity and homogeneous/heterogeneous reac-tions," Journal of the Brazilian Society of Mechanical Sciences and Engineering, vol. 40, no. 9, p. 452, 2018.
- 20 S. Hussain, H. F. Oztop, K. Mehmood, and M. E. Ali, "Control of combined convection in a nanofluid-filled lid-driven closed space via rectangular bar in the presence of magnetic field," Journal of Thermal Analysis and Calorimetry, vol. 134, no. 2, pp. 1-18, 2018.
- 21 A. Kamran, S. Hussain, and M. Sagheer, "Impact of induced magnetic field on free convective flow of kerosene/water based single and multiwalled carbon nanotubes," AIP Advances, vol. 8, no. 10, p. 105130, 2018.
- 22 S. Hussain, S. E. Ahmed, and F. Saleem, "Impact of periodic magnetic field on entropy generation and mixed convection," Journal of Thermophysics and Heat Transfer, vol. 32, no. 4, pp. 999-1012, 2018.
- 23 M. Zia and R. Ali, "Cryptanalysis and improvement of an elliptic curve based signcryption scheme for firewalls," PloS one, vol. 13, no. 12, p. e0208857, 2018.

Mechanical Engineering

- 1 T. Zahid, M. H. Agha, and T. Schmidt, "Investigation of surrogate measures of robustness for project scheduling problems," Computers & Industrial Engineering, vol. 129, pp. 220-227, 2019.
- 2 M. M. Khan, J. H.Elie, and M. Gorokhovski, "Computational methodology for non-evaporating spray in quiescent chamber using large eddy simulation," International Journal of Multiphase Flow, vol. 102, pp. 102-118, 2018.
- 3 M. Ebrahem, S. Manzoor, N. A. Sheikh, M. Ali, and M. M. Khan, "Numerical investigation of transient response of a coupled two-degrees-of-freedom symmetric airfoil before flutter," International Journal of Aeroacoustics, vol. 17, no. 3, pp. 275-294, 2018.

- 4 S. S. Warsi, S. H. I. Jaffery, R. Ahmad, M. Khan, M. H. Agha, and L. Ali, "Development and analysis of energy consumption map for high-speed machining of Al 6061-T6 alloy," The International Journal of Advanced Manufacturing Technology, vol. 96, no. 1-4, pp. 1-12, 2018.
- 5 A. Ayub, N. A. Sheikh, R. Tariq, M. M. Khan, and C. M. Invernizzi, "Exergetic optimiza-tion and comparison of combined gas turbine supercritical CO2 power cycles," Journal of Renewable and Sustainable Energy, vol. 10, no. 4, pp. 1-23, 2018.
- 6 M. Irfan and M. Muradoglu, "A front tracking method for particle-resolved simulation of evaporation and combustion of a fuel droplet," Computers & Fluids, vol. 174, pp. 283-299, 2018.

Pharmacy

- 1 F. A. Shah, G.-P. Liu, A. Kury, L. Tareq, A. Zeb, M. Abbas, T. Li, X. Yang, F. Liu, Y. Jiang et al., "Melatonin protects mcaoinduced neuronal loss via nr2a mediated prosurvival pathways," Frontiers in pharmacology, vol. 10, p. 297, 2019.
- 2 H. Bibi, H. Nadeem, M. Abbas, and M. Arif, "Synthesis and anti-nociceptive potential of isoxazole carboxamide derivatives," BMC Chemistry, vol. 13, no. 1, p. 6, 2019.
- 3 Z. Idris, M. Abbas, H. Nadeem, and A.-u. Khan, "The benzimidazole derivatives, b1 (n-[(1h-benzimidazol-2-yl) methyl] -4-methoxyaniline) and b8 (n-f4-[(1H-Benzimidazol- 2-yl) Methoxy] Phenylg acetamide) attenuate morphine-induced paradoxical pain in mice," Frontiers in neuroscience, vol. 13, 2019.
- 4 M. Abbas, S. Alzarea, R. L. Papke, and S. Rahman, "The α 7 nicotinic acetylcholine receptor positive allosteric modulator prevents lipopolysaccharide-induced allodynia, hyperalgesia and tnf-alpha in the hippocampus in mice," Pharmacological Reports, 2019.
- 5 N. S. Malik, M. Ahmads, M. U. Minhas, and Q. Khalid, Determination of acyclovir in rabbit plasma by high performance liquid chromatographic (hplc) technique," ACTA POLONIAE PHARMACEUTICA, vol. 76, no. 3, pp. 421-429, 2019.
- 6 S. Bashir, "Pharmacological importance of manilkara zapota and its bioactive constituents," BOLETIN LATINOAMERI-CANO Y DEL CARIBE DE PLANTAS MEDICINALES Y AROMATICAS, vol. 18, no. 4, pp. 347-358, 2019.

5. Research and Development Projects

5.1. Research and Development (R & D) Projects

The faculty and researchers of Capital University of Science & Technology are passionately motivated toward the Research and Development (R&D) and commercial projects of national prominence. The highly reputed faculty members have completed a number of R&D and Joint Projects in capacity of projects directors with various national and international funding agencies and organizations.

| Brief Overview | |
|--|-----------------|
| Research Budget Allocated by CUST in 2018-19 | 9.6 Million PKR |
| External Funding & Research Grants Till Date | 212 Million PKR |
| Total R & D Projects | 20 |
| Number of PhDs Funded | 20 |
| Number of Prototypes Developed | 5 |





5.2. R&D Projects at National Level

The faculty members through their hard work and determination have accomplished a number of R&D projects. The projects were sponsored by numerous organizations and funding agencies including highest reputed public sector organizations. The work on various joint projects is still in continual phase.

Dynamic Bandwidth Aggregation in Heterogeneous Wireless Networks for Mission Critical Applications

| Project Status | Completed |
|-------------------|---|
| Project Director | Prof. Dr. Muhammad Abdul Qadir |
| Total Budget | Rs 14 Million |
| Funding Agency By | ICT R&D Fund, Ministry of Information Technology, Pak Govt. |

High Quality Tele-Medicine-Driven Video Encoding System Under Very Low Bitrates

| Project Status | Completed |
|-------------------|---|
| Project Director | Prof. Dr. Muhammad Abdul Qadir |
| Total Budget | Rs 25.54 Million |
| Funding Agency By | ICT R&D Fund, Ministry of Information Technology, Govt. of Pakistan |

Automatic Personal Identification Biometrics System (APIBS) for Large Scale Applications

Project Status Completed

Project Director Prof. Dr. Imtiaz Ahmad Taj

Total Budget Rs 14.7 Million

Funding Agency By ICT R&D Fund, Ministry of Information Technology, Govt. of Pakistan

Real Time Implementation of H.264 Decoder for Heterogeneous Multicore Architectures

Project Status Completed

Project Director Prof. Dr. Imtiaz Ahmad Taj

Total Budget Rs 16.64 Million

Funding Agency By ICT R&D Fund, Ministry of Information Technology, Govt. of Pakistan

Autonomous Landing/Takeoff of Unmanned Aerial Vehicle (UAV)

Project Status: In Progress

Project Director: Prof. Dr. Aamer Igbal Bhatti

Total Budget: PKR 2.86 Million

Funding Agency: Public Sector Organization

Modeling and Simulation of LPI Radar for System Level Design and Optimization

Project Status Completed Successfully
Project Director Prof. Dr. Aamer Igbal Bhatti

Total Budget Rs 1 Million

Funding Agency By RWR

Development of Radar Signal Processing (RSP) algorithms for Active Electronically Scanned Array (AESA) Radar

Project Status: In Progress

Project Director: Prof. Dr. Aamer Iqbal Bhatti

Total Budget: PKR 1.85 Million

Funding Agency: Public Sector Organization

End-to-End Mobility Management Framework (EMF) for Multihomed Mobile Devices

Project Status Completed Successfully
Project Director Prof. Dr. Amir Qayyum
Total Budget Rs 14.897 Millions

Funding Agency By ICT R&D Fund, Ministry of Information Technology Govt. of Pakistan

Commercialization Source Code

Network based P2P Flow Recognition

| Project Status | Completed Successfully |
|-------------------|----------------------------|
| Project Director | Prof. Dr. Amir Qayyum |
| Total Budget | Rs 0.2 Millions |
| Funding Agency By | Nayatel Pvt Ltd. Islamabad |
| Commercialization | Actual Deployment |

3GPP-IMS Compliant E2E Mobile IPTV Solution for 4G/LTE Networks

| Project Status: | In Progress |
|--------------------|-----------------------|
| Project Director: | Prof. Dr. Amir Qayyum |
| Total Budget: | PKR 31 Million |
| Funding Agency: | EMI Networks Pvt. Ltd |
| Commercialization: | Prototype Development |

Control of Underground Coal Gasification

| Project Status | Completed Successfully |
|-------------------|------------------------------|
| Project Director | Prof. Dr. Aamer Iqbal Bhatti |
| Total Budget | Rs 2.8 Million |
| Funding Agency By | Thar Energy Board |

Modeling and Control of UCG

| Project Status | Completed Successfully |
|-------------------|---|
| Project Director | Prof. Dr. Aamer Iqbal Bhatti |
| Total Budget | Rs 14.3 Million |
| Funding Agency By | ICT R&D Fund, Ministry of Information Technology, Govt. of Pakistan |

Information System for Early Fault Warning in Automotives

| Project Status | Completed Successfully |
|-----------------------|--|
| Project Director | Prof. Dr. Aamer Iqbal Bhatti |
| Co-Projector Director | Prof. Dr. Amir Qayyum |
| In Collaboration with | Control and Signal Processing Research Group (CASPR), M. A. Jinnah University, Islamabad |
| Total Budget | Rs 14.34 Millions |
| Funding Agency By | ICT R&D Fund, Ministry of Information Technology, Govt. of Pakistan |
| Commercialization | Prototype Development |

Development of Phased Array Radar

| Project Status | In-progress |
|-------------------|------------------------------|
| Project Director | Prof. Dr. Aamer Iqbal Bhatti |
| Total Budget | Rs 12.6 Million |
| Funding Agency By | Public Sector Organization |
| Commercialization | Prototype Development |

Underwater Vehicle Dynamic modeling and Control

Project Status In progress

Project Director Prof. Dr. Aamer Iqbal Bhatti

Total Budget Rs 0.1 Million

Funding Agency By Public Sector Organization





5.3. R&D Projects at International Level

The faculty and researchers of Capital University of Science & Technology have not only accomplished the national level projects of highest repute with topmost organizations but also worked with variant international organizations. A number of Research and commercial projects have been successfully completed in collaboration with various international funding agencies and organizations which shows the inclination of faculty toward research culture.

Framework for Control and Monitoring of Wireless Mesh Networks (WMN) using Software Defined Networking (SDN)

Project Status: In Progress

Project Director: Prof. Dr. Amir Qayyum In Collaboration: Government of France

Total Budget: PKR 2.3 Million

Funding Agency: Govt. of France & HEC

Core Components of the 4th Generation Telecom Infrastructure (IMS)

Actual Deployment

| Project Status | Completed Successfully |
|-----------------------|---|
| Project Director | Prof. Dr. Amir Qayyum |
| In Collaboration with | C M. A. Jinnah University, Islamabad and Media Routes Inc., Canada |
| Total Budget | Rs 14.88 Millions |
| Funding Agency By | ICT R&D Fund, Ministry of Information Technology, Govt. of Pakistan |
| | |

Commercialization

Vehicle Based Road/Environment Condition Warning System using Vehicular Ad hoc Networks (VANETs)

| Project Status: | In Progress |
|--------------------|---|
| Project Director: | Prof. Dr. Amir Qayyum |
| In Collaboration: | Telecom Sud Paris, France and Universiti Teknologi Petronas Malaysia |
| Total Budget: | PKR 11.9 Million |
| Funding Agency: | Govt of France, under the ICT-ASIA Program and in Collaboration With three project partners |
| Commercialization: | Prototype Development |

EduScope: A New Learning System

| Project Status | Completed Successfully |
|-------------------|---|
| Project Director | Prof. Dr. Amir Qayyum |
| Total Budget | Rs 1.8 Million |
| Funding Agency By | Internet Society (ISOC) Washington, USA and M. A. Jinnah University Islamabad |

Design and Development of Hybrid IPv4 and IPv6 Network for QoS Enabled Video Streaming Multicast Application

| Project Status | Completed Successfully | | |
|---|--|--|--|
| Project Director | Prof. Dr. Amir Qayyum | | |
| Co-Projector Director | Dr. Mudassir Tufail, Cisco Systems Inc., USA | | |
| Total Budget | Rs 14.202 Millions | | |
| Funding Agency By ICT R&D Fund, Ministry of Information Technology, Govt. of Pakistan | | | |

5.4. Research Commercialization

The faculty of Capital University of Science & Technology is actively involved in commercialization of Research and Development (R&D) projects of national and international prominence. The faculty members through their resolve and determination have accomplished a number of projects toward their commercialization. Following is the brief list of such projects.

| S.No. | Project Title | Commercialization | | |
|-------|--|-----------------------|--|--|
| 1 | Vehicle Based Road/Environment Condition Warning System using Vehicular Ad | Prototype Development | | |
| | hoc Networks (VANETs) | | | |
| 2 | EduScope: A New Learning System | Actual Deployment | | |
| 3 | Core Components of the 4th Generation Telecom Infrastructure (IMS) | Actual Deployment | | |
| 4 | Design and Development of Hybrid IPv4 and IPv6 Network for QoS Enabled Actual Deployment | | | |
| | Video Streaming Multicast Application | | | |
| 5 | Information System for Early Fault Warning in Automotives | Source Code | | |
| 6 | Network based P2P Flow Recognition | Actual Deployment | | |
| 7 | End-to-End Mobility Management Framework (EMF) for Multihomed Mobile | Prototype Development | | |
| | Devices | | | |
| 8 | 3GPP-IMS Compliant E2E Mobile IPTV Solution for 4G/LTE Networks | Prototype Development | | |

6. Capacity Building and Technology Innovation

6.1. Technology Innovation and Incubation

Capital University of Science & Technology, Islamabad not only accomplishes research and development operations but also ensures continual activities in terms of technology innovation and incubation. This is the foremost domain CUST is working. In this regard numerous conferences, technical trainings, workshops and seminars are being conducted on regular basis to provide students, faculty members and professionals with the contemporary technical tools and skills. The university is also working on establishment of Business Incubation Centers and commercialization of research leading to resource generation.

6.2. National and International Conferences

Conferences are great opportunity to connect with attendees from different perspectives and views, learn from them, make new relationships, and strengthen existing ones. Conferences pave the way for scientific cooperation by meeting and connecting with researchers from different academic and professional backgrounds. They also help in cooperating collective research projects such as edited books, special issues in peer-reviewed journals and funding applications. They are great opportunity not only for researchers and scientists, but also for experts, policy makers, stakeholders and students. Capital University of Science and Technology in recent time has organized three conferences on various themes. The particular conferences were organized by Biosciences, Management sciences and Mathematics department respectively as detailed below.

6.3. 7th CUST International Business Research Conference (CIBRC-2018)

The department of Management Sciences conducted the 7th Annual "CUST International Business Research Conference" (CIBRC-2018) on December 20, 2018 at Capital University of Science & Technology, Islamabad. CIBRC is a yearly event that provides a platform for researchers, academicians and professionals across the world, to come together and showcase their research contributions and experiences. The theme for CIBRC-2018 was: Multidisciplinary Research in Management: Challenges and Prospects.

A specific website was designed for the conference which included submission guidelines, Registration guidelines, Call-for-paper, Schedules, and Authors' sign in/sign up tabs. Letters inviting paper submission, with poster and brochure attachments, were mailed to Deans/HoDs of 88 business schools all over Pakistan. Emails with attachments were also sent to leading local as well as foreign business schools/universities.

The conference chair in his address welcomed all the dignitaries, with special reference to the keynote speakers, session chairs, discussants, and conference presenters. The keynote speakers of inauguration session were Mr. Faheem Sardar and Professor Dr. Habib ur Rehman Asim The event was divided into two technical sessions. The sessions included the research domains encompassing: Human Resource Management & Organizational Behavior, Accounting and Finance, Marketing and Entrepreneurship, Economics and Development Economics, and Technology & Project Management.

