CAPITAL UNIVERSITY
of Science and Technology

ANNUAL REPORT
2020

Annual Report 2020

Prepared by:

Office of Research Innovation and Commercialization

Capital University of Science & Technology

ISLAMABAD

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

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Vice Chancellor's Message

It is my pleasure to introduce the Annual Report 2020 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 academic quality. At CUST, the curriculum 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 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 30 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 15th convocation of CUST was held on December 05, 2019. Chaudhry Fawad Hussain, Federal Minister of Science and Technology graced the occasion as the Chief Guest while Prof. Dr. Anis Ahmed and renowned atomic scientist Prof. Dr. Samar Mubarakmand were among the Guests of Honour. A total of 872 students were privileged to receive degree in their respective fields.

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. There are collectively 18,000 books and 60 hard-bidden journals present in both the libraries. The university has also provided online access to HEC Digital Library with admittance to around 1,24,000 E-books and 300 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 and funding 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, training, 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 internationally recognized courses and certifications to academia and industry personnel. ORIC in collaboration with academic departments is working on numerous incubation companies. "Tech Flickers" and "Flex Tracker" are recent example of students' start-ups being worked on by ORIC with students. The university aims to provide an incubation platform to 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 2019-20, an amount of Rs. 176 Million approximately has been disbursed among 4297 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 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 Departments of Computer Sciences and Mathematics. Faculty of Health & Life Sciences has Department of Bioinformatics & 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' interpersonal communication, democratic, leadership, analytical ability and creative thinking skills

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 2019-20 is 30, which includes 12 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 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 various 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 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 programs are supported by well-equipped labs that strengthen the applied aspect of the disciplines, and provide 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, Microbiology and Pharmacy. 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 and pharmacological 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	-	-
4	Pharm-D	-	-

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 problems 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 2019-20

The following table presents the significant information regarding student's intake in 2019-20 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	1284
2	Postgraduate	391
3	PhD	39

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 2019-20

The following table depicts the significant information regarding student's intake in 2019-20 in various departments. The students were admitted in 16 different disciplines at undergraduate, post graduate and PhD levels.

S.No.	Department	Registered Students
1	Electrical Engineering	68
2	Mechanical Engineering	74
3	Civil Engineering	136
4	Engineering Management	12
5	Software Engineering	194
6	Computer Science	366
7	Mathematics	42
8	Accounts & Finance	131
9	Business Administration	248
10	Management Sciences	77
11	Pharmacy	100
12	Psychology	131
13	Project Management	83
14	Biosciences	50
15	Biotechnology	73
16	Microbiology	19

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	3580
2	Postgraduate	986
3	PhD	164

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 total students currently enrolled in the university in various disciplines and fields is detailed below. The students are studying in 18 different disciplines at undergraduate, post graduate and PhD levels.

S.No.	Department	Registered Students
1	Electrical Engineering	341
2	Mechanical Engineering	364
3	Civil Engineering	403
4	Engineering Management	32
5	Software Engineering	643
6	Computer Science	895
7	Mathematics	137
8	Accounts & Finance	95
9	Finance & Economics	03

10	Business Administration	749
11	Management Sciences	206
12	Psychology	201
13	Project Management	208
14	Biosciences	146
15	Bioinformatics	10
16	Biotechnology	153
17	Microbiology	48
18	Pharmacy	96

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 2019

The following table presents the statistical detail about the students' graduation in 2019-20 in different departments. The students were graduated in 13 diverse fields of study at undergraduate, post graduate and PhD levels.

S.No.	Department	Students Graduated
1	Electrical Engineering	84
2	Mechanical Engineering	68
3	Civil Engineering	59
4	Engineering Management	12
5	Computer Science	184
6	Software Engineering	59
7	Mathematics	34
8	Finance & Economics	12
9	Business Administration	184
10	Management Sciences	70
11	Project Management	69
12	Biosciences	29
13	Bio-informatics	8

A total of 872 students graduated in 2019 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 15th Convocation-2019

The following table depicts the statistical data about the totals students graduated from Capital University and Science & Technology till 15th Convocation held in December 2019. The students were graduated in 27 diverse degree programmes at undergraduate, post graduate and PhD levels under four faculties.

S.No.	Department	Students Graduated
1	Electrical Engineering	1168
2	Mechanical Engineering	339
3	Civil Engineering	109
4	Engineering Management	82
5	Computer Science	1702
6	Software Engineering	59
7	Mathematics	117

8	Finance & Economics	41
9	Business Administration	3668
10	Management Sciences	1090
11	Project Management	127
12	Bioinformatics & Biosciences	288

A total of 8790 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 present day requirements. The following statistics present the current faculty strength in the University.

S.No.	Department	Faculty Strength
1	Electrical Engineering	24
2	Mechanical Engineering	28
3	Civil Engineering	22
4	Computer Science	31
5	Software Engineering	23
6	Mathematics	12
7	Health & Life Sciences	20
8	Management & Social Sciences	34

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

S.No.	Designation	Faculty Strength
1	Professors	21
2	Associate Professors	10
3	Assistant Professors	46

4	Lecturers	80
5	Lab Engineers/Instructors	25
6	Research Associates	2

1.13. 15th Convocation of Capital University of Science & Technology

The Convocation-2019 of Capital University of Science and Technology was held on Thursday the 5th of December, 2019 in Convention Centre Islamabad wherein 872 graduates were awarded degrees.

Chaudhry Fawad Hussain, Federal Minister of Science and Technology graced the occasion as the Chief Guest while Prof. Dr. Anis Ahmed was the Guest of Honour and renowned atomic scientist Prof. Dr. Samar Mubarakmand were the Guests of Honour. Mian Amer Mahmood Chancellor Capital University of Science and Technology Presided over the Convocation. A large number of distinguished guests and parents of the graduating students were also present.

Prof. Dr. M. Mansoor Ahmed, Vice Chancellor Capital University of Science and Technology, welcomed the guests, students and their parents for their presence in this memorable and happy occasion and declared this event as a significant milestone in the lives of graduates. He congratulated the graduates and highlighted the contribution made by the University in the field of higher education.

While addressing the Convocation gathering, Mr. Fawad Hussain Chaudhry congratulated the students on their academic achievements. He expressed his appreciation for the efforts and contribution of the University in the field of higher education. He also said that in the present day scenario, education does not end with acquiring a degree; it is a lifelong affair exploring new horizons, and broadening of the vision, marching on a never-ending journey towards new frontiers of knowledge.

The renowned scientist Dr. Samar Mubarakmand while delivering his keynote address said that education plays a vital role in economic development of country. It raises the productivity and efficiency of individuals and thus produces skilled manpower that is capable of leading the economy towards the path of sustainable economic development.

The Chief Guest also awarded 62 medals which include 39 Gold, 12 Silver and 11 Bronze medals, to the graduates who stood 1st, 2nd and 3rd in their respective degree programs. The 'Jinnah Gold Medal' was also awarded to an overall best graduate of the Convocation Nakhshab Ajaz of BS Civil, on his overall distinguished performance in curricular and extracurricular activities.

Mian Amer Mahmood, the Chancellor of the University and Chairman Punjab Group of Colleges presented the University Shield and souvenir to the Chief Guest and the Guests of Honour.