The keynote speakers of the closing session were Professor Dr. Muhammad Kamran Naqi and Dr. Hamid Rafiq Khattak. Dr. Naqi holds a Ph.D. Degree in Social Marketing from Hamdard University, Karachi. He is currently serving as a Professor and Dean at Faculty of Management Sciences, Hamdard University, Islamabad. He is also associated with National Business Education Accreditation Council as Editor-in-Chief and is a member of the reviewer team for accreditation Paradigm. Dr. Hamid Rafiq Khattak is currently the Dean APCOMS & CEO IMPERIAL Institute. IMPERIAL institute is the academic initiative of MANTECH & ARC, which is a partner organization of United Nations and World Trade Organization.

The ceremony was concluded by an address of Dr. Muhammad Mansoor Ahmad, Vice Chancellor, CUST. The Vice Chancellor, CUST in his talk thanked the key note speakers for taking time out of their pressing engagements to participate in the closing session of CIBRC. He also thanked them for their thought provoking speeches. He took this opportunity to thank all the session chairs, conveners, discussants and participants for carrying out their respective sessions. He appreciated and congratulated all offices at CUST, especially the conference secretariat, for meticulously looking after all details and holding the conference in such a professional manner.

6.4. 6th International Conference on Biological and Computational sciences (C-BICS)

The Department of Biosciences at Capital University of Science and Technology organized 6th International Conference on Biological and Computational Sciences (C-BICS 2018) on December 13, 2018. The objective of the conference was to provide a platform where researchers and practitioners in the field of Bioinformatics and Biosciences could meet and share their experiences. The conference witnessed an active participation of Bioinformatics and Biosciences community from across the country.

The keynote speakers included Dr. Aneel Paulus, Assistant Professor of Medicine and Cancer Biology (Mayo Clinic (US) and Prof. Dr. Khalid Farouk, Professor and Head of Urology Department, Foundation University, Islamabad. Dr. Aneel Paulus introduced his research group and ongoing projects and mentioned various areas where collaborative research could be planned. Dr. Khalid Farouk enlightened the audience with the clinical aspects of urinary tract infections and treatments. At the end of inaugural session the Chief Guest, Prof. Dr. Ahsan Raza, enlightened with his experiences. He mentioned evolution of biological researchers during the course of time, the use of molecular tools for sequencing and then next generation sequencing, pyro sequencing and now advent of pharmacogenomics which helped medicine scientists to produce therapeutic personalized drugs.





Later on 5 parallel sessions were run. A total of 171 participants and guests attended the conference in which 34 oral presentations were held in 5 different sessions. During poster session, 27 posters from externals and 25 posters from CUST research students were presented. Participants came from various universities from all over the Pakistan. International participation was also witnessed from the institutes like University of Stockholm, Sweden, Cologne Germany and Mayo Clinic US.

Concluding session was hosted by Miss Aimen Sajjid, Professor, Dr. Aqdas Malik, Pro Vice President, International Islamic University Islamabad graced the event as Chief Guest. Dr. Shaukat Iqbal recited the Quranic verses and presented the brief over view of the conference. Dr. Aqdas Malik enlightened the audience with a refreshing and inspiring talk. Shields were distributed among position holders and organizing committee members before formal closure.

6.5. 1st Conference of Mathematics (CUCoM-2018)

Department of Mathematics, Capital University of Science and Technology, Islamabad organized its first conference of Mathematics (CUCoM) on December 1, 2018. CUST was the sole sponsor of the event. The chief organizer of the event was Dr. Abdul Rahman Kashif. The event hosted ninety participants along with five keynote speakers. The objective of this conference was to focus on the active areas within the field of Mathematics.

The conference witnessed some of the most renowned mathematicians of the country from prestigious academic institutes like:

- Prof. Dr. Asghar Qadir (SNS, NUST, Islamabad)
- Prof. Dr. Saleem Asghar (COMSATS, Islamabad)
- Prof. Dr. Muhammad Aslam Noor (COMSATS, Islamabad)

- Prof. Dr. Liaqat ali Khan (Quaid e Azam University, Islamabad)
- Prof. Dr. Arshad Zia (International Islamic University, Islamabad)





The conference was concluded with a closing speech by Dr. Muhammad Sagheer, Head of Mathematics Department. In his closing remarks, Dr. Sagheer emphasized on the importance of this conference for graduate students of mathematics. Furthermore, he thanked the speakers and participants for being a part of this conference. He ended with a note of appreciation to organizers for their cooperation in making the conference a successful event.

6.6. Technical Trainings, Workshops and Seminars

Seminar on "Impact of Enterprise System in Business Decision Making"

The department of Management Sciences organized a seminar entitled "Impact of Enterprise System in Business Decision Making" under the supervision of Ms. Saeeda Ibrahim on May 2, 2019. The guest speaker, Mr. Noman Sarwar is a certified expert of enterprise system. The main objective of the seminar was to update the students that business world is always in a continuous change and space to make it to the top is shrinking day by day. The guest speaker described the role of enterprise system in business decision making and explained how it can help the audience in their future endeavors.

Seminar on "Climate Change Impacts: Science and Mitigation"

The Civil Engineering department organized a seminar entitled "Climate Change Impacts: Science and Mitigation" on April 2, 2019 The guest Speaker of the event was Dr. Anjum Rasheed, Assistant Professor CCRD, COMSATS University, Islamabad. The objective of session was to make students well aware about the concept of climate change, its science, impacts and mitigation measures.





Seminar on "Entrepreneurial Ventures"

The seminar on "Entrepreneurial Ventures" was held on 11th March 2019 in which the guest speaker, Mr. Usama Bin Khurshid shared his entrepreneurial experience with audience. Mr. Usama Bin Khurshid is a young entrepreneur who is also a part time web developer. He is currently running two businesses. Bin Khurshid Trading Company and the JK Health and Fitness Centre. The speaker enlightened the students about the five essential elements that lead to success and their prime importance step wise. He also focused on the importance of Idea, teams, business model, funding and timing to start up a new business.

OBE Training Session for Faculty of Civil Engineering Department

To get the faculty of Civil Engineering Department familiarized with the Outcome-Based Education (OBE) system, a training session was held on February 15, 2019. The training presentation consisted of three parts. In the first part, Dr. Munir Ahmed briefed about the history, need and benefits of the OBE and Washington accord. Dr. Majid Ali then explained the course plan and briefly discussed about the coordination of Lab Engineers with their respective course instructor for making a course plan.

In the third part, Engr. Mehran Sudheer briefed about the marking criteria for labs and marks distribution in Mid-term and Final-term exam. During and after the presentations, the queries of the audience were also addressed.

Seminar on "Site Supervision and Entrepreneurship"

A seminar entitled "Site Supervision and Entrepreneurship" was conducted at Capital University of Science and Technology, Islamabad on 27th December 2018. The participants mostly consisted of Civil Engineering students. The guest speaker was Engr. Haseeb Taj, Managing Director, M/S Muhammad Ali Taj construction. The guest speaker delivered a well-structured lecture which covered and highlighted different aspects of "Site Supervision and Entrepreneurship.

Seminar on "Endangered Species of Pakistan"

A seminar on "Endangered Species of Pakistan" was organized by the Department of Biosciences, Faculty of Health and Life Sciences on December 24, 2018. The lecture was delivered by Mr. Sakhawat Ali, Assistant Director Information and Outreach of Islamabad wildlife management board, Islamabad wildlife management board. The lecture was found very informative and helpful in generating awareness among the students regarding the proposed topic. There were around 60 people including faculty members and students who attended the seminar.





Seminar on "Industrial Applications of Tissue Culture Technology"

A seminar on "Industrial Applications of Tissue Culture Technology" was organized by the Department of Biosciences, Faculty of Health and Life Sciences on December 5, 2018 under the supervision of Dr. Arshia Amin Butt, Assistant Professor, Department of Biosciences.

The guest speaker was Dr. Kazim Ali who is Scientific Officer at National Institute for Genomics & Advanced Biotechnology (NIGAB), National Agricultural Research Center (NARC). The speaker enlightened the students on the importance of biotechnology which has been globally accepted as one of the most important tools for direct application in agriculture and its stronger and positive influence on agricultural sector worldwide.

Seminar on "Interactive Education"

A seminar entitled "Interactive Education" was arranged by the Department of Bioinformatics and Biosciences, Faculty of Health and Life Sciences on November 22, 2018. The guest speaker was Dr. Zafar Iqbal Qadir who is the founding director and chairman of Taleem Foundation. He has a wide experience of project management, public administration and revenue administration. He educated the students regarding interactive education which is an approach that incorporates social networking and urban computing into course design and delivery.



Bridge Building Competition

The Civil Chapter of Science Society of Capital University of Science and Technology organized a Popsicle Sticks Bridge Building Competition on November 29, 2018. The competition was sponsored by Earnest Pakistan (Pvt) Ltd, DAR Dubai and Kasib Associates. The competition provided an opportunity to the Civil Engineering students to become familiarize with the upcoming promises in their field. The society also prepared technical reports, presentations, display boards, decoration etc. before the competition.

Seminar on "Advertising Tactics"

A seminar was organized by students enrolled in the Advertising and Sales Promotion module on October 24, 2018. The target audiences for the seminar were Management Science students. The aim of this seminar was to inform students on the advertising tactics and strategies used by organizations in industries such as apparel, retail, telecommunication and e-commerce. Mr. Imtinan Ahmad CUST Alumni and presently serving as Managing Partner at DSI Consulting Worldwide was the guest speaker for the session. The speaker highlighted the significance of social networks such as Facebook, Twitter, Viber, Whatsapp and blogs as tools applied against competition for positioning their products and services.



Seminar on "Introduction to CDM, Safe by Design and Influencing"

A seminar entitled "Introduction to CDM, Safe by Design and Influencing" was conducted at Capital University of Science and Technology, Islamabad on 31st October, 2018. The society of Engineer's forum, CUST played a significant role in organizing the seminar. The target audience was students of Civil Engineering department. The guest speaker was Engr. Malik Javed, Alliance Responsible Engineer East West Rail ATKINS United Kingdom. Engr. Jawaid Malik delivered a very well-structured lecture which covered and highlighted every aspect of "Construction Design Managment", and "Health and Safety"

Seminar on "Significance of Strategic Tools and Techniques in Current Era"

A seminar was conducted by Marketing Management students of Capital University of Science and Technology on October 30, 2018. The aim of this seminar was to update students on the economic situation of our country in light of manufacturing, production, service and retail sector. Mr. Rahat Farid, Senior Vice President of Islamabad Chamber of Commerce

and industry was the guest speaker at the occasion. The speaker highlighted the significance of foreign direct investment, export of goods and the significance of ports for the trading of goods across borders.

Seminar on "Impact of Human Activities on Climate Change & Endangerment of Species"

A seminar on "The Impact of Human Activities on Climate Change & Endangerment of Species" was organized by the Department of Biosciences, Faculty of Health and Life Sciences on October 17, 2018. The chief speaker was Mr. Hans J. Hausmann who is an advisor from German Red Cross at Climate Change Adaptations department in Pakistan Red Crescent Society. He updated the audience regarding the severity of climate change issues such as, global warming, water scarcity, plastic pollution and threats to flora and fauna and linked it all as the consequences of human activities.

Seminar on "Motivation and Leadership"

A seminar was conducted by Professor Syed Hussain Haider, Advisor to Akhuwat and Adjunct Faculty member at LUMS, on the importance of leadership and motivation. The guest speaker motivated the audience about the importance of leadership qualities and how to inculcate leadership traits among themselves. The session was significant for the students with respect to professional development and success in life. The speaker was highly influenced by the inspiration level of students towards learning and praised the conducive environment of university.

HR Forum on "Industrial Issues related to Human Resource Management"

The Management Sciences scholars under the supervision of Dr. Muzaffar Asad conducted a one-day forum entitled "Industrial Issues related to Human Resource Management". A total of six human resource Executives from reputable companies were invited to discuss about the present day issues faced by industry. The Industry Executives praised the efforts of Capital University of Science and Technology in bridging the gap between industry and academia. More than 200 students took part in the forum. The session helped university to understand the industry requirements so that they can tailor their education as per their demands.

One-Day Workshop on Latex

Capital University of Science and Technology hosted "One-Day Workshop on Latex" dated 17th July, 2019 aiming to equip students and faculty members with the contemporary knowledge about creation of technical and scientific documents using Latex with practical illustrations. A total of 80 participants attended the workshop including MS & PhD students and faculty members from CUST, FAST NUCES, IST, FJWU etc. The resource person for the particular workshop was Dr. Ali Arshad, Assistant Professor, COMSATS Institute of Information Technology, Islamabad.

Three-Day Workshop on "Model Predictive Control"

Capital University of Science and Technology organized a three days workshop entitled "Model Predictive Control: Algorithms, Tools & Applications" from 4th to 6th April, 2019. Model Predictive Control (MPC) is one of the most commonly implemented advanced control techniques in the process industries today. MPC is a tool to optimize a system's performance by using a model to predict the system's future trajectory. The participants of the workshop included graduate students, researchers and professionals from various organizations and institutes notably NESCOM, NDC, AWC, NUST, IST, CUST etc. The resource person for the workshop was Dr. Aamer Shahzad, Deputy Director, General NESCOM, Islamabad.





Seminar on "Genomics Approach in Drug Designing"

Office of Research Innovation and Commercialization (ORIC) in collaboration with the Faculty of Health and Life Sciences organized a seminar entitled "Genomics Approach in Drug Designing" on 28th March 2019. Genomics is an interdisciplinary field of biology focusing on the structure, function, evolution, mapping and editing of genomes. Genomics, particularly high-throughput sequencing and characterization of expressed human genes has created new opportunities for drug discovery. The participants of the seminar included faculty members, researchers and students of Biosciences and Pharmacy Departments. The guest speaker at the event was Dr. Johar Ali, Head of Genomics Center, Rehman Medical Institute, Peshawar.

Seminar on "Cyber Security: Next Defense Frontier"

Cyber Security is the practice of protecting systems, networks and programs from digital attacks. These cyber attacks are usually aimed at accessing, changing, or destroying sensitive information, extorting money from users or interrupting normal business processes. Keeping in view the importance of the subject matter in modern digital world, particular seminar entitled "Cyber Security: Next Defense Frontier" was organized on 24th April, 2019. The guest presenter at the event was Mr. Rizwan Mustafa Mir, Chief Executive Officer, Universal Services Fund, Islamabad. The audience included graduate students, faculty and researchers from Capital University of Science & Technology, Islamabad.

Three-Days "Autodesk Inventor Workshop"

CUST hosted a 3 days workshop entitled "Autodesk Inventor Short Course" on 6th to 8th February 2019. The workshop was a part of the university collaboration with H-Cube BMG Pvt. Ltd. Office of Research Innovation and Commercialization (ORIC) in collaboration with the Department of Mechanical Engineering organized the workshop aiming to equip students with the contemporary engineering. Autodesk Inventor is a computer-aided design application for 3D mechanical design, simulation, visualization and documentation developed by Autodesk. A total of 22 Mechanical Engineering students attended the 3-days workshop from 10:00 AM to 4:00 PM. Instructor of the Workshop was Mr. Muhammad Umer, lecturer at Lahore Institute of Animation and Design (LAD), Islamabad campus.





One-Day Workshop on Latex

"One Day Workshop on LaTex" was conducted on 13th March, 2018. The honorable speakers for the workshop were Prof. Aamer Iqbal Bhatti, Dean ORIC, Capital University of Science and Technology, Islamabad and Dr. Ali Arshad, Assistant Professor, COMSATS Institute of Information Technology Islamabad.

The objective of workshop was to provide a basic understanding of how to create documents using Latex, with audience including professionals, engineers, faculty members and students. Topics covered included Latex Overview and Installation, Writing a document (Sections and paragraphs), Packages Installation, Math Operations, Figures, Tables, Table of Contents and Bibliography.

Seminar on "UNESCO Science Programs in the Context of Pakistan's Water Issue"

A particular seminar on "UNESCO Science Programs in the Context of Pakistan's Water Issue" was organized by Department of Management Sciences in collaboration with the Office of Research Innovation and Commercialization (ORIC) on June 27th 2018. The chief guest for the seminar was Prof. Dr. Shahbaz Khan, Director and Representative UNESCO Regional Science Bureau for Asia and the Pacific. His presentation covered introduction of UNESCO and its evaluation since 1945. Dr. Shahbaz focused on the UN Strategic Development Goal (SDG) number 06 in context of Pakistan, which is clean water and sanitation. He also proposed trans disciplinary water research for sustainable Pakistan.





Seminar on "Innovation, Entrepreneurship and Technology Management—New Domains for Expanding the Scope of Control Science and Engineering"

A seminar entitled "Innovation, Entrepreneurship and Technology Management—New Domains for Expanding the Scope of Control Science and Engineering" was conducted by the guest speaker Dr. Tariq Samad, Senior Fellow and W.R. Sweatt Chair, Technological Leadership Institute, University of Minnesota Minneapolis, USA. The talk covered about how

control ideas can inform innovation, entrepreneurship (and "intrapreneurship") and the management of technology. The relevance of feedback, optimization, estimation, modeling, and other topics in control were also highlighted in the talk.

Seminar on "New Developments in Electric Motors and Drives"

A seminar was held on 4th April, 2018 entitled "New Developments in Electric Motors and Drives". The guest speaker for the talk was Dr. Mahmood Nagrial, Associate Professor, Western Sydney University, Sydney Australia. Improving electric motor efficiency and associated drive systems could have a significant effect on the electricity consumed with a given society, ultimately improving the global environment and providing for a reduction in greenhouse emissions. The talk by Dr. Mahmood Nagrial covered new developments in high efficiency electric motors and drives.

Three-Days "REVIT Essentials Short Course"

Capital University of Science and Technology hosted a 3 days workshop entitled "REVIT Essentials Short Course" on 2nd – 4th July, 2018. The workshop was a part of the university collaboration with H-Cube BMG Pvt. Ltd. ORIC in collaboration with the Civil Engineering Department organized the particular workshop. The 21 workshop participants including 14 BS Civil Engineering students and 7 Lab Engineers/Lecturers attended the 3-days workshop from 09:00 AM to 4:00 PM. The Instructor for the Workshop was Mr. Shafaqat, lecturer at Lahore Institute of Animation and Design (LAD).

Workshop on "Poster Writing"

Office of Research Innovation and Commercialization conducted a workshop on writing a poster for PhD work. The workshop was mandatory for those PhD students whose thesis have been submitted for foreign evaluation. Prof. Aamer Iqbal Bhatti, Dean Research & Innovation was speaker of the workshop. The theme was to make PhD students of the university capable to make a poster of their own PhD research work. A predefined template of the poster as approved by competent authority of the university was shared with all the participating students.

Seminar on "Entrepreneurship and Innovation"

Office of Research Innovation and Commercialization organized a seminar entitled "Entrepreneurship and Innovation" on November 6, 2018. The guest speaker at the event was Mr Pervaiz Abbasi, Project Director National Incubation Center (NIC) Islamabad. Dr. Ansir Ali Rajput, Associate Dean Corporate Linkages started the proceedings of the seminar with the brief introduction of the guest speaker followed by an interactive session by Mr. Pervaiz Abbasi. He focused on that economy is composed of enterprises and businesses and it survives only when the industry leaders adapt to the changing times and supply the communities' needs. Mr. Pervaiz invited CUST faculty and students to visit NIC and see their ongoing projects.





Three-Days "Autodesk REVIT Electrical Workshop"

Capital University of Science and Technology hosted a three-day workshop entitled "Autodesk REVIT Electrical Workshop" on Nov 29th, Dec 1st and Dec 3rd, 2018. The workshop was part of the university collaboration with H-Cube BMG Pvt. Ltd. Office of Research Innovation and Commercialization in collaboration with the Electrical Engineering Department organized the particular workshop. The students were provided hands on experience of complete building electrification using REVIT by the Instructor Mr. Shafaqat, lecturer at Lahore Institute of Animation and Design (LAD), Islamabad Campus. The participants of the workshop were also provided user level AUTODESK authorized certifications by LAD.

"Revit Architecture Fundamental Course" at BIM Center of Excellence

Newly established BIM Center of Excellence (BIM CoE) at Department of Civil Engineering, Capital University of Science & Technology (CUST), Islamabad in collaboration with H-cube conducted its first training workshop on "REVIT Architecture Fundamentals" on 11th and 12th January 2019. During the two days, the participants were briefed about the fundamentals of BIM and experienced hands on training of Revit Architecture. At the end of the training, certificates were distributed among the participants.

Session with Director Research STMU, Islamabad

Capital University of Science and Technology has the ambition to brace the academic collaboration of the university. In this regard a brainstorming session with Dr. Fouzia Sadiq, Director Research, Shifa Tameer-e-Millat University (STMU) was held on 9th January, 2019.

The aim of her visit was to identify areas of research in which both universities can collaborate. The stake holders graciously agreed on following points.

- Research Collaboration between CUST and SRMU
- Organizing Research Seminar for graduate students
- Joint projects between CUST and STMU.

Health & Safety Trainings

University Health, Safety, and Security committee in collaboration with departmental health and safety teams organized health and safety training sessions for faculty, lab staff and students. The trainings were comprised of (i) general health and safety rules, (ii) Safety rules and regulations of lab course(s) along with visit of lab and important equipment, where necessary.

The purpose of these training sessions was to give awareness about how to behave during a natural disaster or lab accident. The department wise detail of students who completed the Health & Safety Trainings in Spring 2019 is tabulated below.

| | Year | | | | | |
|-------|------------|-------|--------|-------|--------------------|-------|
| S.No. | Department | First | Second | Third | Fourth | Total |
| 1 | BI & BS | 85 | 85 | 26 | 28 | 224 |
| 2 | CE | 72 | 73 | 66 | 46 | 257 |
| 3 | CS & SE | 398 | 339 | 247 | 355 | 1339 |
| 4 | EE | 55 | 69 | 70 | 96 | 290 |
| 5 | ME | 97 | 96 | 85 | 65 | 343 |
| 6 | MS | 91 | 70 | 105 | 75 | 341 |
| | | | | | Grand Total | 2794 |

6.7. Business Plan Competitions

X-Pert Cup 2019, UMT, Lahore

School of Systems and Technology at University of Management and Technology, Lahore (UMT) organized their annual software competition "X-Pert Cup-19" on May 04, 2019. CUST participated in 4 out of 9 events. There were 12 students from different semesters, who took part in the competition from CUST under the supervision of Mr. Muhammad Saqib, Junior Lecturer, Faculty of Computing.

Capital University of Science & Technology stood second in Web Application

Development competition, E-Gaming and Mobile Application Development. Overall CUST team got second position and received cash prizes of Rs. 3000/- with shields and certificates.

Entrepreneurship Marketing Gala-2018

Co-curricular activities are the true and practical experiences received by students. To a greater extent, the theoretical knowledge gets strengthened when a relevant co-curricular activity is organized related to the content taught in the classroom. In this backdrop, Entrepreneurship and Marketing Gala was organized by the Department of Management & Social Sciences, on December 27, 2018 at Capital University of Science & Technology. The event was an experiential activity of Entrepreneurship and Marketing students where they displayed their products and services for selling and promotion perspective. A total of 100 stalls were displayed which were comprised of 44 entrepreneurial startups and 61 marketing stalls. These stalls were further categorized as per following detail.

- Business/Marketing (53),
- Gaming Zone (8)
- Food Junctions (39)





The winners of the event were awarded shields and cash prizes by chief guest, Dr. Muhammad Mansoor Ahmad, Vice Chancellor CUST. During his address on the concluding session, Vice chancellor appreciated the efforts of organizing teams and emphasized that such kind of activities should be continued on regular basis in future.

ORIC Business Plan Competition

Office of Research, Innovation and Commercialization (ORIC) initiated Final Year Projects funding for Undergraduate students of Capital University of Science & Technology, Islamabad. The purpose of given activity was financial encouragement of students whose project ideas have particular business and marketing prospective. A total of five Undergraduate projects were to be funded encompassing 30,000 PKR each.





The specific criteria for the said funding along with associated terms and conditions were advertised in first week of March 2019 which was:

- Innovative Idea
- Specific Business Plan
- Marketing Potential
- Sales Tendency
- Commercialization Aptitude

Initially 9 projects were shortlisted by the ORIC Research Committee members as per devised criteria. The projects were further accessed in an ORIC Research Committee Meeting in which students were asked to demonstrate the business plans and practical possibility of their ideas and projects. After a systematic assessment following five projects were shortlisted for the funding.

| S.No. | Project Title | Supervisor | Group Members | Department |
|-------|---|---------------------|------------------------------------|------------------------|
| 1 | Off Grid Automatic Egg Incubator | Dr. Muhammad Ashraf | Zeeshan Yousaf | Electrical Engineering |
| | | | 2. Atif Ijaz | |
| | | | 3. Nauman Zakir | |
| 2 | Design and Fabrication of Automatic Solar Tracker with Pannel Cleaning and Cooling system | Dr. Saif-Ur- Rahman | 1. Saad Bin Zubair | Mechanical Engineering |
| | | | 2. Tajammul Baig | |
| | | | 3. Arhaam Mubarak | |
| 3 | AL-FUNOON | Dr. Sajid Bashir | Iqra Majeed | Management Sciences |
| | | | 2. Andla Sohail | |
| 4 | Blindroid | Mr. Ibrar Arshad | 1. Alina Sarwar | Computer Science |
| | | | 2. Rubeeqa Tahir | |
| | | | 3. Usman Mehmood | |
| 5 | Prosthetic Hand Using Brain Pulses | Dr. Muhammad Aleem | Aashan Javed | Computer Science |
| | | | 2. Usama Mehmood | |

BIM Centre of Excellence (BIM-CoE)

Capital University of Science and Technology (CUST) through its outstanding faculty and state of the art lab facilities ensures that the engineers of tomorrow are not only well equipped theoretically but also have hands-on training of modern engineering tools. Keeping in view the future concerns, the Department of Civil Engineering and Office of Research Innovation and Commercialization (ORIC) at Capital University of Science and Technology (CUST) in collaboration with H-CUBE

has achieved a milestone towards Industry Academia Linkage by establishing "BIM Centre of Excellence (BIM CoE)" at its campus to offer international courses and certifications.





Dr. Engr. Muhammad Mansoor Ahmed, the respected Vice Chancellor, CUST Islamabad inaugurated the facility during the ceremony held on December 15, 2018 at the university campus. The respected Vice Chancellor emphasized the importance of innovative technology implementations in construction sector. Engr. Abdul Qadeer, GM (Head), NESPAK Islamabad was the Chief Gest for the event. The initiative received a very profound response and support for this newly established facility as many higher officials, industry experts and professionals form different construction organizations along with senior academic researchers from various universities also participated in the event.

Digital Advertising Awards 2019 - DAA'19

The modern digital age, complimented by the young talent of this age, is changing the way how we market, communicate, and interact socially. CUST Digital Advertising Awards-DAA'19 was an online competition to promote inspiring, effective, and creative advertising works in the fields of graphic and video ads. The event was sponsored and managed by Directorate of Corporate Linkages, Capital University of Science & Technology (CUST), Islamabad. Competition Details.

There were two types of contestants i.e. students and professionals. Furthermore, there were two categories of advertisings for DAA'19 i.e. video and graphic. The response of students and professionals was quite startling. The event promotion started in June 2019, results were announced on 5th September 2019 and awards were notified in first week of October 2019. The artwork was adjudged by a panel of 24 professionals from prestigious national and international institutes and organizations as per following criteria.

- Creativity and Innovation
- Impact
- Design
- Use of the medium
- Memorability

There were 3 awards for each of two categories with two types of contestants each, with a total 12 awards. The cash prize for 1st position of each category was 10,000 PKR while the runner ups for each category received a shield and certificate of achievement. Furthermore, the top 10 of each category were also given the certificate of achievement. The event adjudicators were also acknowledged with a shield and certificate as token of appreciation.

PEBS Reservation System for Pak Express

PEBS Reservation System is a seat booking application for Pak Express Train. The purpose of given system is to provide a website that can allow users to search and reserve a seat online or cancel his/her reservation any time. The present consignment is being done by following students.

1 Ameer Abdullah

- 2 Muhammad Sabeeh
- 3 Hasnain Ahmed





Workshops Conducted by BIM Centre of Excellence

Until now four different workshops have been conducted by BIM Centre of Excellence for students, faculty members and professionals as detail listed below.

| S.No. | Workshop Title | Duration | Dates |
|-------|---------------------------------|----------|----------------------------|
| 1 | Revit Architecture Fundamentals | 2 Days | January 11th & 12th |
| 2 | Revit Structure Fundamentals | 3 Days | February 15th, 16th & 22nd |
| 3 | Revit Mechanical Fundamentals | 3 Days | March 15th, 16th & 22nd |
| 4 | Revit Electrical Fundamentals | 3 Days | April 12th, 13th 19th |

CS Business Incubation Center

Office of Research, Innovation and Commercialization in collaboration with department of Computer Science (CS) has established the Incubation lab at Capital University of Science & Technology, Islamabad. The purpose of given incubation center is to provide a platform to CS students where they can practice their technical, innovative and freelancing skills for comprehensible earning. Currently following projects are being worked on.

Capital Classified

The purpose of given application is to provide spam free visual market place to Pakistani users where they can buy authentic products online without any meet up through courier services. The given project assignment is being worked on by following students.

- 1 Muhammad Sohaib Rasheed
- 2 Awais Mehmood

6.8. Commercialization of Students Projects

Smart Hospital Management system

Capital University of Science & Technology is working on commercialization of Final Year Project of Computer Science students entitled "Smart Hospital Management system". Initial feasibility report and market analysis based upon systemic survey has already been done. Based upon the survey results and user requirements, the system prototype would be developed and launched by end of current year.

Commercialization of Business Case FYPs

The selected final year projects which were funded by an amount of 30,000 PKR based upon their business plans and marketing potentials are planned to be pursued towards their commercialization. The market analysis of given projects would be assisted by Management Science Department. The following projects are planned to be pursued for their commercialization through internal departmental collaborations.

- 1 Off Grid Automatic Egg Incubator
- 2 Design and Fabrication of Automatic Solar Tracker with Pannel Cleaning and Cooling system
- 3 AL-FUNOON
- 4 Blindroid
- 5 Prosthetic Hand Using Brain Pulses

7. Collaborations and Linkage

CUST continues to have mutual collaborations, linkages and agreements with leading institutes and organizations both nationally and internationally in larger interest of students and faculty. We have signed Memorandums of Understandings (MoUs) with both academia and industry with leading institutes and organizations. The sole purpose of these collaborations is mutual benefit with respect to students in particular.

7.1. National Collaborations

IdeaGist, Pakistan

IdeaGist, Pakistan is the sole distributor of IdeaGist Global Platform, connecting innovators, entrepreneurs, investors, and students from 195 UN recognized countries and territories. Under the umbrella of the Prime Minister's Startup Pakistan, IdeaGist plans to invest PKR 8 billion, over the next five years in the entrepreneurial and innovation ecosystem in Pakistan.

Both parties agreed to provide online entrepreneurship training to final year students, offering entrepreneurship as a career choice to the university students and support business incubation center workshops, one-on-one mentoring, process guidelines and connecting the incubator to a global pool of investors.





National Testing Service Pakistan

MoU was signed between national Testing Service (NTS) Pakistan and Capital University of Science & Technology, Islamabad to accept NTS tests for admission at CUST at undergraduate and graduate level.

University of Sciences and Technology (UST) Bannu

University of Science and Technology (UST) Bannu and Capital University of Science & Technology, Islamabad agreed upon through an agreement of mutual interest for sharing human and material resource to undertake scientific and technical collaboration for the exchange of ideas, skills and techniques on problem of mutual interest as granted from time to time.

Career Pakistan

An agreement of mutual interest was signed between Capital University of Science & Technology, Islamabad and Career Pakistan for capacity building in areas of Management Sciences, Engineering, Computer Science, Social Science, and Corporate Social responsibility for mutual benefit of both organizations.