1.14. Detail of Medals Awarded in 15th Convocation

The medals were awarded to high achievers of all departments 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	Medal Awarded
1	Naveera Fazlur Rahman	Gold
2	Mahnoor Ahmad	Silver
3	Fawad Bin Tariq	Bronze
4	Majid	Gold
5	Summiya Kabir	Silver
6	Ameer Abdullah	Bronze

BS(SE)

S.No.	Name	Medal Awarded
7	Samia Saeed	Gold
8	Shiza Amjad	Silver
9	Rajab Ali	Bronze

MS(CS)

S.No.	Name	Medal Awarded
10	Muhammad Yousaf	Gold
11	Madhia Ameer	Gold

MPhil(Maths

S.No.	Name	Medal Awarded
12	Sundus Iqbal	Gold
13	Sania Mehmood	Gold
14	Areej Fatima	Gold

Faculty of Engineering (FoE)

BS(EE)

S.No.	Name	Medal Awarded
1	Sheraz Baig	Gold
2	Muhammad Hasnat	Silver
3	Ahmed Ali	Bronze

BS(ME)

S.No.	Name	Medal Awarded
4	Zeshan Javed	Gold
5	Lehar Asip Khan	Silver

BS(CE)

S.No.	Name	Medal Awarded
6	Muhammad Usman Khan	Gold
7	Nakhshab Ajaz	Silver
8	Syed Mohsin Hussain Shah	Bronze

MS(EE)

S.No.	Name	Medal Awarded
9	Muhammad Saad Iqbal	Gold
10	Sidra Ghayour Bhatti	Gold
11	Umer Farooq Ahmed	Gold

MS(CE)

S.No.	Name	Medal Awarded
12	Fayaz Khan	Gold

MS(EM)

S.No.	Name	Medal Awarded
13	Asim Ali Shah	Gold

Faculty of Health and Life Sciences (FHLS)

BS(BS)

S.No.	Name	Medal Awarded
1	Rimsha Farooq	Gold
2	Hafsa Raja	Silver
3	Rimsha Bukhari	Bronze

BS(BI)

4	Maria Khadija	Gold

MS(BS)

5	Iqra Bashir	Gold

MS(BI)

6	Anum Munir	Gold

Faculty of Management and Social Sciences (FMSS)

BBA

S.No.	Name	Medal Awarded
1	Bakhtawar Khan	Gold
2	Hajra Bibi	Silver
3	Arwa Jamil Uppal	Bronze
4	Raja Saddam-Ul-Haq	Gold
5	Noureen	Silver
6	Amreen	Bronze

BS(F & E)

7	Noor-Ul-Ain	Gold
8	Nida Naeem	Gold

BS(MBE)

9	Arsalan Abbasi	Gold
10	Zamin Abbas	Gold
11	Kumail Abbas	Gold
12	Sheikh Salman Ahmed	Silver
13	Syeda Tehreem Fatima	Bronze

MBA-R

14	Kanwal Tanvir	Gold
15	Kinza Tahir	Silver
16	Hamail Mushtaq	Bronze
17	Bushra Zia	Gold
18	Erum Amin	Silver
19	Muhammad Wajid	Bronze

MBA-G

20	Komal Hassan Shah	Gold
21	Muhammad Faizan Sheikh	Gold

MS(MS)

22	Raima Amjad	Gold
23	Abdul Saqib	Gold

MS(PM)

24	Sidra Amin	Gold
25	Almas Sherin Walayat Malik	Gold
26	Amna Zaib	Gold
27	Sidra Shahid	Gold
28	Ayesha Afzal	Gold
29	Muhammad Rafique	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 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	Block K	4	25246.88
12	Block M	4	36406.88
13	Guards Residence	4	7424
14	Forging Mech. Shop	2	5640
15	Cafeteria Pump Room	1	2285
16	Main Gate Reception	1	779.37
17	Food Street Shops	1	1011.75
18	Check Posts	1	224
19	Electrical Panel Room	1	321.75
20	Electric Meter Room	1	360
21	Driver Waiting Room	1	311.75
Total Covered Area			265576.66 sq. ft.

2.2. Lecture Halls

There are a total of 42 state of art lecture halls with 10 newly furnished rooms in M-Bock that are soon to be functional. Each class room is provided with the following facilities:
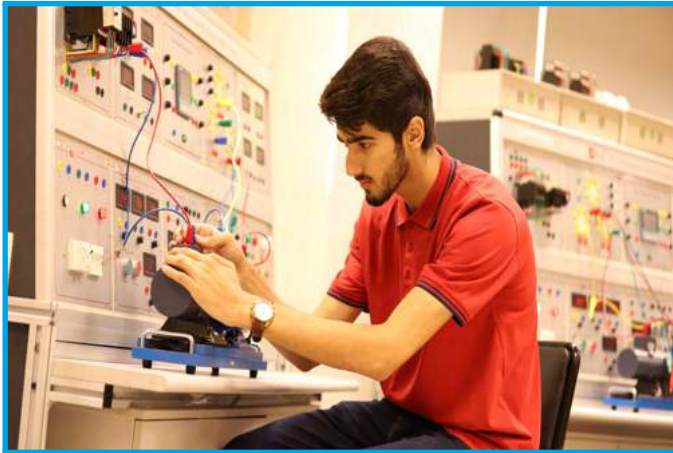
1. PC
2. Multimedia projector
3. Internet connection
4. White Board
5. Markers
6. Speakers
7. Air Conditioners and Fans

2.3. Laboratory Equipment

Students cannot excel in any particular technological area unless they have hands on practical experience along with theoretical subject matter. CUST has provided the students with 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. The new labs are also being constructed with state of art equipment in accordance with the corporate world 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)
Pharmacy	i. Pharmaceutics Lab	(J-Block)
	ii. Pharmaceutical Chemistry Lab	(J-Block)
	iii. Basic Medical Science/Pharmacology Lab	(J-Block)
	iv. Pharmaceutical Microbiology Lab	(J-Block)
	v. Pharmacognosy Lab	(J-Block)

2.4. Libraries

There are 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. There are collectively 18,000 books and 60 hard bidden journals present in both the libraries. The university has also provided online access to HEC Digital Library with admittance to around 1,24,000 E-books, 300 journals with 20 Journal's Databases.

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 Executive Committee, Academic Council, Board of Advanced Studies and Research etc and other high profile meetings and talks.

The Workshop Room located in B-Block and Conference Room located in F-Block are reserved for departmental, corporate and industrial meetings. The project and thesis 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. These auditoriums are reserved for academic and co-curricular activities. The class lectures and exams are also held in these rooms. The auditoriums also host various events like workshops, seminars, training and similar academic and social activities. The auditoriums are equipped with:

1 Computer Systems
2 Multimedia Projector
3 Microphone
4 Internet Connection
5 White Board
6 Markers
7 Speakers

2.7. Project and Study Rooms

To facilitate students in their project work, separate Project Rooms are allocated to 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 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 include:

- Video Surveillance in all covered areas
- Two Security Check-Posts
- Walk-through Gates
- MOU with Security Company for Security Guards
- 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 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	1100
2	CCTV Cameras	541
3	Multimedia Projectors	150
4	Telephone Extensions	300
5	IT Labs	12
6	Faculty Laptops	182

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 students' 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. FYP Portal is a new addition in the previous system which provides complete details about every single aspect of the student's Final Year Project including its Start and Finish Date, Grading, Supervisor and Evaluation Panel.

- Notice Board
- Result Card View/Print
- Lectures and Assignments Upload/Download
- Academic Results
- Leave Status
- Transcript
- Program Education Objectives (PEOs)
- Program Learning Objectives (PLOs)
- Scheme of Studies
- Online Registration
- Challan Generation and Print
- Fee Summary Report
- FYPs Portal
- Evaluation & Feedback

CUST Student Portal is updated on continual basis to maximally benefit the students in accordance with digital world requirements. The new features are added regularly to make it more user friendly and make it as per students' requirements.

3.4. Faculty and Staff Portal

CUST owns a comprehensive University Administration System consisting of Faculty and Staff Portals to accomplish all faculty and staff 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. Faculty Satisfaction Survey and Student File are recent addition to this portal to facilitate the faculty in respective regard.