H-Cube Group of Companies

MoU was signed between Capital University of Science and Technology and H-Cube Group of Companies to establish multiple fronts via initiating internationally recognized certifications along with diplomas and professional development courses through deployment of H-Cube's international industrial partners' tools, products and services in accordance with CUST's respective needs and objectives.

The establishment of Autodesk Building Information Modeling (BIM) Centre of Excellence (CoE) was also agreed through this joint agreement.





Heavy Industries Taxila (HIT)

Capital University of Science and Technology and Heavy Industries Taxila (HIT) signed a mutual agreement to promote industry-academia collaboration through joint research and development activities of mutual interest in accordance with their respective needs and objectives.





Defense Science and Technology (DESTO) Rawalpindi

Capital University of Science & Technology and DESTO Rawalpindi formally agreed to recognize the value to technical and scientific collaborations between universities and Research and Development (R&D) organizations of Pakistan. Both parties established for joint submission of proposals, information exchange and invite on voluntary basis representatives of other institutions to participate in scholarly conferences and colloquia.

Sustainable Development Policy Institute

MoU was signed between Capital University of Science & Technology, Islamabad and SDPI for launching new research and training initiatives. The proposed areas of cooperation may include any program or project, nature of which shall be

mutually agreed upon by the parties. Both parties agreed upon development of joint research proposals, activities and publications, joint organization and participating in seminars, conferences, workshops and academic professional meetings.

7.2. International Collaborations

The Shanghai-Islamabad-Belgrade joint innovation Center, China

The Shanghai Jiao Tong University, China (SJTU) and the Capital University of Science and Technology, Pakistan (CUST) share a common interest in research on bacterial antibiotic resistance (ABR), an urgent global problem. SJTU and CUST agreed to collaborate on establishing the "Shanghai-Islamabad-Belgrade joint innovation center on Antibacterial Resistance" (Center) via application for the funding from by the Shanghai Science and Technology Committee in 2019.

The Center is scheduled to commence on the date of 1st January 2020 and shall terminate on 31st December 2022.

Mayo Clinic Jacksonville

MoU was signed between Capital University of Science & Technology, Islamabad and Mayo Clinic Jacksonville on mathematical modeling of cancer biology and anti-cancer therapy related to human cancer cell lines or patients with hematologic cancers or solid tumor. It was agreed upon that data would be shared with each other for the purpose of examination and evaluation. Each party agreed to maintain the confidentiality of and not use or disclose such confidential Information to some other institute of party.

Graz University of Technology

A formal agreement was contracted between Graz University of Technology, Graz Austria and Capital University of Science & Technology, Islamabad, Pakistan for research and development collaboration. The collaboration possibilities both parties agreed upon, include exchange of students and faculty, co-supervision of MS thesis, participation in ERASMUS+ program, joint organizations of conferences and seminars, and invitation to speakers for conferences, workshops, seminars and research visits.

Mevlana Exchange Programme

Capital University of Science & Technology, Islamabad and Mevlana Exchange Programme have signed an MOU for exchange of students and academic staff between the Turkish Higher Education institutions and CUST. The students interested in Mevlana Exchange Program may study abroad for one (minimum) or two (maximum) terms while academic staff which is interested in taking part in the program may lecture abroad from one week to three months in maximum.

European Commissions Erasmus Mundus Programs

The institutions agree to cooperate for the exchange of students and/or staff in the context of the Erasmus+ program they commit to respect the quality requirements of the Erasmus charter for Higher Education in all aspects of the organization and management on the mobility, in particular the recognition of the credits awarded to students by the partner institution. The institution also commit to sound and transparent management of funds allocated to them through Erasmus+.

Bremen Research Cluster for Dynamics in Logistics of the University of Bremen

An agreement of mutual Interest was signed between Bremen Research Cluster for Dynamics in Logistics of the University of Bremen and Capital University of Science & Technology, Islamabad for exchange of faculty, researchers, scientists, students and implementation of joint research projects. The collaboration also includes organization and conduction of mutual conferences and exchange of publications and other material.

The Universita' degli studi di Brescia

MoU was signed between the Universita' degli studi di Brescia, Department of Industrial & Mechanical Engineering and Capital University of Science & Technology, Islamabad, Department of Mechanical Engineering to promote academic collaboration including exchange of professors, researchers and students. In particular the research activity will be carried out in the fields of industrial engineering and service and supply chain management with the purpose to promote, develop and coordinate joint research programs and encourage the exchange between researchers in these fields.

Gheorge Asachi Technical University of IASI

Gheorge Asachi Technical University of IASI and Capital University of Science & Technology, Islamabad formally agreed to promote cooperation in teaching, research, international exchange of staff, students and Knowledge. Upon mutual consent of parties collaboration will be carried out for student exchange, articulation of students between award at the two universities, visit between universities by academic staff (Faculty), sharing of academic materials, joint organizations of conferences, seminars, joint production and delivery of courses programs.

SAP University Alliances

SAP grants to Educational Institution the right to use SAP University Alliances Academic Educational Material for teaching purpose only. SAP will provide access to the required SAP UA Academic Educational Material that Education Institution, as an associate member of University Alliances, may use in compliance with the restrictions agreed between SAP and educational institutions in the contract.

MoU between MAJU, UET Lahore and OHIO State University

In accordance to mutual desire to promote further cooperation in higher education between United States of America and Pakistan, the Controls and Signal Processing Research Group (CASPR) at Department of Electronic Engineering at the Muhammad Ali Jinnah University (MAJU) and the Center of Energy Research and Development (CERAD) at the Kala Shah Kaku Campus, University of Engineering and Technology, and the Ohio State University (OSU) on behalf of its Center of Automotive Research (CAR) in the OSU College of Engineering, Columbus, Ohio, USA enter into formal agreement for the purpose of educational and cultural exchange.

Institute Telecom ParisTech, France

A formal MOU was signed between Capitan University of Science & Technology and Institute Telecom ParisTech, France.for research collaboration.

8. Student's Employability and Placement

8.1. Directorate of Corporate Linkages (DCL)

Directorate of Corporate Linkage is a vibrant platform for student, alumni, academia and industry to interact, share and celebrate. The Directorate, over the years, has developed wide variety of programs, tasks and initiatives, which can be categorized into Networking, Skills for life, Alumni Relations and branding the university.

Through its linkages with the Chambers and Association, the Directorate has been able to hold on campus employment expos, recruitment tests and campus hiring drives. The Directorate organizes alumni reunions, faculty development programs, academic symposiums and training programs for students. The Directorate has an active and productive alumni network of more than 4500 alumni, who actively involve with the university in lecturing, delivering professional talks, assisting student in getting internship and employment and most importantly, inspiring students. DCL is actively involved in branding the university, building the alumni and industry networks and preparing the graduating students for the professional world.









8.2. Corporate Advisory Council

Corporate Advisory Council is a vibrant forum to build academia-industry linkages. Members share their special insights, ideas and perspectives and provide guidance and direction to office of corporate linkages to foster beneficial relationships with industry.

8.3. Major domains of DCL

Liaison with Industry and Chambers of Commerce

The Office of Corporate Linkages is responsible to maintain a full time liaison with the Corporate Sector, the Chambers of Commerce, and other Regulators. Such an initiative can assist in retaining a link with prospective employers who might be inclined to visit the University in search of human capital. The industry academia linkage can lead to better employment prospects and opportunities.

Under this endeavor MOU's have been signed with the Chambers of Commerce and the Securities and Exchange Commission of Pakistan (SECP), for cooperation in R&D and Research.

8.4. CUST Employment Expo (CEE 2019)

Capital University of Science and technology, Islamabad organized CUST Employment Expo 2019 on April 16, 2019. The Office of Corporate linkages, CUST in collaboration with NEXUS organized the event. The objective of Employment Expo was to provide a platform to CUST students/graduates to interact with firms for Jobs, Internships, apprenticeships and project opportunities.









| Participar | nt Companies and Organizations |
|------------|--------------------------------|
| C No | Companies |

| S. No | Companies | | | |
|-------|---------------------------|--|--|--|
| 1 | National Logistics Cell | | | |
| 2 | Worker Bees BPO | | | |
| 3 | Telebridge Communications | | | |
| 4 | Emerging Visions | | | |
| 5 | Jubilee Family Takaful | | | |

| 6 | Touchstone | | | |
|----|----------------------------------|--|--|--|
| 7 | Adamjee Life Insurance | | | |
| 8 | Efu Life Insurance | | | |
| 9 | Protégè Global | | | |
| 10 | Catalyst Technologies | | | |
| 11 | Job 360 Portal | | | |
| 12 | Right Jobs | | | |
| 13 | Pakistan Startups | | | |
| 14 | Abacus Consulting | | | |
| 15 | Preparation For life | | | |
| 16 | The NGO World | | | |
| 17 | SAJIF | | | |
| 18 | Youth Parliment | | | |
| 19 | AKSA Development Solutions | | | |
| 20 | SKMH Research Centre | | | |
| 21 | S&P Global | | | |
| 22 | SAP Marketing | | | |
| 23 | PR Next | | | |
| 24 | Integrated Health Services | | | |
| 25 | Digital Transformation Solutions | | | |
| 26 | Cobweb Consultants | | | |
| 27 | Swift Business Solutions | | | |
| 28 | Immentia | | | |
| 29 | Exagic | | | |
| 30 | Jin Technologies | | | |
| 31 | Aiztek Technologies | | | |
| 32 | Energies International | | | |
| 33 | Mystic Bots | | | |
| 34 | IdeoFuzion | | | |
| | | | | |

Summarized Details of CEE 2019

- ♦ More than 35 companies participated in the expo
- ♦ More than 800 students and alumni attended CEE 2019
- ♦ 650 Screen Interviews were conducted
- ♦ More than 100 Executives of various organizations attended CEE 2019
- ♦ More then 600 CVs and resumes were collected before the event
- Some of the students were hired by various organizations

Alumni Relations

Liaison with Alumni is another essential element of the Directorate of Corporate Linkages. The recently launched Association of CUST/MAJU Alumni (ACMA) is one such effort in this direction. ACMA social media derive has attracted a large number of Alumni. The Directorate also arranges special dinners or gives out invitations for interaction with Alumni so that contact between them and the institution remains alive.

Advocacy and Image Building

The Directorate of Corporate Linkages represents the University at Forums, Exhibitions and Conferences. Recent examples are the Employment Expos of Jang, Dawn, News etc. where a strong presence of the institution was apparent through well placed and equipped stalls.

Skills for life

The Directorate of Corporate Linkages prepares the graduates of CUST for employment in the market, or for self employment. An attempt is made to give the students a touch of the working environment through the RSVP program. Here volunteers are selected and are attached to various Directorates of the University where they could gain some work experience. Certificates of merit are issued to those who excel. Students close to graduation are assisted with proper CV preparation before the corporate sector is invited to the campus. Proper binded books containing the CV's of graduating students are prepared and distributed to prospective employers. Furthermore seminars and training workshops, lectures etc. are also held free of cost for the benefit of students who are in their final semesters.

8.5. Management Trainee Recruitment Drive of Mezan Oil PVT Ltd

Directorate of Corporate Linkages invited Mezan Oil to conduct a recruitment drive for the post of Management Trainee. CUST was one of the four universities in the region which participated in the Management Trainee Program. The program targeted BBA/MBA final year students. The HR advisor of Mezan group, Mr. Al Karim Hassan presented a brief overview about the company and its Management Trainee Program. The company conducted the screening interviews and shortlisted candidates for the position of Management Trainees. Mr. Al Karim Hassan apprised the audience that company intends to announce such program in the domains of Supply Chain and Finance in future and anticipated to visit CUST again.

8.6. Industrial Open House

Every year Capital University of Science and Technology organizes its annual event entitled as "Industrial Open House". The event provides a platform to the graduating engineers, programmers and young innovators of CUST to showcase their design projects and prove their skills in front of renowned professionals from industry and academia. The event is academically significant for the students as they not only get the opportunity to showcase their projects, knowledge and skills but also provides them a prospective opportunity to meet the professionals from different industries and organizations.

8.7. 9th Industrial Open House

Following the tradition, the 9th Industrial Open House was held on 18th Jul 2019. The event was inaugurated by Prof. Dr. Muhammad Mansoor Ahmed, Vice Chancellor, Capital University of Science and Technology, Islamabad. Students' projects were viewed and evaluated by the representatives from industry and academia and on spot interviews were also held. To evaluate the projects of the students, judges were invited from industry and academia. A total of 121 student's Projects of Faculty of Engineering and Faculty of Computing were exhibited. The representatives from different industries and academic institutions visited the occasion. The professionals showed keen interest in the student's projects and acknowledged their efforts.





The closing ceremony started with the recitation of Holy Quran. The convener of the event, Dr. Nayyer Masood thanked the entire representatives from industry and academia for sparing time for the event and showing keen interest in the projects of the students. Prof. Dr. Muhammad Mansoor Ahmed, along with Dean Faculty of Engineering and Dean Faculty of Computing distributed shields among the supervisors of winning projects and among those students whose project got First, Second and Third positions. Shields were also awarded to the judges who spared time for the task of judgment.

In his address to the students, Prof. Dr. Muhammad Mansoor Ahmed, appreciated the hard work students exhibited through their projects. He said that this is almost the end of their academic journey and now they are ripe to serve the industry. He also appreciated the efforts of the faculty members, in classrooms and in the character building and grooming of students.





| Participan | Companies and Organizations | | | | |
|------------|---------------------------------------|--|--|--|--|
| S. No | Companies | | | | |
| 1 | Pakistan Telecom Authority | | | | |
| 2 | PAEC | | | | |
| 3 | E-Strats | | | | |
| 4 | TECHNOWORKS | | | | |
| 5 | KRL | | | | |
| 6 | Heavy Industries Taxila | | | | |
| 7 | Zong | | | | |
| 8 | Rawal Industry Equipment | | | | |
| 9 | Tangent Tech | | | | |
| 10 | Environmental Engineering Centre | | | | |
| 11 | SIM COE IT | | | | |
| 12 | Bin Ameer Engineering | | | | |
| 13 | Meeca Minitry of Energy | | | | |
| 14 | COMSATS University Islamabad | | | | |
| 15 | ELIXIR Technologies | | | | |
| 16 | PWR | | | | |
| 17 | BUST Apps | | | | |
| 18 | Abso Apps | | | | |
| 19 | PENZYM | | | | |
| 20 | Quantum Energy | | | | |
| 21 | Securing Information System (PVT) LTD | | | | |
| 22 | CMPak Limited | | | | |
| 23 | KUST | | | | |
| 24 | PMAS Arid Agriculture University, Rwp | | | | |
| 25 | Bahria University, Islamabad | | | | |
| 26 | HITEC University Taxila | | | | |
| 27 | Foundation University, Islamabad | | | | |
| 28 | University of Lahore | | | | |
| | | | | | |

8.8. 8th Industrial Open House

The departments of Computer Science, Electrical Engineering, Mechanical Engineering and Bioinformatics & Biosciences of Capital University of Science and Technology, Islamabad organized 8th Industrial Open House on July 19, 2019. A total of 98 FYPs of the students from department of Computer Science, Electrical Engineering, Mechanical Engineering, Civil Engineering and Biosciences were exhibited and visited by industry and academia.





| Participant C | Participant Companies and Organizations | | | | |
|---------------|---|--|--|--|--|
| S. No | Companies | | | | |
| 1 | NESCOM | | | | |
| 2 | Ignite | | | | |
| 3 | APCOMS | | | | |
| 4 | NESPAK | | | | |
| 5 | ELIXIR | | | | |
| 6 | Jin Technologies (PVT) Ltd | | | | |
| 7 | Emumba | | | | |
| 8 | Simcoe IT | | | | |
| 9 | IBM | | | | |
| 10 | Awrika | | | | |
| 11 | Zeeshan Electronics | | | | |
| 12 | Design & Consulting Engineers | | | | |
| 13 | PWR | | | | |
| 14 | TReSol | | | | |
| 15 | Urban Planning & Design (Pvt) Ltd | | | | |
| 16 | Ahmed Construction Company | | | | |
| 17 | Herbion Pakistan | | | | |
| 18 | Green Land Engineers Daska | | | | |
| 19 | University of Haripur | | | | |
| 20 | Heavy Industries Taxila | | | | |
| 21 | Sabro Technologies Pvt Ltd | | | | |
| 22 | NARC, Islamabad | | | | |
| 23 | Bentley Systems (PVT) Ltd | | | | |
| 24 | Digital Craft | | | | |
| 25 26 | Aksa-Sds UOL | | | | |
| | | | | | |
| 27 28 | AFIP, CMH | | | | |
| | Designmen Parteners him | | | | |
| 29 | Partenership | | | | |

| 30 | FJWU | | | |
|----|---|--|--|--|
| | | | | |
| 31 | FORD | | | |
| 32 | H-Cube Group of Companies | | | |
| 33 | Naqvi & Saddique Architect Engg | | | |
| 34 | ABASYN University | | | |
| 35 | EARNEST Pakistan | | | |
| 36 | IST, Islamabad | | | |
| 37 | RCMS, NUST | | | |
| 38 | PMAS Arid Agriculture University, Rwp | | | |
| 39 | NUST, Islamabad | | | |
| 40 | HITECH University, Taxila | | | |
| 41 | EME College NUST | | | |
| 42 | International Islamic University, Islamabad | | | |
| 43 | Hamdard University, Islamabad | | | |
| 44 | University of Dammam | | | |
| | | | | |

Chairman Pakistan Engineering council (PEC), Engr. Javed Saleem Qureshi was Chief Guest at the occasion. The chairman showed his extreme satisfaction upon accreditation of all the three engineering programs at CUST and advised the continual of same level of efforts. More than 90 representatives from various industries and academic institutes visited the event. The professionals showed keen interest in the student's projects and acknowledged their efforts.





The representatives from Industry and academia were also invited to evaluate the projects for top three positions. The winners were awarded shields and certificates in the closing ceremony.

9. Student's Access

9.1. Student's Access

Capital University of Science & Technology (CUST) since its inception, has tried its best to make quality education reachable to all students in Pakistan, including those from low and middle-income backgrounds. The university aims to provide equal prospects to all students in attaining their goals and targets irrespective of their financial positions or social status. CUST is an open merit institute with equal opportunities to all students irrespective of their gender, religion, race, creed, color or region provided if they academically qualify for admissions to the courses of study offered.





9.2. Students Enrollment

CUST started its journey as Muhammad Ali Jinnah University (MAJU) back in 1998 with less than 400 students graduating from its first induction. Since then, its enrollment is on continual increase which is a clear indication of pronounced educational standards. Until now about 7918 students have graduated from the institute in different disciplines. Currently more than 4400 students including 1365 postgraduate students are enrolled at CUST in various disciplines.





The momentous students' strength at research degree programs (MS/Phil and PhD) shows the unsparing availability of faculty, research labs and other associated facilities in the campus.

9.3. Gender wise Detail of student's Enrollment

The percentage of male and female students admitted in 2018-19 is 69.8% and 30.1% respectively. Students are admitted regardless of their gender, race or religion. Following table depicts the gender wise enrollment of students in 2018-19 in various faculties.

| S.No. | Faculty | Males | Females |
|-------|---|-------|---------|
| 1 | Faculty of Engineering | 332 | 27 |
| 2 | Faculty of Computing | 405 | 122 |
| 3 | Faculty of Health & Life Sciences | 29 | 94 |
| 4 | Faculty of Management & Social Sciences | 325 | 227 |
| Total | | 1091 | 470 |

9.4. Faculty Student (FS) Ratio

The followings numbers present the overall and department wise faculty-students (FS) ratio. The overall ratio comes out to be 23.37 which is quite reasonable figure showing the adequate faculty strength against the students.

| S.No. | Department | Students | Faculty | FS Ratio |
|-------|---|----------|---------|----------|
| 1 | Faculty of Engineering | 1277 | 74 | 17.25 |
| 2 | Faculty of Computing | 1778 | 69 | 25.76 |
| 3 | Faculty of Health & Life Sciences | 299 | 21 | 14.23 |
| 4 | Faculty of Management & Social Sciences | 1406 | 39 | 36.05 |
| Total | | 4760 | 203 | 23.37 |





9.5. Scholarships

CUST scholarship policy has been framed with objective to assist students with their educational expenses. Every year, the university allocates funds from its own resources in its budget exclusively for awarding scholarship.

In FY 2018-19, an amount of Rs. 158.48 Million has been disbursed among 4113 eligible and deserving students. Following is the financial detail of scholarships awarded in last year only which is a clear indication of our resolve to provide equal academic opportunities to all taking aside their financial condition.

| Semester | Number of Scholarships | Amount |
|-------------|------------------------|---------|
| Fall 2018 | 2081 | 79.98 M |
| Spring 2019 | 2032 | 78.50 M |
| Total | 4113 | 158.48M |

| Undergraduate Programs Jinnah Scholarship | | | | | | | | |
|---|-------------------|--------|----|-----------------------------|--|----|-------------------------|------------------|
| S. No | Percentage FA/FSc | Earned | in | Percentage FA/FSc (for D | | in | Scholarship | Continuation GPA |
| 1 | 75 % Marks | | | 65 % Marks | | | 40 % Tuition Fee Waiver | $GPA \geq 3.0$ |
| 2 | 85 % Marks | | | 75 % Marks | | | 50 % Tuition Fee Waiver | GPA > 3.5 |

100 % Tuition Fee Waiver GPA \geq 3.75

80 % Marks

| Undergraduate | Programs | Marit Scholarsk | ninc |
|----------------|------------|-------------------|------|
| Ullucigiauuale | riugiailis | IVICITE SCHOLARSI | IIDS |

90 % Marks

3

| S. No | After each semester results | Scholarship | Condition |
|-------|-----------------------------------|-------------------------|-----------------|
| 1 | 4.00 GPA with at least 15 Cr. Hrs | 75 % Tuition Fee Waiver | Semester Based |
| 2 | 1st Position in the Batch | 60 % Tuition Fee Waiver | CGPA \geq 3.5 |
| 3 | 2nd Position in the Batch | 50 % Tuition Fee Waiver | CGPA \geq 3.5 |
| 4 | 3rd Position in the Batch | 40 % Tuition Fee Waiver | CGPA \geq 3.5 |

Undergraduate Programs Other Scholarships

| S. No | Туре | Scholarship | Condition |
|-------|-------------------------|---------------------------------|-----------------------|
| 1 | Kinship | 25 % Tuition Fee Waiver to Each | Kins Must be Enrolled |
| 2 | CUST/MAJU/ PGC/ Alumni | 25 % Tuition Fee Waiver | GPA \geq 2.5 |
| 3 | Need Based | Up to 50 % Tuition Fee Waiver | $GPA \geq 3.0$ |
| 4 | Employee's Son/Daughter | 50 % Tuition Fee Waiver | CGPA ≥ 3.5 |

MS /MPhil Programs (Jinnah Scholarship)

| • | o , | • • | | |
|-------|-----------------------|-------------------------|-------------------------|------------------|
| S. No | CGPA/ Percentage (16- | CGPA/ Percentage (16- | Scholarship | Continuation GPA |
| | year Qualification) | year Qualification)(for | | |
| | | Disabled) | | |
| 1 | 3.0/4.0 CGPA or 75% | 2.75/4.0 CGPA or 65% | 40 % Tuition Fee Waiver | GPA ≥ 3.3 |
| | Marks | Marks | | |
| 2 | 3.5/4.0 CGPA or 85% | 3.3/4.0 CGPA or 75% | 50 % Tuition Fee Waiver | GPA ≥ 3.5 |
| | Marks | Marks | | |
| 3 | 3.75/4.0 CGPA or 90% | 3.5/4.0 CGPA or 80% | 60 % Tuition Fee Waiver | GPA ≥ 3.75 |
| | Marks | Marks | | |

Faculty Development Scholarship

| S. No | Service Length at CUST | Scholarship | Continuation GPA | |
|-------|--------------------------------------|--------------------------|------------------|--|
| 1 | Faculty with at least 3-year service | 50 % Tuition Fee Waiver | $GPA \geq 3.0$ | |
| 2 | Faculty with at least 4-year service | 75 % Tuition Fee Waiver | GPA ≥ 3.0 | |
| 3 | Faculty with at least 5-year service | 100 % Tuition Fee Waiver | $GPA \geq 3.0$ | |

10. Quality Assurance

10.1. Quality Enhancement Cell (QEC)

Quality Enhancement Cell (QEC) at Capital University of Science & Technology, Islamabad Campus (CUST) is taking deliberate steps to bring about continual improvement in the effectiveness of the learning experience of students. In Quality Enhancement Cell (QEC) there is greater emphasis on Internal QA and the encouragement of an institutional "Quality Culture".





QEC has the responsibility to ensure that the university's quality assurance procedures are compatible with international standards and are designed to improve the quality of higher education. At CUST we believe, that quality enhancement and assurance is a collective responsibility and that it is the professionalism and creativity of staff, individually, that makes the most vital contribution to the enhancement of provision, through their attention to their students' experience as learners, to the development of their disciplines, and their engagement with their teaching practice.

QEC Vision

"To be recognized as the leading educational institution, instilling and pursuing the highest quality assurance practices, both nationally and internationally"

QEC Mission

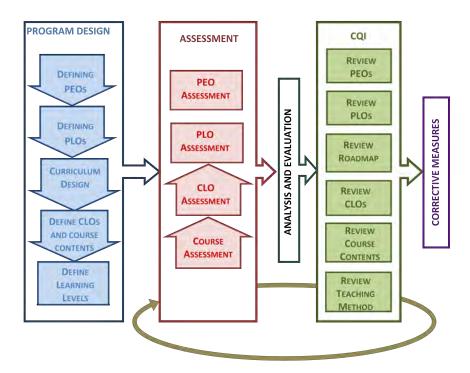
"Incorporating continuous quilty improvement in teaching, student learning, and administrative support mechanism"

10.2. Outcome Based Education (OBE) System at CUST

CUST follows a comprehensive Outcomes Based Education (OBE) system in designing, execution and improvement of its academic programs. This system was adopted in year 2014 and all the components of OBE including program design and approval, assessment methodology and Continuous Quality Improvement (CQI), have been incorporated in the system. Since 2014, CUST has made good progress in implementing OBE in its programs. All the undergraduate programs have fully implemented the system with its full functionality including assessment and review process.

Processes Involved in OBE System at CUST

The three main processes involved in the overall OBE System at CUST include curriculum design process, which is done once in the start of an academic program and then the on-going processes of CQI are initiated for continuous improvement of the programs including OBE based assessment process and curriculum review process.



The program/courses design and CQI is a thorough process that involves various university bodies at different levels, which are a part of overall Quality Management System (QMS) of the University.

10.3. Continual Quality Improvement (CQI) Process

The programs are reviewed through a comprehensive Continual Quality Improvement (CQI) process, whereby the assessment outputs of each semester are analysed and a review process is initialized.

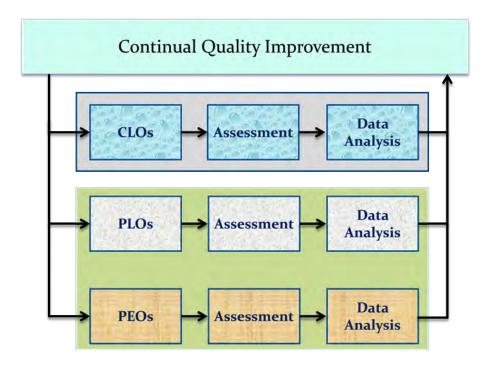
There are three levels at which the programs are reviewed and correspondingly, there are three review cycles related to CLO assessment, PLO assessment and PEO assessment, which run simultaneously. Two levels of curriculum review are carried out using these three assessment cycles. The first level is course level review, which includes review of CLOs, course contents, teaching methods, course activities, etc. The second level is the program level review, which includes reviewing PLOs, program roadmap, adding courses, etc. The frequency of CLO assessment cycle and PLO assessment cycle is at least once a year and the review reports on these assessments are written by the end of every summer semester.

Assessment is a bottom-up process starting from course evaluation including direct assessment of students, then CLO assessment, PLO assessment and then PEO assessment. Curriculum review is again a top down approach starting from reviewing PLOs if required, reviewing the roadmap and program structure, reviewing individual CLOs, reviewing course contents, and finally reviewing teaching methodology if required.

The overall process is based on important data which include student feedback of courses, Course review reports with coverage of course contents, PLO and CLO assessment, Counselors feedback, Exit survey of graduating students, Alumni survey, Employer's feedback, Internship feedback and Final year project evaluation.

The assessment data is firstly analyzed against the KPIs by the QAC departmental member, and the summary is presented in the CQI Review Report. Along with regular quantifiable data like Course CLO/PLO assessment, FYP marks and surveys satisfaction percentages, student feedback of course/teacher, comments of teacher on CRR and important points in Counselling meetings are also considered for CLO, PLO and PEO evaluation.

The CQI report is presented and thoroughly reviewed in the Departmental Faculty Meeting, which assigns the tasks of Program or Course level review to the Curriculum Review Committee (CRC). The CRC thoroughly analyses the data including Course files and summary evaluation report by QAC member and sorts out concrete corrective actions related to the revisions required in the program or individual courses.



10.4. QEC Events and Activities

Institutional Performance Self Evaluation

Institutional Performance Evaluation (IPE) of Capital University of Science and Technology was conducted on 3rd and 4th June 2019 in order to check the compliance of the university to eleven IPE Standards including, Mission statement and Goals, Planning and Evaluation, Organization and Governance, Integrity, Faculty, Students, Institutional Resources, Academic Programs and Curricula, Public Disclosure and Transparency, Assessment and Quality Assurance, and Student Support Services.

The evaluation team comprised of the following members:

- Dr. Imtiaz Ahmad Taj (Internal Member)
- ⋄ Dr. Aamer Nadeem (Internal Member)
- ⋄ Dr. Sajid Bashir (Internal Member)
- Dr. Arshad Islam (External Member)

The University Portfolio Report (UPR) 2018-2019 was reviewed in detail along with all the evidences provided to the evaluation team against each standard and sub-criterion. Meetings with relevant university officers including Controller of Examination (CoE), Deputy Registrar, Director Graduate Studies, Dean QEC, and relevant Heads of Departments (HoDs) were also conducted about related queries. Based on the thorough review of the documents / evidences, IPE Review Team showed their satisfaction on the functioning of CUST and appreciated the efforts of university management in maintaining quality culture.





PhD/MS Self Review

PhD/MS Self Review activity was done to evaluate the graduate programs (MS, MPhil, PhD) of Capital University of Science and Technology on 5th and 6th June 2019.

The Review Committee was comprised of following members:

- ⋄ Dr. Muhammad Abdul Qadir, Dean Faculty of Computing
- ♦ Dr. Noor M. Khan, HoD Electrical Engineering
- Mr. Khalid Mahmood, Director Graduate Studies

The primary objective of this activity was to ascertain whether the Graduate programs being offered in University are following HEC guidelines. The panel reviewed Review Performa for PhD and MS programs of all seven departments, which was found up to the mark. The Review Panel appreciated the endeavors of university leadership and administration in maintaining a good culture for quality education at CUST.

QAC Meetings

QAC Meetings are held on continual basis to oversee the activities of QEC. These meetings not only review the recent activities and progress report of QEC but also give recommendations to improve quality standards in the university with respect to curriculum design, teaching methods and other associated areas. The quality indicators like Freshman Survey, Exit Survey, Alumni Survey, Employer Survey etc. are also discussed in the particular QAC meetings.

The QAC Meeting is chaired by Dean QEC and is attended by Quality Assurance Committee (QAC) which consists of a representative faculty member from each department. Until now 27 QAC Meeting are held.





Seminar on Preparation of Graduate SARs

A seminar titled "Preparation of Graduate SARs" was organized by Quality Enhancement Cell on 4th July 2019. Dean QEC, Dr. Amir Qayyum and Dean FoE, Dr. Imtiaz Ahmed Taj were the Resource Persons.

Dr. Imtiaz Ahmed Taj gave a comprehensive presentation covering all the Criterion and Standards of SAR. The presentation majorly focused on the need and mechanism of quality assurance in HEIs. The seminar was attended by around 20 faculty members from all the departments of CUST. It was an interactive session where participants actively interacted with the resource persons to learn from their knowledge and experience.