Faculty
- Courses Detail
- Student Result
- Time Table
- Academic Data Upload
- Course Catalogue Upload
- Academic Record of Students
- Faculty Satisfaction Survey

Staff
- Reports Generation
- Account Management
- Registration Management
- Exams Management
- Exams Data Upload
- Student File
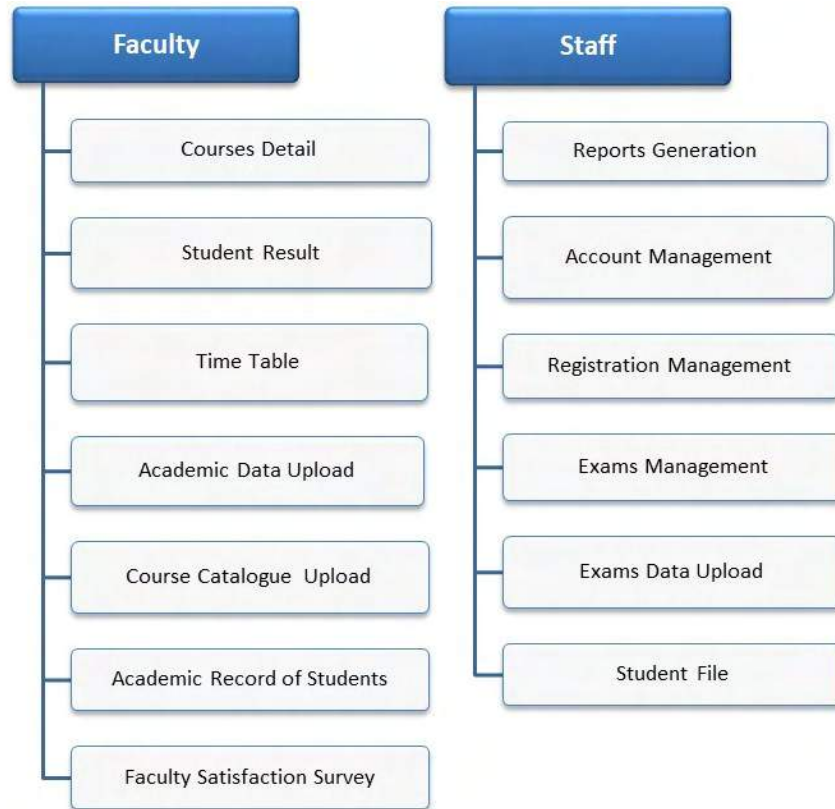
3.5. Online Admissions system

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. The fee can also be paid online against the conventional submission procedures.

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│ Online Account      │ ──▶ │ Application for     │ ──▶ │ Prospectus Fee      │
│ Creation            │     │ Admission           │     │ Challan             │
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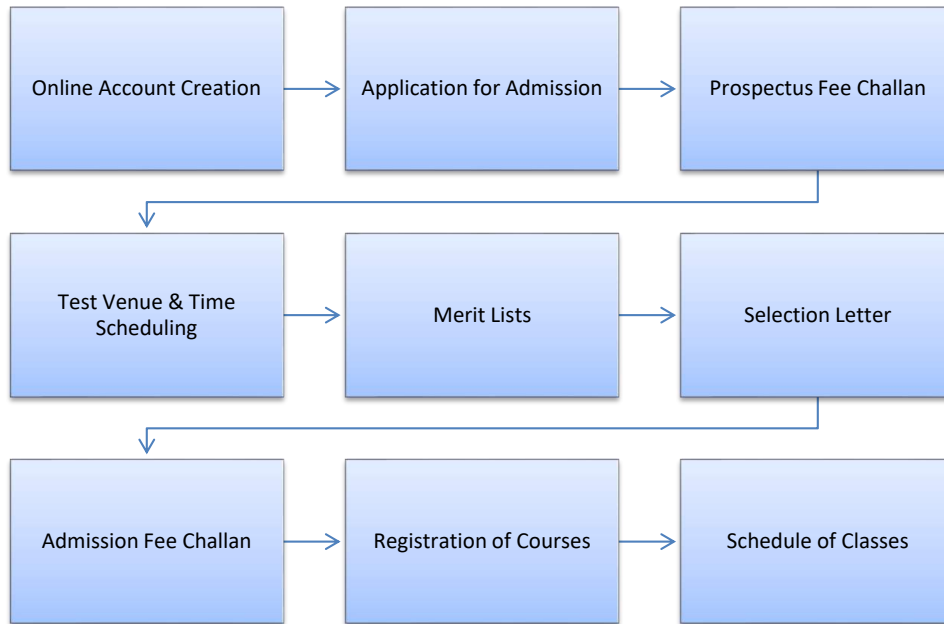
3.6. Digital Library

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 allows 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	Manufacturing 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 Materials	Civil Engineering
12	Water Resources and Environment	Civil Engineering
13	Construction Management	Civil Engineering

Faculty of Health & Life Sciences (FHLS)

S.No.	Research Area	Department
1	Integerative BioSciences	Biosciences
2	Cancer Cytogenetic	Biosciences
3	Genetic and Molecular Epidemiology	Biosciences

4	Green Biotechnology	Biosciences
5	Industrial & Environmental Bio Technology	Biosciences
6	Drug Discovery and Development	Pharmacy
7	Drug Formulation and Drug Delivery	Pharmacy
8	Clinical Pharmacy and Pharmacy Practice	Pharmacy
9	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' employment.

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 employment 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 Liaison

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. ORIC 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 and corporate world.

ORIC has worked on establishment of Incubation and Business centers and facilitation of Startups to inculcate the culture of innovation and commercialization through entrepreneurship among the youth and nourishing them to be a productive entity.

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 in accordance with following operational hierarchy.

Vice Chancellor

ORIC Advisory Board

Dean Research & Innovation

Asst. Director Research & Development — ORIC Research Committee — Asst. Director Industry Linkage & Technology Transfer
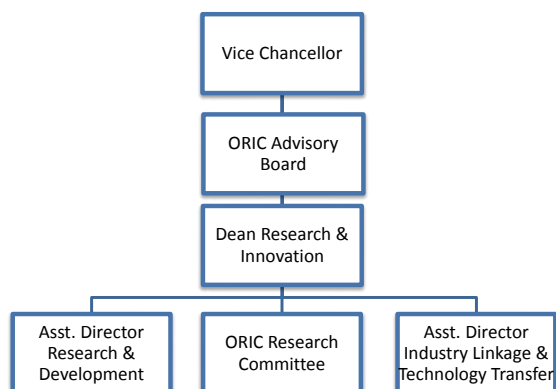
Key Functions of ORIC

- 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.
- Managing campus-wide record of University publications with associated detail.
- Managing the database 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 industry experience at highest level. The purpose of ORIC 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)
●	Mr. M. Shahid Shafiq	(CTO, Elixir Tech, Islamabad)
●	Dr. Riaz Ahmad Mufti	(Professor SMME, NUST)
●	Dr. Arshad Hassan	(Dean FMSS, CUST)

4.6. ORIC Research Committee

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

The ORIC Research Committee Meeting takes place once in every two months to review the ongoing 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. Sahar Fazal	HoD/Associate Professor, Biosciences Dept.
2	Dr. Majid Ali	Professor, Civil Engineering Dept.
3	Dr. Abdul Rahman Kashif	Associate Professor, Mathematics Dept.
4	Dr. Umer Amir Khan	Assistant Professor Electrical Engineering Dept.
5	Dr. Khawar Naveed	Assistant Professor, Mechanical Engineering Dept.
6	Dr. Nadeem Anjum	Assistant Professor, Computer Science Dept.
7	Dr. Samiya Safdar	Assistant Professor, Management Sciences Dept.
8	Dr. Mahboob Alam	Assistant Professor Pharmacy 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 graphs depict the department-wise detail of Journal publications accomplished by CUST faculty in 2019-20 and also the publications trend of last five years.
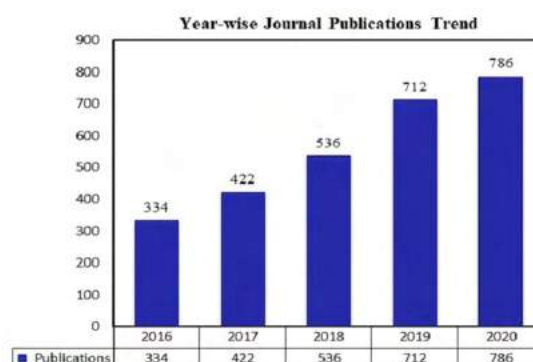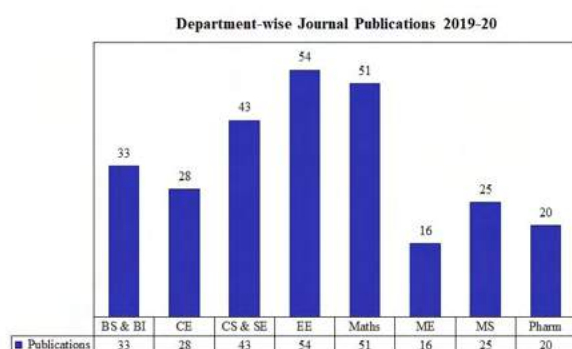
4.9. Total Publications Trend