HEC Progress Review Meeting & Training of QECs

The Quality Assurance Agency (QAA) of Higher Education Commission organizes a cycle of progress review meetings and training activities of its Quality Enhancement Cells (QECs) at 184 universities across Pakistan. This two day progress review meeting and training session is organized every year. This year all the QECs were divided into 10 groups and a two day activity for the first group started on 1st April where 17 QEC representatives turned up.

Dean QEC Dr. Amir Qayyum and Assistant Director QEC Umair Manzoor represented CUST in progress Review Meeting and Training of 9th Group of QECs held on 29th & 30th April, 2019 at Grand Ambassador Hotel, Islamabad. On the first day, 13 QEC representatives participated. They delivered presentations on their performance in the last year. Dr. Amir Qayyum presented the progress of CUST for FY 2018-19. In his presentation, he updated that CUST has been able to complete self-Assessment Reports (SARs) for all BS and MS programs, whereas, its PhD SARs are in progress. He added that all MS and PhD programs were reviewed and their status was satisfactory. Mr. Shoaib Irshad, Deputy Director (QAA) was the moderator of the session who assured all the QEC representatives that role of QAA, HEC is of a facilitator and our support is always there to develop quality culture in universities.

The second day started with the opening remarks of chair of the session Mr. Shafi Ullah Khan, Director QAA, HEC who shed light on the HEC's vision regarding quality enhancement.

After the opening remarks, training session started. Mr. Muhammad Raza, Deputy Director (IPE) gave training on the modalities of Institutional Performance Evaluation, briefly discussed the review of MS and MPhil or equivalent programs, PhD programs review and yearly progress report of QECs. At the end of training session, a group activity was conducted for the analysis of UPR by the participants. In this activity, a set of questions were given and the participants were required to have a brain storming session of 20 minutes in groups. During this time, they had to decide the list documents required to be attached as evidence against various sections of UPR. At the end of this brainstorming session, 10 to 15 minutes were given to each group for presentation, during which a panel of senior experts evaluated each group's responses. This activity gave a good opportunity to all to learn from each other's experience.

One Day Seminar on Quality Assurance in Higher Education & University Ranking

A seminar titled "Quality Assurance in Higher Education & University Ranking" was organized by Foundation University Institute (FUI) on 18 April, 2019. Dr. Riaz Ahmed, Director Quality Assurance at NUST, was the Resource Person. The seminar was chaired by Pro- Rector FUI Dr. Abdul Ghafoor and attended by more than 20 QEC Officials from various universities located in Rawalpindi and Islamabad and 50 Faculty Members of FUI. Umair Manzoor, Assistant Director QEC attended the seminar from CUST.



The resource person gave a comprehensive presentation covering major aspects of the theme. The presentation majorly focused on the need and mechanism of quality assurance in HEIs and university ranking and the role of quality enhancement cells in this regard. He also highlighted the challenges faced during the implementation of Quality Assurance process. It was an interactive session where participants actively interacted with the resource person to learn from his knowledge and experience in the field of Quality Assurance in Higher Education sector. Dr. Abdul Ghafoor, Pro-Rector FUI laid emphasis on the importance of quality assurance in his concluding remarks. He also showed his pleasure to note that the seminar was able to achieve its most important objectives. At the end of seminar, certificates were distributed among all the participants.

11. Extra Curricular Activities

Sports are an important part of every society, country and individual. With its economic, social and individual aspects, sports have very significant role in raising healthy generations, public health protection, building social peace and harmony. Holistic development of a student is possible only when he is physically fit and emotionally balanced and this is achieved through sports. Understanding the wide ranging benefits of sports is the primary reason that Capital University encourages sporting activities and is striving to promote the physical and mental well-being of students.





11.1. Sports Budget 2018-19

Capital University of Science & Technology allocates a handsome amount of budget exclusively for extracurricular activities each year so that students get indulged in healthy sports activities alongside studies. The amount of 1,336,900 PKR was allocated for sports activities in recent year including 1,050,000 Rs for Annual Sports week and an amount of 1,27,550 Rs for of sports equipment. The university has also allocated equitable funds for HEC Zonal Championships.

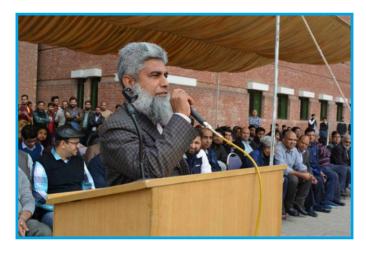
| S.No. | Particulars | Approved Budget (Rs) |
|-------|--|----------------------|
| 1 | Annual Sports week Spring-2019 | 1,050,000 |
| 2 | Sports Equipment Purchase | 1,27,550 |
| 3 | Interdepartmental Volleyball Tournaments | 29,880 |
| 4 | Interdepartmental Lawn Tennis Tournament | 12,960 |
| 5 | Inter Faculty Hockey Tournament | 34,120 |
| 6 | Interdepartmental Snooker Tournament | 21,410 |
| 7 | HEC Zonal Table Tennis Championship | 4,550 |
| 8 | HEC Zonal Badminton Championship | 6,750 |
| 9 | HEC Zonal Hockey Championship | 15,480 |
| 10 | HEC Zonal Football Championship | 15,480 |
| 11 | HEC Zonal Volleyball Championship | 9,360 |
| 12 | HEC Zonal Basketball Championship | 9,360 |
| Total | | 1,336,900 |

11.2. Annual Sports Week 2019

Sports week 2019 was held at Capital University of Science & Technology Islamabad from 18th to 22nd March, 2019. More than 600 students participated in different sports events. The overall interest and participation was overwhelming. Both boys and girls competed in a total of 26 inter-departmental competitions in following sports:

- 1 Cricket
- 2 Football
- 3 Volleyball
- 4 Squash
- 5 Table Tennis,
- 6 Lawn Tennis
- 7 Basketball.
- 8 Badminton
- 9 Snooker
- 10 Chess
- 11 Tug of War
- 12 Athletics





A total of eight different departmental teams participated in these tournaments including departments of Management Sciences (MS), Computer Science (CS), Electrical Engineering (EE), Biosciences (BS), Mechanical Engineering (ME), Civil Engineering (CE), Software Engineering (SE) and Mathematics (M). Each department was issued its own colored kits and the matches were conducted in CUST premises, Shalimar Club and Paradise Snooker Club adjacent to CUST.





All the competitions were played on knockout bases and all matches were full of excitement and zealously fought by competing teams. The players including both boys and girls competed with full passion and high class of sportsmanship. The faculty members also actively participated not only by supporting their respective departmental teams but also through contesting in various competitions which were organized especially for faculty members.

Department wise Results Annual Sports Week 19

| S.No. | Games | Winner (Department) |
|-------|------------------------------|--------------------------------|
| 1 | Football (Boys) | Software Engineering |
| 2 | Volleyball (Boys) | Civil Engineering |
| 3 | Squash (Boys) | Software Engineering |
| 4 | Cricket Softball (Boys) | Management Sciences |
| 5 | Basketball (Boys) | Management Sciences |
| 6 | Chess (Boys) | Management Sciences |
| 7 | Tug of War (Boys) | Computer Science |
| 8 | Lawn Tennis (Boys Singles) | Computer Science |
| 9 | Lawn Tennis (Boys Team) | Electrical Engineering |
| 10 | Badminton (Boys Singles) | Computer Science |
| 11 | Badminton (Boys Team) | Computer Science |
| 12 | Table Tennis (Boys Singles) | Software Engineering |
| 13 | Table Tennis (Boys Team) | Software Engineering |
| 14 | Snooker (Boys Singles) | Computer Science |
| 15 | Snooker (Boys Team) | Computer Science |
| 16 | Cricket Softball (Girls) | Biosciences and Bioinformatics |
| 17 | Basketball (Girls) | Management Sciences |
| 18 | Chess (Girls) | Management Sciences |
| 19 | Lawn Tennis (Girls Singles) | Management Sciences |
| 20 | Badminton (Girls Singles) | Management Sciences |
| 21 | Badminton (Girls Team) | Management Sciences |
| 22 | Table Tennis (Girls Singles) | Computer Science |
| 23 | Table Tennis (Girls Team) | Management Sciences |
| 24 | Snooker (Girls Singles) | Biosciences and Bioinformatics |
| 25 | Tug of War (Girls) | Management Sciences |
| 26 | Athletics (Girls) | |
| | 1 100 M Race | |
| | | 1 Mathematics |
| | 2 Relay Race | 2.14 |
| | | 2 Management Sciences |
| | 3 Legged Race | 2 Computer Science |
| | | 3 Computer Science |
| | | |





11.3. Faculty Games

The following games were held for faculty members and staff.

1 Table Tennis (Singles)

- 2 Table Tennis (Team)
- 3 Badminton (Singles)
- 4 Badminton (Team)
- 5 Chess
- 6 Cricket (softball)
- 7 Basketball

11.4. Inter-Departmental Sports Events for Boys

Inter Faculty Hockey Tournament

The Inter Faculty Hockey Tournament was held on 2nd December 2018. The faculty of Management Sciences won the tournament beating faculty of Electrical Engineering in the final. All of the matches were held on the same day.

| Schedule & Results | | | |
|--------------------|-----------|-------------|-----------------|
| Date | Match | Team | Winner (Result) |
| 2nd December, 2018 | 1st Match | FOC Vs FOE | FOE |
| 2nd December, 2018 | 2nd Match | FOE Vs FOMS | FOE |
| 2nd December, 2018 | 3rd Match | FOC Vs FOMS | FOMS |
| 2nd December, 2018 | Final | FOE Vs FOMS | FOMS |





Inter-Departmental Snooker Tournament (Singles & Doubles)

The Inter Departmental Snooker Tournament was held on 22nd December 2018. The team of Electrical Engineering Department won both the tournaments (Singles and Doubles). The department of Computer Sciences and Management Sciences stood runner up in singles and doubles tournaments respectively.

| Schedule & Results (Singles) | | | | |
|------------------------------|----------------|--------|--|--|
| Match | Teams | Winner | | |
| Pool Match | ME Vs BS/Maths | ME | | |
| Pool Match | SE Vs CE | SE | | |
| Pool Match | EE Vs CS | CS | | |
| Pool Match | MS Vs BS/Maths | MS | | |
| Pool Match | CS Vs SE | CS | | |
| Pool Match | EE Vs CE | EE | | |
| Pool Match | MS Vs ME | ME | | |
| Pool Match | EE Vs SE | EE | | |
| Semi Final | ME Vs EE | EE | | |

| Semi Final | CS Vs MS | CS | |
|-------------------------|----------------|----|--|
| | | | |
| Final | EE Vs CS | EE | |
| Schedule & Results (Dou | bles) | | |
| Pool Match | ME Vs BS/Maths | ME | |
| Pool Match | SE Vs CE | CE | |
| Pool Match | MS Vs BS/Maths | MS | |
| Pool Match | SE Vs CS | CS | |
| Pool Match | CE Vs EE | EE | |
| Pool Match | MS Vs ME | MS | |
| Pool Match | CS Vs CE | CS | |
| Semi Final | CS Vs MS | MS | |
| Semi Final | EE Vs ME | EE | |
| Final | EE Vs MS | EE | |





Inter Departmental Badminton Tournament

The Inter departmental Badminton tournament was scheduled on 10th March, 2018. The team of Electrical Engineering department won the single event and Computer Science team stood as runner up whereas in team event Electrical Engineering won the tournament beating Mechanical Engineering department in the final.

| Schedule & Results (Singles) | | | | |
|------------------------------|-----------|--------|--|--|
| Match | Teams | Winner | | |
| Pool Match | ME Vs MS | MS | | |
| Pool Match | BI Vs MS | CS | | |
| Pool Match | MS Vs CE | MS | | |
| Pool Match | EE Vs BI | EE | | |
| Pool Match | CE Vs ME | CE | | |
| Pool Match | CS Vs EE | EE | | |
| Semi Final | MS Vs CS | CS | | |
| Semi Final | CE Vs EE | EE | | |
| Final | CS Vs EE | EE | | |
| Schedule & Results (I | Doubles) | | | |
| Pool Match | CS Vs Bio | CS | | |
| Pool Match | ME Vs MS | MS | | |
| Pool Match | CS Vs CE | CS | | |
| Pool Match | ME Vs EE | ME | | |
| Pool Match | CE Vs Bio | CE | | |
| Pool Match | EE Vs MS | EE | | |
| Semi Final | EE Vs CS | EE | | |
| Semi Final | ME Vs CE | ME | | |
| Final | ME Vs EE | EE | | |

Inter Departmental Squash Tournament

The Inter departmental Squash tournament held on 10th March, 2018 was won by Computer Science department against the Electrical Engineering team in the final.

| Schedule & Results (Singles) | | | | |
|------------------------------|-----------|--------|--|--|
| Match | Teams | Winner | | |
| Pool Match | ME Vs MS | ME | | |
| Pool Match | BI Vs CE | CE | | |
| Pool Match | MS Vs CS | CS | | |
| Pool Match | EE Vs CE | EE | | |
| Pool Match | CS Vs ME | CS | | |
| Pool Match | Bio Vs EE | EE | | |
| Semi Final | CE Vs CS | CS | | |
| Semi Final | ME Vs EE | EE | | |
| Final | CS Vs EE | CS | | |





Inter-Departmental Lawn Tennis Tournament (Singles & Doubles)

The Inter Departmental Lawn Tennis Tournament was held from 26th to 29th November and 3rd to 4th December 2018. The team of Electrical Engineering Department won both the tournaments (Singles and Doubles). The department of Computer Sciences and Management Sciences stood runner up in singles and doubles tournaments respectively.

| Schedule & Results (Singles) | | | | |
|------------------------------|--------------|----------------|----------|--|
| Date | Match Status | Teams | Winner | |
| November 26, 2018 | Pool Match | EE Vs CS | EE | |
| November 26, 2018 | Pool Match | SE Vs BS/Maths | BS/Maths | |
| November 26, 2018 | Pool Match | EE Vs ME | EE | |
| November 27, 2018 | Pool Match | CE Vs MS | MS | |
| November 27, 2018 | Pool Match | CS Vs ME | CS | |
| November 27, 2018 | Pool Match | SE Vs MS | MS | |
| November 28, 2018 | Pool Match | MS Vs BS/Maths | MS | |
| November 28, 2018 | Pool Match | CE Vs SE | CE | |
| November 28, 2018 | Pool Match | CE Vs BS/Maths | CE | |
| November 29, 2018 | Semi Final | MS Vs CS | CS | |
| November 29, 2018 | Semi Final | EE Vs CE | EE | |
| November 29, 2018 | Final | EE Vs CS | EE | |

| Schedule & Results (Doubles) | | | | |
|------------------------------|--------------|----------------|----------|--|
| Date | Match Status | Teams | Winner | |
| December 03, 2018 | Pool Match | EE Vs CS | EE | |
| December 03, 2018 | Pool Match | SE Vs BS/Maths | BS/Maths | |
| December 03, 2018 | Pool Match | EE Vs ME | EE | |
| December 03, 2018 | Pool Match | CE Vs MS | MS | |
| December 03, 2018 | Pool Match | CS Vs ME | ME | |
| December 03, 2018 | Pool Match | SE Vs MS | MS | |
| December 03, 2018 | Pool Match | MS Vs BS/Maths | MS | |
| December 03, 2018 | Pool Match | CE Vs SE | SE | |
| December 03, 2018 | Pool Match | CE Vs BS/Maths | BS/Maths | |
| December 04, 2018 | Semi Final | EE Vs BS/Maths | EE | |
| December 04, 2018 | Semi Final | MS Vs ME | MS | |
| December 04, 2018 | Final | EE Vs MS | EE | |





Inter Departmental Basketball Tournament

The Inter Departmental Basketball Tournament held from 9th May to 14th May, 2018 was won by Electrical Engineering Department against the Management Science Team in the final.

| Schedule & Results (Singles) | | | | |
|------------------------------|--------------|-----------------|--------|--|
| Date | Match Status | Teams | Winner | |
| May, 09 2018 | Pool Match | MS Vs CE | MS | |
| May 09, 2018 | Pool Match | ME Vs CS | CS | |
| May 10, 2018 | Pool Match | CS Vs EE | EE | |
| May 10, 2018 | Pool Match | MS Vs Bio/Maths | MS | |
| May 11, 2018 | Pool Match | ME Vs EE | EE | |
| May 11, 2018 | Pool Match | CE Vs Bio/Maths | CE | |
| May 12, 2018 | Semi Final | MS Vs CS | MS | |
| May 12, 2018 | Semi Final | EE Vs CE | EE | |
| May 14, 2018 | Final | EE Vs MS | EE | |

Inter Departmental Football Tournament

The Inter Departmental Football Tournament was held from 2nd May to 8th May, 2018. The department of Management Sciences won the tournament beating team of Civil Engineering department in the final.

| Schedule & Results (Singles) | | | | |
|------------------------------|--------------|-----------------|--------|--|
| Date | Match Status | Teams | Winner | |
| May 02, 2018 | Pool Match | CS Vs CE | Draw | |
| May 02, 2018 | Pool Match | EE Vs Bio/Maths | EE | |
| May 03, 2018 | Pool Match | MS Vs EE | MS | |
| May 03, 2018 | Pool Match | ME Vs CS | CS | |
| May 04, 2018 | Pool Match | ME Vs CE | CE | |
| May 04, 2018 | Pool Match | MS Vs Bio/Maths | MS | |
| May 05, 2018 | Semi Final | CE Vs EE | CE | |
| May 05, 2018 | Semi Final | MS Vs CS | MS | |
| May 08, 2018 | Final | CE Vs MS | MS | |





Inter Departmental Volleyball Tournament

The Inter Departmental Volleyball Tournament was held from 15th October to 22nd October, 2018. The department of Mechanical Engineering won the tournament whipping Civil Engineering Department in the final.

| Schedule & Results (Singles) | | | | |
|------------------------------|--------------|----------------|--------|--|
| Date | Match Status | Teams | Winner | |
| October 15, 2018 | Pool Match | CS Vs MS | CS | |
| October 15, 2018 | Pool Match | CE Vs BS/Maths | CE | |
| October 16, 2018 | Pool Match | CS Vs ME | CS | |
| October 16, 2018 | Pool Match | EE Vs SE | SE | |
| October 17, 2018 | Pool Match | MS Vs ME | ME | |
| October 17, 2018 | Pool Match | EE Vs BS/Maths | EE | |
| October 17, 2018 | Pool Match | SE Vs CE | SE | |
| October 18, 2018 | Pool Match | CE Vs EE | CE | |
| October 18, 2018 | Pool Match | SE Vs BS/Maths | SE | |
| October 19, 2018 | Semi Final | CE Vs CS | CE | |
| October 19, 2018 | Semi Final | SE Vs ME | ME | |
| October 22, 2018 | Final | CE Vs ME | ME | |

11.5. Interdepartmental Sports Events of Girls

Inter Departmental Badminton Tournament

The Inter departmental Badminton tournament for girls was scheduled on 31st March 2018. The team of Computer Science department won both the single and double tournaments whereas Management Science department stood as runner up.

| Schedule & Results (Singles) | | | | |
|------------------------------|-----------------|-----------|--|--|
| Match Status | Teams | Winner | | |
| Pool Match | CS Vs EE | CS | | |
| Pool Match | CE Vs Bio/Maths | CE | | |
| Pool Match | EE Vs ME | EE | | |
| Pool Match | MS Vs CE | MS | | |
| Pool Match | ME Vs CS | CS | | |
| Pool Match | MS Vs Bio/Maths | MS | | |
| Semi Final | CE Vs CS | CS | | |
| Semi Final | MS Vs EE | MS | | |
| Final | CS Vs MS | CS | | |
| Schedule & Results (Doub | oles) | | | |
| Pool Match | CS Vs EE | CE | | |
| Pool Match | CE Vs Bio/Maths | Bio/Maths | | |
| Pool Match | EE Vs ME | EE | | |
| Pool Match | MS Vs CE | MS | | |
| Pool Match | ME Vs CS | CS | | |
| Pool Match | MS Vs Bio/Maths | MS | | |
| Semi Final | CS Vs Bio/Maths | CS | | |
| Semi Final | MS Vs EE | MS | | |
| Final | CS Vs MS | CS | | |





Inter Departmental Basketball Tournament

The Inter departmental Basketball tournament for girls was scheduled on 25th April, 2018 in which team of Management Science department comfortably won the tournament whipping Computer Science department in the final.

| Schedule & Results (Singles) | | | |
|------------------------------|----------------|-----------------|--------|
| Match Status | Date | Teams | Winner |
| Semi Final | 25 April, 2018 | MS Vs Bio/Maths | MS |
| Semi Final | 25 April, 2018 | EE Vs CS | CS |
| Final | 25 April, 2018 | MS Vs CS | MS |

Inter Departmental Lawn Tennis Tournament

The Inter departmental Lawn tennis tournament for girls was played only between two teams on 30th April 2018. The team of Management Science department comfortably won the tournament against Computer Science department.





Inter Departmental Table Tennis Tournament

The Inter departmental Table tennis tournament for girls was scheduled on 27th March, 2018. The team of Computer Science department grasped both the singles and doubles titles thrashing Management Science department in the finals.

| Schedule & Results (Singles) | | | | |
|------------------------------|-----------------|--------|--|--|
| Match Status | Teams | Winner | | |
| Pool Match | CE Vs EE | EE | | |
| Pool Match | ME Vs MS | MS | | |
| Pool Match | CS Vs CE | CS | | |
| Pool Match | MS Vs Bio/Maths | MS | | |
| Pool Match | EE Vs CS | CS | | |
| Pool Match | ME Vs Bio/Maths | ME | | |
| Semi Final | ME Vs CS | CS | | |
| Semi Final | MS Vs EE | MS | | |
| Final | CS Vs MS | CS | | |
| Schedule & Results (Dou | bles) | | | |
| Pool Match | CE Vs EE | CE | | |
| Pool Match | ME Vs MS | MS | | |
| Pool Match | CS Vs CE | CS | | |
| Pool Match | MS Vs Bio/Maths | MS | | |
| Pool Match | EE Vs CS | CS | | |
| Pool Match | ME Vs Bio/Maths | ME | | |
| Semi Final | ME Vs CS | CS | | |
| Semi Final | MS Vs CE | MS | | |
| Final | CS Vs MS | CS | | |

12. Community Service and Social Work

12.1. Volunteers in Service Directorate (VIS)

Social responsibility is an ethical framework which in context of an individual obliges him or her to act for the benefit of society at large. The core objective of Volunteers in Service Directorate (VIS) is to inculcate social responsibility and volunteerism in students.

The directorate aims to foster socially responsible citizens and to instill a spirit of volunteerism in youth to make them realize the importance of their role in the betterment of society and in eradicating social evils like poverty and illiteracy. For this purpose, every graduating student of CUST is obliged to volunteer 65 hours of community service in order to make him/her a socially responsible citizen.





12.2. Students Involvement Mechanism in Community Service

Every graduating student of CUST has to perform 65 hours of volunteer work. The placement is made by the VIS directorate in one of its partner organizations.

The volunteer work may include:

- ♦ Teaching in non-formal schools
- Social welfare event designing and management
- Marketing of social welfare activities
- Participating in routine activities of a welfare organization
- Facilitating or guiding patients
- ♦ Taking care of disabled and elderly persons

12.3. MoU's and Partner Organizations

MoU's and mutual agreements are being signed with a number of social and humanitarian organizations and institutes on continual basis. Currently VIS directorate has a total of 73 partner organizations and the work is still going on at a rapid pace.

| S.No. | Organization Name | Focal Person |
|-------|--|----------------------|
| 1 | Humanity Advancement through Qarz-e- Hasna | Mr. Faisal Ilyas Dar |
| 2 | Human Resource Development Network | Ms. Afshan Tehseen |
| 3 | Strive Trust | Mr. Yasir Khan |
| 4 | Pakistan Foundation Fighting Blindness | Mr. Tahir Ali |

| 5 | The Citizens Foundation | Ms. Ramsha |
|----|---|--------------------------------------|
| 6 | Pakistan Sweet Homes | Mr. Baber |
| 7 | Institute of Rural Management | Mr. Aasim Reza |
| 8 | Society for the Protection of the Rights of the Child | Mr. Fakhar Sohail |
| 9 | Read Foundation | Mr. M. Arfaq Malik |
| 10 | Al khidmat Foundation Pakistan | Mr. Shahzad Saleem |
| 11 | Human Appeal | Ms. Iffat Jamil |
| 12 | Anti Pollution Movement Pakistan | Mr. Zeeshan Alam |
| 13 | Idara-e-Taleem-o-Agahi | Mr. Waqas |
| 14 | Behbud Association of Pakistan | Ms. Abida Malik |
| 15 | Human Development Foundation | Mr. Azhar Saleem |
| 16 | Friends of Environment | Mr. M. Yousaf Khan |
| 17 | Shaukat Khanum | Mr. Ali Raza |
| 18 | Prime Institute | Mr. Syed Ali |
| 19 | Saba Aslam Educational & Welfare Trust | Mr. Tawseen |
| 20 | Youth Association of Pakistan | Mr. Kashif Zaheer |
| 21 | Initiative for Rights, Empowerment and Development | Mr. Dilawar Khan |
| 22 | Helping Hand for Relief and Development | Mr. Furrukh Saeed |
| 23 | Pothwar Social Welfare Association | Mr. Raja Shahmir |
| 24 | United Development Organization | Mr. Asim Saleem |
| 25 | Social Welfare & Bait-ul-Mal Department, Rawalpindi | Mr. Aslam Maitla |
| 26 | Consumer Rights Commission of Pakistan | Mr. Hamid Masood |
| 27 | Peace and Development Foundation | Ms. Romana Bashir |
| 28 | Peace & Education Foundation | Mr. Azhar Hussain |
| 29 | Special Education Department | Ms. Fozia Khursheed |
| 30 | Pakistan Red Crescent Society | Mr. Sami Ullah |
| 31 | Penny Appeal | Mr. Nadeem Tahir |
| 32 | Khubaib Foundation | Mr. Nadeem Khan |
| 33 | Islamabad Traffic Police | Mr. Rana Ishtiaq |
| 34 | National Orthopedic and Specialists Hospital | Mr. Shoaib Shafiq |
| 35 | Basera | Mr. Fazil |
| 36 | Noble Institute | Mr. Usman |
| 37 | Basic Health Unit Chakbeli | Ms. Sadia Mumtaz |
| 38 | Al-Wakeel Human Rights and Protection Cell | Mr. Khawar Riaz |
| 39 | Positive Pakistan | Mr. Abid Iqbal Khari |
| 40 | Anwer & Akram Shaheed School Pre-Cadet School & College | Dr. Brig Obaidullah |
| 41 | Clean And Green Pakistan | Mr. Tariq |
| 42 | Rifah Trust Rawalpindi | Dr. Amir Qayyum |
| 43 | The Ngo World | Mr. Sajjad |
| 44 | Vso International | Ms. Alina |
| 45 | Raazi Hospital | Mr. Iftikhar Burney |
| 46 | Jamila Sultana Foundation | Mr. Tauqir Abbas |
| 47 | Development Watch | Mr. Suhail Awan |
| 48 | Pak Women | Ms. Azra Gul |
| 49 | VistaBrainz | Mr. Malek Hafeez |
| 50 | | Mr. M. Adil Khan |
| 51 | Skyians Welfare Organization Women Awareness & Rural Development Association | Ms. Christina Peter |
| 52 | Sade Welfare Foundation | |
| 53 | | Ms. Saeeda Begum |
| | Step Kashmir Skill Davalanment Facility | Ms. Shaista Rehman Mr. Javaid Qadeer |
| 54 | Skill Development Facility Act of Kindness | |
| 55 | ACL OF VIHUHESS | Mr. Jawad Shahid |

| 56 | Initiative for Human Prosperity | Ms. Sadia Nawaz |
|----|---|----------------------------|
| 57 | Believers Life Skills Trust | Mr. Saith Usama |
| 58 | Mohib E Watan | Mr. Raja Khalid |
| 59 | Skillovenzia | Mr. Hafiz Furqan |
| 60 | Pakistan Alliance for Girls Education | Ms. Fajer Rabia |
| 61 | Taaleem Foundation | Dr. Zafar Iqbal Qadir |
| 62 | Development Alternatives | Ms. Zeb Un Nisa |
| 63 | SBZ Associates | Ms. Zeb Un Nisa |
| 64 | Kashmir Education Foundation | Brig (Retd) Sultan Maqsood |
| 65 | Taaleem Foundation Health Initiative | Dr. Anees |
| 66 | Akhuwat Foundation | Dr. Amjad Saqib |
| 67 | Zorays Energy | Mr. Zorays |
| 68 | Pakistan Thalassaemia Welfare Society | Col. Syed Javed Abbas |
| 69 | Muslim Aid | Mr. Shahnawaz |
| 70 | Serendip | Mr. Sheikh Saleem |
| 71 | American Research Committee (International) | Dr. Tariq Cheema |
| 72 | Fauji Foundation Hospital, Rawalpindi | Maj Gen Salahuddin Qasim |
| 73 | DBTV | Ms. Bakhtawar Mahmood |

12.4. VIS Community Service by CUST Students

The undergraduate students of the university are required to volunteer themselves for a minimum 65 hours of community service and social work which is a degree requirement for every CUST undergraduate student. The purpose of given assignment is to make him/her a socially responsible citizen.

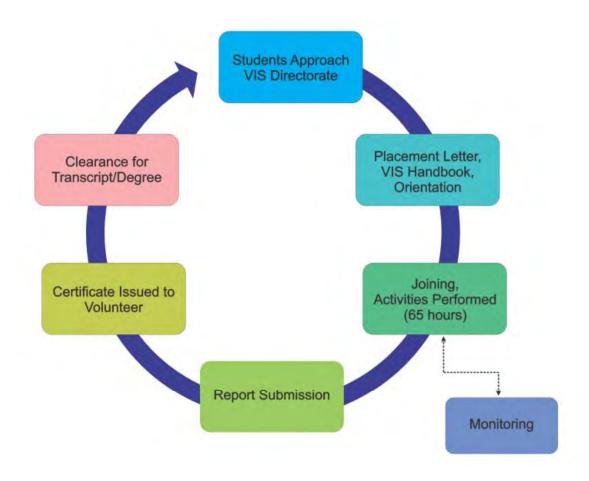
The students are required to work in any one of the partner organizations of CUST in social domain. The following figures highlight the number of students who have successfully completed their social work in 2018-19 till date. More than 490 students from all departments were systematically obliged to get indulged in communal service in recent academic year.

| VIS Activities Completion Record 2018-19 | | | |
|--|-------------------------------|--------------------|--|
| S.No. | Department | Number of Students | |
| 1 | Electrical Engineering | 94 | |
| 2 | Mechanical Engineering | 147 | |
| 3 | Civil Engineering | 145 | |
| 4 | Computer Science | 115 | |
| 5 | Software Engineering | 162 | |
| 6 | Biosciences & Bio-informatics | 78 | |
| 7 | Management Science | 157 | |
| Total | | 898 | |

12.5. Social Events and Community Service by VIS-CUST

"9th Mall of Humanity" organized by VIS Directorate-CUST & Helping Hand for Relief and Development

The event on the theme of "Mall of Humanity" was organized by the volunteers in Service (VIS) CUST and Helping Hand for Relief and Development on July 20, 2019 at Union Council 13, Humak. Students of Capital University of Science and Technology and Manager VIS Directorate managed the event professionally. More than 300 families were helped in the



event.

Orientation Session of VIS-CUST Volunteers

A pre-departure orientation session was organized by VIS Directorate for VIS-CUST volunteers on July 11, 2019. The orientation started with the recitation of Holy Quran. More than 200 students participated in this session and were assigned their specific organizations. Manager VIS-CUST explained aims and objectives of VIS community training in the session. Director VIS and HoD Biosciences were also present during the session. Director VIS presented some important guidelines for the successful community service on the concluding session.





"8th Mall of Humanity" organized by VIS-CUST & Akhuwat Clothes Bank

Capital University of Science and Technology organizes social events on continual basis to engage students in community service and give them flipside of real world. VIS-CUST in collaboration with Akhuwat Clothes Bank organized "Mall of Humanity" on May 30, 2019 in which gifts were distributed among subordinate staff (Two hundred Families) CUST.