The following graphs depict the increase in total publications trend of CUST faculty in recent years. The numbers include both the Journal and Conference publications accomplished over the years.
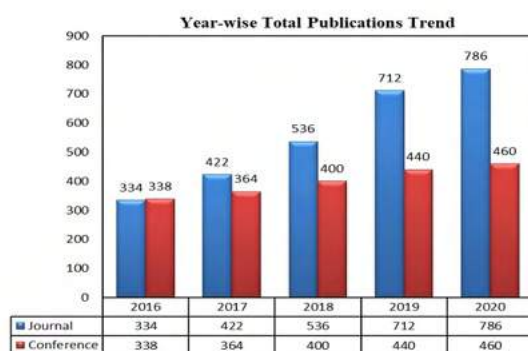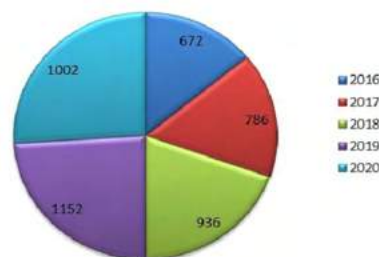
4.10. Impact Factor Publications in 2019-20

Biosciences and Bioinformatics

1 M. T. Khan, A. C. Kaushik, Q. ul ain Rana, S. I. Malik, A. S. Khan, D.-Q. Wei, W. Sajjad, S. Ahmad, S. Ali, M. Irfan et al., "Characterization and synthetic biology of lipase from bacillus amyloliquefaciens strain," Archives of Microbiology, pp. 1–10, 2020.

2 M. T. Khan, S. Ali, M. T. Zeb, A. C. Kaushik, S. I. Malik, and D.-Q. Wei, "Gibbs free energy calculation of mutation in pnca and rpsa associated with pyrazinamide resistance," Frontiers in Molecular Biosciences, vol. 7, 2020.

3 A. Amin, I. Ahmed, N. Khalid, I. U. Khan, A. Ali, S. M. Dahlawi, and W.-J. Li, "Insights on comparative bacterial diversity between different arid zones of cholistan desert, pakistan," 3 BIOTECH, vol. 10, no. 5, 2020.

4 H. Mehfooz, A. Saeed, M. Faisal, F. A. Larik, U. Muqadar, S. Khatoon, P. A. Channar, H. Ismail, S. Bilquees, S. Rashid et al., "Facile one-pot synthesis, butyrylcholinesterase and α-glucosidase inhibitory activities, structure–activity relationship, molecular docking and DNA–drug binding analysis of meldrum's acid derivatives," Research on Chemical Intermediates, pp. 1–20, 2020.

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6 E. Dilshad, H. Ismail, M. A. Khan, R. M. Cusido, and B. Mirza, "Metabolite profiling of artemisia carvifolia buch transgenic plants and estimation of their anticancer and antidiabetic potential," Biocatalysis and Agricultural Biotechnology, vol. 24, p. 101539, 2020.

7 H. Raja, E. Dilshad, S. Tayyaba, and A. Amin, "Isolation and screening of bacteria for their role in oil recovery and metal tolerance from petroleum reservoirs," 2019.

8 S. Rehman, K. Keefover-Ring, I. ul Haq, E. Dilshad, M. I. Khan, N. Akhtar, and B. Mirza, "Drier climatic conditions increase withanolide content of withania coagulans enhancing its inhibitory potential against human prostate cancer cells," Applied biochemistry and biotechnology, vol. 188, no. 2, pp. 460–480, 2019.

9 A. Kazmi, M. A. Khan, and H. Ali, "Biotechnological approaches for production of bioactive secondary metabolites in Nigella sativa: an up-to-date review," International Journal of Secondary Metabolite, vol. 6, no. 2, pp. 172–195, 2019.

10 S. Zafar, E. Dilshad, H. Ismail, C. B. Rizvi, and B. Mirza, "Rol genes enhance content of artemisinin and other secondary metabolites in shennong hybrid of artemisia annua," Chinese Herbal Medicines, vol. 11, no. 2, pp. 209–215, 2019.

11 A. Amin, I. Ahmed, N. K. Khalid, P. Schumann, and H. Jurgen, "Arthrobacter zafarii sp. nov., a moderately thermotolerant and halotolerant actinobacterium isolated from Cholistan desert soil of Pakistan," International Journal of Systematic and Evolution- ary Microbiology, 2019.

12 A. Amin, I. Ahmed, N. Khalid, I. U. Khan, and A. Ali, "Bacterial diversity of cholistan desert, pakistan:insights on the comparative analysis between different arid zones," Microorganisms, 2019.

13 F. Nawaz, M. N. Khan, A. Javed, I. Ahmed, N. Ali, M. I. Ali, S. M. Bakhtiar, and M. Imran, "Genomic and functional characterization of enterococcus mundtii QAUEM2808, isolated from artisanal fermented milk product dahi," Frontiers in Mi- crobiology, vol. 10, 2019.

14 H. Qayyum and S. M. Bakhtiar, "Single Cell Omics in cardiovascular diseaes," 2019.

15 M. Nadeem, U. Naz, and S. M. Bakhtiar, "TNF: common culprit of inflammatory diseases," International Journal of Bioautomation, 2019.

16 S. A and S. M. Bakhtiar, "Etiology, prevalence, treatment of cusing syndrome and its involvement with other diseases," Precision Medicine, vol. 3, 2019.

17 F. M and S. M. Bakhtiar, "Homochromatosis- the trigger of type ii diabetes," Precision Medicine, vol. 3, 2019.

18 H. A. Butt, S. Gul, A. Azam, A. Aftab, and S. M. Bakhtiar, "Nutrigenetics and pharmacogenetics approaches in management of obesity," Precision Medicine, vol. 3, 2019.

19 I. S. Naveed, N. Afzal, M. Fiyaz, M. Nadeem, and S. M. Bakhtiar, "Precision medicine for multifactorial disorders," Precision Medicine, vol. 3, 2019.

20 H. Saira, A. Noor, I. Riasat, M. Qasim, and S. M. Bakhtiar, "Etiology, genetics, clinical manifestations and possible treatments of acromegaly," Precision Medicine, vol. 3, 2019.

21 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.

22 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.

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5. Research and Development Projects

5.1. Research Proposals

Research Proposals Submitted

The following table briefs the list of research proposals submitted by Office of Research, Innovation and Commercialization in collaboration with faculty members to various funding agencies.

S.No.	Title	Principal Investigator/ Collaborator	Department	Submission/Funding Agency
1	Towards the Application of Artificial Intelligence for Sustainable Livestock Management - A Pilot Project to uplift Socio-economic Conditions of Rural Women	Dr. Saira Ahmed	Management Sciences	Local Challenge Fund (LCF)
2	Behavioral Intervention for Sustainable Agricultural Practices: A Field Experiment for Water Conservation	Dr. Sabahat Haqqani	Management Sciences	Local Challenge Fund (LCF)
3	Current and Future Impact of Public Sector Secondary Education in Pakistan	Prof. Nayyer Masood	Computer Science	Local Challenge Fund (LCF)
4	Project Concept Paper for Center of Excellence for Training, Testing and Facilitation in Electric Vehicle Technology	Prof. Aamer Iqbal Bhatti	Electrical Engineering	Planning & Development Board, Punjab
5	Indigenous Development of Drone Detection Radar	Prof. Aamer Iqbal Bhatti	Electrical Engineering	Ministry of Education, Saudi Arabia
6	Collaborative Proposal for GCF with ERC, COMSATS Lahore	Prof. Aamer Iqbal Bhatti	Electrical Engineering	Grant Challenge Fund (GCF)
7	Revision Submission of Investigation of Drug Resistant Strains of Mycobacterium Proposal	Prof. Shaukat Iqbal Malik	Biosciences	Pakistan Science Foundation (PSF)

ORIC Proposals Dashboard

ORIC has designed a Proposals Dashboard which contains the data related to research proposals being worked on by ORIC in collaboration with other departments. The dashboard is divided in to following tabs/categories which contains a brief description about each proposal in accordance with its status:

1. Submitted
2. Submitted and Under Review
3. Under Final Revision
4. Approved

HEC National Research Program for Universities (NRPU)

National Research Program for Universities (NRPU) is a flagship Research Program of HEC for funding research grants on competitive merit for high-level and promising scientific research projects that demonstrate strategic relevance and impact to local industry and society. The faculty researchers of Capital University of Science & Technology have submitted numerous proposals on diverse and innovative research projects and ideas under HEC National Research Program for Universities (NRPU). Office of Research, Innovation and Commercialization have copiously facilitated the researchers in their proposals submission and associated documentation and paperwork.

HEC Local Challenge Fund (LCF)

The Local Challenge Fund (LCF) is a key element of the Higher Education Development in Pakistan Project supported by the World Bank and implemented by the Higher Education Commission (HEC) to support research projects that address locally relevant socio-economic issues and topics associated with Sustainable Development Goals (SDGs), and will provide funds to selected institutions based upon a competitive, peer-reviewed evaluation of proposals. Office of Research, Innovation and Commercialization have copiously facilitated researchers in their proposals submission and associated documentation and paperwork for LCF.

HEC National Research Program for Universities (NRPU) Approved Research Projects

Higher Education Commission (HEC) have recently accepted two proposals submitted by CUST faculty researchers under National Research Program for Universities (NRPU). One of the approved proposals entitled "Preparation of Indigenous Manual Based Intervention for Lowering anxiety and Depression Levels among Pakistani Youth" was funded 14.63 Million PKR for a duration of three years. The project would be completed under the supervision of Dr. Sabahat Haqqani, Assistant Professor, Management Sciences Department CUST. The other accepted project was "Molecular Epidemiology and Prevalence of Antibiotic Resistance Genes in Smog Particulate Matter: Implications for Human Exposure in Pakistan". The principal investigator of the project is Dr. Arshia Amin Butt, Assistant Professor, Biosciences Department, CUST. The total approved funding is 6.5 Million PKR for a duration of two years.

Center of Excellence for Training, Testing and Facilitation in Electric Vehicle Technology

Office of Research, Innovation and commercialization has prepared a proposal for scale-up idea of "Center of Excellence for Training, Testing and Facilitation in Electric Vehicles Technology" for submission in Planning & Development Board, Punjab. The proposed center would execute the capacity building, training and professional growth of technical manpower and professionals through workshops, contemporary courses, and skills development in subsystems of 2-3 wheelers, 4 wheelers, heavy commercial vehicles and electric power trains in electric vehicles technology. The modernistic center facilities with well-run equipment will provide hands on training and education to practitioners, technicians and relevant personnel to design, develop and support various subsystems of EVs. Similar equipment's would also be employed for commercial

testing and characterization of these subsystems to facilitate the newly growing industry of EVs. Collaborations and mutual associations would be made with local automotive and electric automobile industry through their problem solving, advisory/consultancy and joint R&D work.

Drone Detection Radar Proposal Revision Submissions

After a century of development and practice the science and art of air surveillance has become a well-established technology. However, due to the huge leaps in aerospace navigation and control on one hand and miniaturization on the other hand, the aerial threats are taking on new dimensions and shapes. New air vehicle categories such as Unmanned Air Vehicles (UAVs) and Drones (both fixed and rotary wing) have added a new flavor to the exhaustive categories of aerial threats such as wide variety of aircrafts and missiles. The advent of these new threats has posed a multitude of challenges to the air surveillance assets. Due to the miniaturization the limit on Radar Cross Section (RCS) to be detected has reduced considerably from 10 m^2 to 0.1 m^2, placing a huge requirement on the radar power and signal processing. The air sensors of future would have to incorporate huge diversity simultaneously addressing the challenges of both long range and miniature class cross sections. To cope with these stringent requirements a new Drone Detection Radar System was proposed and submitted to Ignite National Technology Fund, Ministry of Information Technology, Islamabad.

Investigation of COVID-19 in Pakistan by Integration of Artificial Intelligence and Epidemic Modelling Methods for Public Health Surveillance System

Globally, disease related health surveillance systems are playing a significant role in outbreak detection and response management of Infectious Diseases (IDs). However, in developing countries e.g. Pakistan, epidemic outbreaks are difficult to detect due to scarcity of public health data and absence of automated surveillance systems. This research will focus on development of infectious disease COVID-19 viewer. It is a blend of intelligent approaches to make use of real-time streaming data from Emergency Departments (EDs) for early outbreak detection of COVID-19 related to, health care resource allocation and epidemic response management etc.

Optimization and Establishment of In Vitro Cultures of Potato, Banana and Ornamental Plants for Commercialization

In recent years, tissue culture techniques have become very famous and substitute tool for vegetative propagation of plants. As an emergent technology, the micro propagation of plants has influenced greatly both agriculture and industry by making sure the provision of plants to encounter the ever-growing world demand. It is contributing significantly to the progression of agricultural sciences in current eras and today they establish an essential tool in contemporary agriculture. It is due to that we can generate a huge number of clones from a solitary seed or explants, select required traits, reduce the amount of space needed for field trials and eradicate plant diseases through the vigilant assortment and sterile techniques. The main objective of the proposal is the enhancement in the production capacity and commercialization of potato, banana, tulip and araucaria through tissue culture techniques

5.2. 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 2019-20	11.52 Million PKR
External Funding & Research Grants Till Date	495.199 Million PKR
Total R & D Projects	28
Number of PhDs Funded	22
Number of Prototypes Developed	5

5.3. 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 Iqbal 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 Iqbal 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

CFD Analysis of Atomization of Liquid Fuel

Project Status	In progress
Project Director	Dr. Muhammad Mahabat Khan
Total Budget	Rs 0.5 Million
Funding Agency By	Public Sector Organization

Computational Model for Combustion in the wake Region of flame Holder

Project Status	In progress
Project Director	Dr. Muhammad Mahabat Khan
Total Budget	Rs 0.5 Million
Funding Agency By	Public Sector Organization

Molecular Epidemiology and Prevalence of Antibiotic Resistance Genes in Smog Particulate Matter: Implications for Human Exposure in Pakistan

Project Status	Approved for Funding
Project Director	Dr. Arshia Amin Butt
Total Budget	Rs 6.5 Million
Funding Agency By	NRPU, HEC

Preparation of Indigenous Manual Based Intervention for Lowering anxiety and Depression Levels among Pakistani Youth

Project Status	Approved for Funding
Project Director	Dr. Sabahat Haqqani
Total Budget	Rs 14.63 Million
Funding Agency By	NRPU, HEC

5.4. 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.

Erasmus Plus Capacity Building Project: Strategic Support for Accreditation of Programs and Internationalization at South Asian Higher Education Institutes (HEIs) / SSAPI

Project Status:	In Progress
Project Director:	Prof. Dr. Amir Qayyum
In Collaboration:	2 European partners and 9 Asian partners
Total Budget:	PKR 169.92 Million
Funding Agency:	European Commission

Erasmus Plus Capacity Building Project: Capacity Building for Digital Health Monitoring and Care Systems in Asia - DigiHealth-Asia

Project Status:	In Progress
Project Director:	Prof. Dr. Amir Qayyum
In Collaboration:	3 European partners and 6 Asian partners
Total Budget:	PKR 184.25 Million
Funding Agency:	European Commission

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)

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	Actual Deployment

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

5.5. 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 hoc Networks (VANETs)	Prototype Development
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 Video Streaming Multicast Application	Actual Deployment
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 Devices	Prototype Development
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 Civil Engineering department respectively as detailed below.