Despite hot weather, students of Capital University of Science and Technology managed the event professionally. The event was well appreciated by team of Akhuwat Clothes Bank.

First Aid Comprehensive Training Session

VIS partner organizations provide number of opportunities to the students of CUST through engaging them in different seminars, workshops and campaigns. The 2nd First Aid comprehensive training session was organized by VIS Directorate, CUST with Pakistan Red Crescent Society on 30th April 2019 at CUST. The faculty and students of CUST participated in this training session. Sudden cardiac arrest can occur to anyone and at any time without preliminary warning. It's a leading cause of death among adults. The specific first aid training can help prepare individuals to deliver initial emergency procedures until first responders arrive.

Plantation Campaign by Office of the Chief Commissioner Islamabad, Helping Hand for Relief & Development and CUST

As per the initiative of Prime Minister of Islamic Republic of Pakistan, the event on the theme of "Plantation Campaign" was organized by the volunteers in Service, CUST, Office of the Chief Commissioner Islamabad and Helping Hand for Relief and Development. The event was held on March 19, 2019. The guest team from Office of the Chief Commissioner Islamabad and Helping Hand for Relief and Development endorsed the idea of plantation campaign and appreciated the efforts of CUST towards Green Pakistan. Faulty members including Dr. Muhammad Sagheer, Director Student Affairs, Dr. Fazal ur Rehman and Dr. Mazhar were also present at the auspicious occasion. More than 100 students participated in this campaign and planted about 700 trees.





Oath Taking Ceremony of CUST-VIS Tabdeeli Society

Tabdeeli Society of Capital University constituted by VIS, CUST is a social club with a purpose to bring real change in society through social activities like

- Awareness Campaigns
- Relief Activities
- ♦ Medical Camps
- Rallies and Congregations
- Seminars and Lectures

The specific event on the theme of "CUST-VIS Tabdeeli Society Oath Ceremony" was organized by the volunteers in Service (VIS) CUST on March 07, 2019. The faculty members also took part in the given event which included, Dr. Ishtiaq Hassan, HoD Civil Engineering, Dr. Sahar Fazal, HoD Bio Sciences and Dr. Shujja Safdar, Associate Professor, Civil Engineering Department.

"7th Mall of Humanity" organized by VIS Directorate-CUST & Helping Hand for Relief and Development (HHRD)

The event on the theme of "Mall of Humanity" was organized by the volunteers in Service (VIS) CUST and Helping Hand for Relief and Development (HHRD). This event was held on 23rd December, 2018 at Arqam School, Chakwal City. More than 350 families were benefited from the event. This activity carried 50% weightage towards 65 hours of volunteer service, which is a degree requirement for all undergraduate students of CUST.

"ASER Training" organized by VIS Directorate-CUST & Development Alternatives

The event on the theme of Annual Status of Education Report "ASER Training" was organized by the volunteers in Service (VIS) CUST and Development Alternatives on October 27, 2018. The speaker educated the audience about collection of educational data of children aged between 3-18 years from the surroundings of twin cities. The particular data can help UN base organizations and Government of Pakistan to make policy and budget regarding education.

Orientation Session of VIS-CUST Volunteers

An orientation session was organized by VIS Directorate for VIS-CUST volunteers on January 28, 2019. More than 200 students participated and were assigned specific tasks and organizations. Director VIS-CUST addressed the importance of volunteerism in Islam and its need in Pakistan. Representatives from Akhuwat Foundation, Taaleem Foundation, READ Foundation, Muslim Aid and Believers Life Skill Trust also participated and briefed the audience about their organizations profile and relationship with CUST in particular.





"First Aid Training" organized by "Pakistan Red Crescent Society" and "The NGO World" in collaboration with VIS Directorate-CUST

Capital University of Science & Technology in collaboration with Pakistan Red Crescent Society and The NGO World organized two days training session on 19th-20th October, 2018. The participants of training included faculty members and students of CUST. First Aid training helps prepare individuals to deliver initial emergency procedures until first responders arrive.

Seminar on "The curse of plastic" organized by German Red Cross and Pakistan Red Crescent Society in collaboration with VIS Directorate-CUST

The seminar on "The Curse of Plastic" was organized by the volunteers in Service (VIS) CUST, Climate Change Department from Pakistan Red Crescent Society (PRCS) and German Red Cross on October 19, 2018. The event also consisted of a poster competition and awareness walk about the role of plastic in atmospheric pollution. The chief guests for the event were Mr. Shahid Kazmi, Head of Climate Change Adaptations department, PRCS and Mr. Hans J. Hausmann, Advisor Climate Change Adaptations department German Red Cross in Pakistan.





More than 30 students participated in the poster competition. The organizers and participants were awarded with certificates. Special Prizes were given to the winners and the participants. The awareness walk was done in university in which faculty members and students from different departments actively participated. It served the purpose of motivating the masses to take steps against the exploitation of nature by using unnecessary plastic products.

Seminar on "Breast Cancer Awareness" organized by Shaukat Khanum Memorial Hospital and Research Centre and VIS Directorate-CUST

The seminar on "Breast Cancer Awareness" was organized by the VIS, Capital University of Science and Technology Islamabad, on October 18, 2018. The program started with the recitation of Holy Quran followed by the introduction of the guest speaker. The guest speaker of the event was Dr. Fariha Irfan (Shaukat Khanum Memorial Cancer Hospital & Research Centre, Lahore). More than 100 people including faculty members and students attended the particular seminar.

The respected speaker presented the overview of Breast Cancer along with its symptoms and statistics of effected patients in Pakistan. The diagnosis and treatment methods were also conversed in detail. The lecture was extremely informative and helpful in creating awareness among the students about the given disease.

"6th Mall of Humanity" organized by VIS Directorate-CUST & Helping Hand for Relief and Development (HHRD)

The event on the theme of "Mall of Humanity" was organized by the volunteers in Service (VIS) CUST and Helping Hand for Relief and Development (HHRD). The event was held on October 14, 2018 in Government Primary School, Ausia, Murree. More than 1000 families benefited from the given event. The present activity carries 50% weightage towards 65 hours of volunteer service, which is a degree requirement for all undergrade students of CUST.

Blood Donation Camp organized by VIS Directorate-CUST and Pakistan Thalassemia Welfare Society

Capital University of Science and Technology and Pakistan Thalassemia Welfare Society jointly organized a Blood Donor Camp on October 04, 2018. A large number of students and faculty members participated and donated their blood in the camp. More than 100 bottles were donated by CUST students and faculty members. The representatives of Pakistan Thalassemia Welfare Society paid their special thanks and appreciation to valued donors of CUST.

"5th Mall of Humanity" organized by VIS-CUST & Helping Hand for Relief and Development (HHRD)

Students of VIS-CUST in collaboration with local community and Helping Hand for Relief and Development (HHRD) organized "Mall of Humanity" at Rawat where In-Kind Gifts (Cloths, Jackets, sweaters, shoes, blankets, toys and bags etc) were distributed among 550 families. The event was organized on September 13, 2019. A team of 51 students supervised by Prof. Dr. Shaukat Iqbal, managed the event professionally. The event was well appreciated by team of HHRD and local community and the recipients paid special thanks to provider of in-kind gifts.

13. University Governance Structure

13.1. Board of Governors (BOG)

The Board of Governors (BOG) governs and administrates managerial, academic and financial matters of the university, and lays down policies for the Institute. The board consists of a chair person, 14 members and a secretary. The BOG Meeting is chaired by Mian Aamer Mahmood, Chancellor, CUST. Until now a total of 6 BOG Meetings have been conducted.

| S.No. | Undergraduate Level | Postgraduate Level |
|-------|---|--------------------|
| 1 | Mian Aamer Mahmood, Chancellor, CUST | Chairperson |
| 2 | Prof. Sohail Afzal, Executive Director Education Excellence | Member |
| 3 | Mr. Muhammad Saeed Mehdi (Former Federal Secretary) | Member |
| 4 | Dr. Samar Mubarak Mand, Former Chairman NESCOM | Member |
| 5 | Mr. Wahaj us Siraj, Chief Executive Officer, Nayatel | Member |
| 6 | Dr. Muhammad Mansoor Ahmed, Vice Chancellor, CUST | Member |
| 7 | Nominee of Ministry of Education (Additional Secretary Rank) | Member |
| 8 | Nominee of Higher Education Commission | Member |
| 9 | Dr. Khurram Shahzad (Alumni), Associate Dean, Riphah International University | Member |
| 10 | President, Mohammad Ali Jinnah University, Karachi | Member |
| 11 | Director Colleges, PGC | Member |
| 12 | Dean Faculty of Engineering, CUST | Member |
| 13 | Dean Faculty of Computing, CUST | Member |
| 14 | Dean Faculty of Management & Social Sciences, CUST | Member |
| 15 | Dean of QEC, CUST | Member |
| 16 | Registrar, CUST | Secretary |





Major Authorities and Responsibilities

- ♦ To approve proposed annual plan of work, the annual and revised budgets, the annual report and the annual statement of accounts
- To hold, control and lay down policy for the administration of the property, funds and investments of the University
- ♦ To oversee quality and relevance of the University's academic programmes and to review the academic affairs of the University
- ♦ To approve the appointment of the Deans, Professors, Associate Professors and senior faculty and administrators
- ♦ To institute schemes, directions and guidelines for the terms and conditions of appointment of all officers, teachers and other employees of the University
- ♦ To approve financial resource development plans of the University

13.2. Executive Committee

The Executive Committee is the executive body of Capital University of Science & Technology and exercises general supervision over affairs and management of the University matters. Until now a total of 13 meetings of Executive Committee have been conducted. The committee consisting of 9 members is headed by the Chair Person, Vice Chancellor, CUST. The Executive Committee of university is constituted of following personnel.

| S.No. | Name | Designation | Status |
|-------|----------------------------|----------------------------|--------------|
| 1 | Prof. Dr. M. Mansoor Ahmed | Vice Chancellor | Chair Person |
| 2 | Dr. M. Abdul Qadir | Dean FoC | Member |
| 3 | Dr. Imtiaz Ahmad Taj | Dean FoE | Member |
| 4 | Dr. Arshad Hassan | Dean FMSS | Member |
| 5 | Dr. Amir Qayyum | Dean QEC | Member |
| 6 | Dr. Mueen Aizaz Zafar | Professor, MS Dept. | Member |
| 7 | Dr. Fazal ur Rehman | Professor, EE Dept. | Member |
| 8 | Dr. Sajid Bashir | Treasurer | Member |
| 9 | Mr. Malik Arshad Mahmood | Registrar | Member |
| 10 | Mr. Hassan Mahmood Awan | Controller of Examinations | Member |

Major Authorities and Responsibilities

- ♦ To transfer and accept transfer of movable property on behalf of the University
- ♦ To enter into, vary, carry out and cancel contracts on behalf of the University
- ♦ To consider the annual report, the annual and revised budget estimates, and submit these to the Board
- To receive and manage any property transferred, and grants, bequests, trust, gifts, donations, endowments, and other contributions made to the University
- ♦ To provide the buildings, libraries, premises, furniture, apparatus, equipment and other means required for carrying out the work of the University
- ♦ To establish and maintain halls of residence and hostels or approve or license hostels or lodgings for the residence of students





13.3. Academic Council

The Academic Council is the principal academic body of the University and has the power to lay down proper standards of instruction, research and examinations and to regulate and promote the academic life of the university. Until now a total of 13 meetings of academic council have been conducted. The committee consisting of 16 members is headed by the Chairman, Vice Chancellor, CUST as detailed below.

| S.No. | Name | Designation | Status |
|-------|----------------------------|----------------------------|--------------|
| 1 | Prof. Dr. M. Mansoor Ahmed | Vice Chancellor | Chair Person |
| 2 | Dr. M. Abdul Qadir | Dean FoC | Member |
| 3 | Dr. Imtiaz Ahmad Taj | Dean FoE | Member |
| 4 | Dr. Arshad Hassan | Dean FMSS | Member |
| 5 | Dr. Aamer Iqbal Bhatti | Dean ORIC | Member |
| 6 | Dr. Amir Qayyum | Dean QEC | Member |
| 7 | Dr. Sajid Bashir | HoD MS | Member |
| 8 | Dr. Noor M. Khan | HoD EE | Member |
| 9 | Dr. Ishtiaq Hassan | HoD CE | Member |
| 10 | Dr. Nayyer Masood Dar | HoD CS | Member |
| 11 | Dr. Sahar Fazal | HoD BI | Member |
| 12 | Dr. Muhammad Sagheer | HoD Math | Member |
| 13 | Dr. Saif- Ur- Rahman | Professor ME Dept | Member |
| 14 | Dr. Mueen Aizaz Zafar | Professor MS Dept. | Member |
| 15 | Mr. Malik Arshad Mahmood | Registrar | Member |
| 16 | Mr. Hassan Mahmood Awan | Controller of Examinations | Member |

Major Authorities and Responsibilities

- To approve the procedures pertaining to the quality of academics and teaching
- approve academic programmes
- ♦ To regulate award of studentships, scholarships, exhibitions, medals and prizes
- To approve the policies and procedures pertaining to student related functions including admissions, expulsions, punishments, examinations and certification
- ⋄ To propose to the Executive Committee schemes for the constitution and organization of faculties, teaching departments and boards of studies
- ⋄ To appoint paper setters and examiners for all examinations of the University after receiving panels of names from the relevant authorities
- To institute programmes for the continued professional development of University teachers at all levels

13.4. Board of advanced Studies and Research (BASR)

The objective of Board of advanced Studies and Research (BASR) is to guide authorities on all the matters concerning the promotion of advanced studies and research in the institute, and to propose regulations for the ward of research degrees. Until now a total of 19 BASR meetings have been conducted. The board consisting of 10 members is headed by the Vice Chancellor, CUST.

| S.No. | Name | Designation | Status |
|-------|----------------------------|-------------------|--------------|
| 1 | Prof. Dr. M. Mansoor Ahmed | Vice Chancellor | Chair Person |
| 2 | Dr. M. Abdul Qadir | Dean FoC | Member |
| 3 | Dr. Imtiaz Ahmad Taj | Dean FoE | Member |
| 4 | Dr. Arshad Hassan | Dean FMSS | Member |
| 5 | Dr. Aamer Iqbal Bhatti | Dean ORIC | Member |
| 6 | Dr. Amir Qayyum | Dean QEC | Member |
| 7 | Dr. Amir Nadeem | DHoD, SE | Member |
| 8 | Dr. Sajid Bashir | HoD MS | Member |
| 9 | Dr. Noor M. Khan | HoD EE | Member |
| 10 | Dr. Saif-Ur-Rahman | Professor ME Dept | Member |
| 11 | Mr. Malik Arshad Mahmood | Registrar | Member |

Major Authorities and Responsibilities

- To advise the authorities on all matters connected with the promotion of advanced studies and research in the University
- ⋄ To propose regulations regarding the award of research degrees for the approval of the Academic Council
- ⋄ To appoint supervisors for research students to determine the subject of their thesis
- ⋄ To appoint reviewers of research thesis
- ♦ To ensure the compliance of HEC guidelines for the award of MS and PhD degrees
- To recommend Academic Council a panel of names of paper setters and examiners for research degrees

13.5. Additional Bodies

- 1 Admin Committee
- 2 Board of Faculty (Each Faculty)
- 3 Board of Studies (Each Program)
- 4 Industrial Advisory Board
- 5 QAC Committee
- 6 ORIC Research Committee
- 7 ORIC Advisory Board
- 8 Departmental Outreach Committee (FOE)
- 9 Selection Board
- 10 Discipline Committee
- 11 Finance and Planning Committee

13.6. University Offices

- 1 Registrar
- 2 Accounts
- 3 Admissions
- 4 Examination
- 5 Registration
- 6 Office of Research, Innovation & Commercialization
- 7 Quality Enhancement Cell
- 8 Human Resource Management (HR)
- 9 Graduate Studies
- 10 Student Affairs
- 11 Volunteer in Service
- 12 Library
- 13 IT Support
- 14 Database Administrator
- 15 Web Developer