8th CUST International Business Research Conference (CIBRC-2019)

Capital University of Science and Technology (CUST) organized its 8th International Business Research Conference (CIBRC), on December 19, 2019. The theme of the conference was "Management Excellence through Sustainable Change Management." Along with the technical sessions, graced by scholars and researchers from across the country as well as from the international universities, the conference program also included a PhD consortium, consisting of talks and lectures from the top-notch scholars of the country. The objective of the consortium was to provide a platform to the PhD students for enhancing their work and collaborating with other researchers to boost the research output consequently, and to get a valuable feedback on their dissertation in progress.

The opening session of the conference was graced by Dr. Kayoshi Taniguchi, Principal Economist, Asian Development Bank (ADB) and Excellency Madame Teresa Daban Sanche , IMF Resident Country Representative. Dr. Kayoshi Taniguchi delivered his keynote talk about the importance of collaboration between academia and industry. He appreciated the efforts of CUST in providing a platform to academic experts, entrepreneurs and practitioners from the corporate world to exchange their ideas in order to capitalize from the much needed collaboration. Madame Teresa Daban Sanche added that students must engage in analyzing the projects at designing phase.

The closing session was graced by Dr. Asad Zaman, Member Pakistan Economic Advisory Council and Mr. Muhammed Ahmed Chairman, Islamabad Chamber of Commerce and Industry (ICCI). The guest speakers delivered an enlightening speech on the importance of academia and industry collaboration and acknowledged CUST's efforts in bridging the gap between the two.

7th International Conference on Biological and Computational sciences (C-BICS 2019)

The Department of Bio-sciences and Bio-informatics at Capital University of Science and Technology organized 7th International Conference on Biological and Computational Sciences (C-BICS 2019) on November 28, 2019. The objective of conference was to provide a platform where researchers and practitioners in the field of Bio-informatics and Bio-sciences could meet and share their experiences. The conference witnessed an active participation of Bio-informatics and Bio-sciences community from across the country.

Inaugural ceremony started with the recitation of Holy Quran, followed by talk of Dean Faculty of Health and Life Sciences, CUST Dr. Muhammad Abdul Qadir. He highlighted the importance of biological sciences and various research areas of human genetics and other advanced biological sciences research areas. He identified various gaps which needed to be explored by Immunologists, Microbiologists and Bio technologists.

The keynote speaker was Dr. Abida Raza Rao, Principal Scientist Head, NILOP Nano medicine Research Labs (NNRL). A total of 205 participants and guests attended the conference, and 37 oral presentations were held in 6 sessions. In poster session, a total of 61 posters were presented by research scholars including 34 from external participants.

Prof. Dr. M. Mansoor Ahmed, Vice Chancellor CUST graced the event as Chief Guest. He enlightened the audience with an inspirational talk. Prof. Dr. Shaukat Iqbal presented the brief over view of the conference followed by Shields/mementos distribution among position holders and organizing committee members before the formal closure.

1st Conference on Sustainability in Civil Engineering (CSCE-19)

The First Annual Conference on Sustainability in Civil Engineering (CSCE-19) was organized by Civil Engineering Department, CUST to emphasize on the importance of sustainability in the field of Civil Engineering and its allied disciplines. The conference also provided a platform to Civil Engineers from academia and industry to share their experiences and research findings in relevant disciplines/specializations.

Engr. Prof. Majid Ali chaired the conference along with conference secretary, Engr. Sohaib Naseer. Separate parallel sessions of different specialties were held where researchers and engineers interacted and shared their understandings of sustainability in the field of civil engineering. Six renowned and enlightened keynote speakers were invited for opening edition of conference presentations. A total of 132 manuscripts were received internationally. All papers were undergone double blind review process by a review committee comprised of 46 PhDs serving in different honored international industries and institutes. A total of 59 papers were presented in conference after final review.

Vice Chancellor CUST, Prof. Dr. Muhammad Mansoor Ahmed also attended the opening ceremony of CSCE' 19 and gave his encouraging remarks about the conference. The Civil Engineering Department, CUST organized and participated in conference chores wholeheartedly to make the event successful. The conference sessions were proceeded by two mid tea breaks and a lavish lunch. During the lunch buffet, participants were distributed with their conference certificates. All the participant of conference including authors, presenters and audience gave their worthy feedbacks at the end to help make this event more emerging successful the following year.

6.3. Technical Trainings, Workshops and Seminars

Seminar on United Nations Humanitarian VS Development System, UN new ways of working/ Nexus

The Directorate of Sustainability and Environment, in coordination with the Office of Corporate Linkages hosted an awareness session on The United Nations Humanitarian VS Development System, UN new ways of working/ Nexus on 11th March 2020. And for that, Dr. Iyad Nasr (Head of OCHA, Pakistan), graced the occasion with his esteemed presence and talked about the role OCHA plays in times of crisis. Mr. Iyad shed some light upon the formation of HCT in turbulent times. He also enlightened the students about the Humanitarian Response Plan and the new way forward in it. He has encouraged the students to take initiatives to make this world a better place. And the student response was very positive. They returned much more knowledgeable about the OCHA mandate and its endeavors. Dr. Arif Vaseer, Associate Professor Management Sciences and Dr Saira Ahmed, Director Sustainability and Development accompanied Dr. Iyad Nasr to discuss the way forward in developing long term relationships that would benefit not only both the organizations, but the whole Pakistani Community at large.

Seminar on Corporate Challenges and Success

Placement Office organized a symposium on "Corporate Challenges and Success". Mr. Azam Jamil was the guest speaker. He is currently the Chief Operating Officer of the Hashoo Education Division. Prior to this, he held positions of Dean, Hashoo School of Hospitality Management, Vice President of Learning & Development for the Hashoo Group, Corporate Director of Training & Development at Serena Hotels and Corporate Head of Sales & Marketing South & Central Asia. On moving to the United States in 1983, he became the first Asian to be elected to the Board of Best Western Colorado representing over 80 hotels and motels in the state. The event was organized to equip students with skills required to succeed in corporate world. He thoroughly explained the concept of success and approach to get there. Mr. Azam Jamil emphasized the importance of failures and encouraged students to play their part with great enthusiasm to reach their goals. The challenges of corporate world and dealing with it successfully was discussed in detail. The honorable guest was presented university shield by Dr. Mueen Aizaz zaffar, Head of Department Management and Social Sciences and Prof. Dr. Arif Vaseer.

Session on Preparing CUST for UN's Sustainability Agenda

The Vice Chancellor of CUST Dr. Muhammad Mansoor Ahmed, the Deans and the Heads of Departments were briefed by Ms. Javaria Qais Joiya. Ms. Javaria is Director, Department of Sustainable Environment at University of Central Punjab, Lahore. She stressed the need for universities to achieve on-campus sustainability. She spoke about the need for innovation and research into more sophisticated ways of sustainable use of resources at university campuses. The Vice Chancellor appreciated the talk and affirmed that CUST too recognizes the importance of sustainability as per the United Nation's Sustainable Development Goals (SDGs). He added that CUST shall be applying for green metrics accreditation as well and shall take all measures towards reducing the carbon footprint and implementation of sustainable policies. During the meeting, it was discussed that research work and final year projects should also focus on the SDGs in order to prepare responsible future leaders of tomorrow.

Training Session on SME Finance Awareness

The Office of Corporate Linkages, with undue support of the HOD FMSS, Dr. Mueen Aizaz Zafar, and Associate Professor Dr. Arif Vaseer conducted an informative session about SME Finance Awareness on 28th February 2020. The Deputy Director of the State Bank of Pakistan, Mr. Umair Iqbal, accompanied by Mr. Qasim Awais Mushtaq graced the occasion as a guest speaker to create awareness among the students of CUST about the SME financing and various programs being offered by the State Bank of Pakistan. The aim of the session was to make the students aware of SME financing and facilitate the financial needs of the entrepreneurs and SME's aiming towards a stronger national economy. The success of the session was ensured by a very positive and encouraging response from the students who wished for another, more in-depth session. The session was followed by student refreshment, sponsored by State Bank of Pakistan.

Participation of CUST Students in TEch Expo at RCCI

RCCI hosted a tech expo at Pearl Continental Hotel Rawalpindi on 3rd Feburary 2020 and 4th Feburary 2020. The tech Expo consisted of technology related exhibits and panel talks by various experts with respect to the opportunities pertaining to the tech related exports. The Governor of Punjab was invited as the chief guest to grace the event. CUST also set up an executive stall in the expo for the display of the student projects. The students from the department of Computer Sciences and Electrical Engineering participated and exhibited their projects under the esteemed guidance and supervision of HOD Computer Sciences, Dr. Nayyar Masood and Office of Corporate Linkages. Visitors from the industry really complimented the project displays of the students and showed interest in their work for future correspondences. The Chairman RCCI also appraised the students' efforts and voiced it out in one of his speeches.

Special Session on Essential ingredients of a successful life

The Department of Pharmacy organized a seminar on "Essential ingredients of a successful life". The guest speaker, Prof. Dr. Nadeem Irfan Bukhari, a well-known figure in pharmacy circle and academician is currently working as a Dean Faculty of Pharmacy at University of Punjab, Lahore. This event was arranged to motivate students and help them understand the meaning of success. The speaker highlighted the importance of looking at success and failure through different perspectives. It was emphasized with practical examples from the speaker's life that how to explore your hidden potential and utilize it to live a successful life. The honorable guest was presented university shield by Dean Faculty of Health and Life Sciences Prof. Dr. Muhammad Abdul Qadir and Dr. Muzaffar Abbas Head of Department Pharmacy CUST.

Awareness Session on Point of Sale Software

The office of Corporate Linkages CUST arranged an awareness seminar on "Point of sale software" that is recently introduced by Federal Board of Revenue (FBR). The guest speaker Mr. Abdul Waheed, Commissioner FBR enlightened students and faculty on new software which will capture tax collected at the point of sale. Now anyone can confirm after any payment whether the tax deducted has been deposited into national exchequer or not. The honorable guest was presented university shield by Dr. Sajid Bashir Associate Dean, Corporate Linkages, CUST.

Interactive Session on Need for Applied Research

A seminar was jointly organized by Professor Dr Irfan Manarvi from Mechanical Engineering Department and Dr Syeda Marriamam Bakhtiar of Bio Sciences Department on 16th December 2019 at CUST. Air Vice Marshal Dr Rizwan Riaz SI(M) the Principal of Research Center for Modelling and Simulation at NUST delivered a talk on "Need for Applied Research". He highlighted the future requirements of Pakistan Air Force that is in process of developing 5th Generation Fighter Aircraft. He emphasized upon the students that they must get involved in applied research projects based on the requirements of local industry and defense services. They could provide solutions, develop products and explore innovative areas during their studies and setup their own companies instead of being job seekers. It will not only help them utilize their full potential, but also contribute to the National Economic development.

Seminar on Tips & Techniques for Trading on PSX

Department of Management & Social Sciences organized a seminar "Tips & Techniques for Trading on PSX" under the supervision of Ms. Rabia Habib, on Dec 12th, 2019 at 11:00 AM. The guest Speaker, was Dr. Ayaz-ul-Haq Assistant Professor, at University of Central Punjab, Rawalpindi Campus. The guest speaker shared the procedure for opening account with CDC (Central Depository Company). He further elaborated the trading procedure on the stock exchange through registered brokerage house/broker. An overview of the Karachi stock Exchange was given, followed by detailed analysis of Live Trading Session of Pakistan Stock exchange (PSX). The seminar provided students with an opportunity to understand the requirements for trading on PSX. Students were able to interpret the Bullish & Bearish trends of securities. At the end, souvenir was presented to honorable guest speaker, Dr. Ayaz-ul-Haq.

Special Lecture on Image base Modeling using finite Elements

Department of Mechanical Engineering organized a seminar on the topic "Image base Modeling using finite Elements". Key Note Speaker was Dr. Zartasha Mustansar from RCMS, NUST. The speaker enlightened the importance of image base modeling in bio-medical and mechanical engineering using different software tools. The purpose of the seminar was to create awareness among student about image base modeling in different fields. The primary aspect, scrutinized by the guest speaker was how students can prepare themselves for the challenges in life, how they can compete in life and develop skills to improve social behavior.

Saint Mary's Academy Education Fair 2019

Capital University participated in Education Fair organized by Saint Mary's Academy Lalazar Rawalpindi on Thursday November 7th, 2019. The purpose of this expo was to familiarize A-levels and HSSC students with undergraduate degree programs being offered by Capital University, about their entry requirements and how students can apply for admission in Capital University of Science & Technology.

Special Talk on Entrepreneurship and How to Run a Successful Business

Department of Management Sciences has organized the seminar on "Entrepreneurship and How to Run a Successful Business" held on Oct 24, 2019 under the supervision of Ms. Maria Mashkoor. The honorable speaker was "Mr. Asad Rafi" CEO: Micronox | Vision | Ibtada | Ghar.com. He is a trainer and motivational speaker. After the recitation of Holy Quran Mr. Asad Rafi delivered an informational lecture on Entrepreneurship and How to Run a Successful Business. The specific objectives of the seminar were to analyze on goal about life. He suggested to start career with higher aims.

Seminar on Importance of Quranic Education

The JSPark Society at Department of Computer Science organized a seminar entitled "Importance of Quranic Education" on 15th October 2019 at 11:00 AM. Mr. Peer Syed Haider Gillani, custodian of Hazrat Bari Imam Sarkar graced the occasion as a chief guest. He enlightened the students of Capital University with importance of Quranic education as it is obligatory for every Muslim men and women to get Quranic education. At the end, Dr. Muhammad Sagheer, along with Mr. Qamar uz Zaman, and Mr. Muhammad Usman Javed presented a university souvenir to the worthy chief guest.

Roadshow Huawei ICT Competition Middle East 2019

The Department of Computer Science at Capital University of Science & Technology in collaboration with Huawei Pakistan arranged an awareness seminar entitled "Roadshow Huawei ICT Competition Middle East 2019" on Friday, September 27, 2019. Huawei is a leading global information and communication technology solution provider. Huawei Certification System is well-recognized and is becoming a standard for ICT talent cultivation. In order to promote ICT industry technology certification, there is a need to develop ICT industry talent and a strong ecosystem. Mr. Syed Bilal Qasim, Manager Pakistan Service Department, Huawei Enterprise Business Group was the chief guest for this event. He enlightened the importance of this event for computer science students. The energetic and ICT enthusiast will get a chance to represent Pakistan in this International Competition which will be held on 28 November 2019 in Shenzhen, China. The event provided an opportunity for the CS students to win a grand prize of USD30,000 along with other excellent opportunities such as Internship leading to Job in Huawei.

Al-Funoon Gala 2019

IEEE CUST Student Branch organized its annual event named "Al-Funoon Gala 2019" on 18th December, 2019. The event started at 9:00 am with the opening ceremony. Students from all the departments of university showcased their talent by participating in 16 different modules which included e-gaming, Quiz, Mushaira, Chess, Table Tennis, Scavenger Hunt, Debate and many others. A motivational session was also arranged for the students. The event ended at 4:00 pm with the closing ceremony, where certificates and souvenirs were awarded to the winners and runners up of specific modules and the organizing team for arranging such a splendid event.

IEEE Day 2019

IEEE Day-2019 was commemorated under the umbrella of IEEE CUST Student Branch on October 07, 2019 at Capital University of Science & Technology. The event was divided into two segments, speed wiring competition and photography competition. In former event, there were ten groups each having three members. The task was to make IEEE emblem using LED lights on breadboard. The group which implemented the circuit correctly in the shortest time was declared as the winner. The main objective of the photography competition was to examine the photography skills of the students and to train them for covering big events. In the end certificates of appreciation were awarded to the winning group and the participants.

Interviews for EX-COM 2019-2020

IEEE CUST Student branch conducted interviews for new EX-COM for Year 2019-2020. A panel of six conducted interviews which included Mr. Qazi Abdul Moqueet and Mr. Waleed Farooq (Patron and Vice Patron of IEEE CUST Student Branch), Miss. Nayab Ali and Mr. Jahanzeb (Chairperson and Vice Chairperson of IEEE CUST Student Branch), Miss. Maria Mashkoor and Miss. Sharmeen. The interview sessions continued for three days dated from 30th September 2019 to 2nd October 2019. More than 120 students applied for different posts. Most of the students were very competent and qualified, which made the selection procedure very tough for the panel. At last, the best among them were selected.

SIGHT Week's Celebration

IEEE CUST Student Branch organized an interactive session on December 06, 2019 with the chairperson of IEEE Special Interest Group on Humanitarian Technology (SIGHT), Islamabad section, Mr. Haris Zaman Chaudhary. The session started with the introduction of the guest speaker followed by his brief introduction about SIGHT. The Chief Guest also shared his past experiences for the better understanding of IEEE SIGHT to the audience. The event concluded with an interactive segment, in which participants had to write a social problem and with an idea for its implementation and solution.

Free Hand Sketch Competition at CUST

Science society under ASCE Capital Chapter arranged a Free Hand Sketch Competition for CUST students. Students from various departments of CUST participated in the event to sketch any Civil Engineering structure of choice. A number of students demonstrated their talents well and were able to draw some excellent sketches. Dr. Syed Shujaa Safdar Gardezi resided as judge for the event. After a close competition Malik Basit Faraz of the Mechanical Engineering department topped the contest.
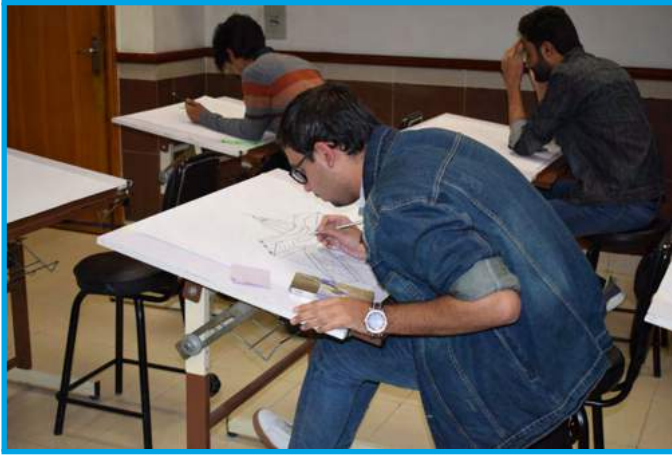
Seminar on Hospitality and Tourism 2030

On 9th June 2020, Dr. Faizan Ali, who is an Assistant Professor at University of South Florida Sarasota Manatee (U.S.A) talked to the students of Capital University Science and Technology in a virtual talk session through Zoom. The initiative of this talk was taken by the Office of Corporate Linkages, CUST in which he talked about the hotels and their purpose as well their contributions towards the world economy. He also shed light on the places that are most in-demand in the tourism sector nowadays. He emphasized on the government's initiatives to develop tourism in Pakistan and suggested that Pakistan should seek alternative tourism and handle crowding to release pressure from specific tourist sites.

Furthermore, he introduced the concept of Smart City to drive economic growth and improve the quality of life by incorporating technology such as apps and gadgets, cooking automation, flying patrolling drones etc. He mentioned that the top 2030 tourism trends are technology, sustainable tourism, alternative tourism, use of Artificial Intelligence, personalization and shared economy.

Prolog Based Artificial Intelligence Competition

Computer Society, IEEE CUST Student Branch organized the competition named "Prolog Based Artificial Intelligence Competition". The event was held under the supervision of Mr. Muhammad Saqib. A Challenging task relevant to Artificial Intelligence was also given to the participants. The activity ended with distribution of certificates of appreciation to the participants and winners by Mr. Muhammad Saqib.

Capital University Stars Shined at PIEAS National Olympiad'19

On October 25-27, 2019 Pakistan Institute of Engineering and Applied Sciences (PIEAS) organized its annual event entitled "PIEAS National Olympiad'19" to acknowledge the technical skills of young engineers. A team from the Department

of Electrical Engineering, Capital University of Science and Technology participated and secured 1st position in the Robotics event, National Olympiad 2019 among more than 1000 participants of 50 universities from all across Pakistan.

Power Soul Competition

Power Soul Competition was held under the umberalla of PES Chapter, IEEE CUST Student Branch on December 02, 2019. The purpose of event was to provoke competitive spirit among the students. Moreover. it also helped them to gain substantial experience. The main objective of the event was to boost confidence level in students and provide them a platform to showcase their skills. Mr.Iqrar was declared winner of the competition. In the end, certificates were distributed among the participants.

Seminar on Body Image

WIE Affinity Group, IEEE CUST Student Branch organized a seminar on "Body Image" on October 14, 2019 under the supervision of Ms. Maria Mashkoor. The honorable speaker of the event was Ms.Sonia Lodhi, Director, 36 days fitness challenge. By profession she is a fashion designer, trainer, international certified fitness expert and motivational speaker. The Guest Speaker delivered an inspirational and informative lecture on fitness. She mainly insisted upon daily exercise routine and health and fitness maintained by continuous workouts, and highlighted the misconceptions regarding proteins intake. She also suggested to gradually start gym and then carry it on daily basis. The session ended with an interesting push-ups challenge activity and followed by a Q/A session.

Awareness Session on Stress Management

Department of Management & Social Sciences organized a seminar on Stress Management under the supervision of Ms. Rabia Habib. The guest Speaker, Ms. Sobia Khateeb is Director/Clinical Psychologist at Sobia Khateeb Foundation a renowned psychologist and motivational speaker in Islamabad. The Guest speaker explained the fact that depression, anxiety, stress, poor body image, grief, loss or a major change in our life, can all affect our mental and emotional health. Sometimes, it is hard to know if what we are experiencing is depression or sadness, worry or anxiety. The main purpose of seminar was to make students realize how important it is, to take care of their emotional health. The seminar provided students with an opportunity to look into their own strengths and use them to excel in life. At the end, souvenir was presented to Ms. Sobia Khateeb.

Interactive Session on Dengue Awareness

WIE Affinity Group, IEEE CUST organized a seminar on "Dengue Awareness" on October 11, 2019 under the supervision of Ms. Maria Mashkoor. The guest speakers were "Dr. Nadia Shamshad Malik" and "Mr. Zulkifal Malik". Dr. Nadia Shamshad is Assistant Professor at Pharmacy Department, CUST while Mr. Zulkifal Malik serves as Lecturer in the same department. Dr. Nadia Shamshad delivered an informational lecture on the Dengue Fever with the brief description of statistical information

gathered from different regions including America, Africa, Middle East, Pacific Islands and Asia. She explained in details the originating point of dengue mosquito, types of fever caused by infected mosquito and symptoms at different stages of dengue fever with diagnosis. After that, Mr. Zulkifal Malik focused on the treatment of dengue virus in which he highlighted the advice for patients, prevention and home remedies for dengue fever. At the end there was a question answer session.

Thalassemia Awareness Talk

On October 08, 2019 a seminar on "Thalassemia Awareness" was held under the supervision of Mr. Saboor Ahmed. The guest speaker, Mr. Mohammad Iqbal is Chairman Kashif Iqbal Thalassemia Centre and President Thalassemia Federation of Pakistan. The guest speaker updated the students about issues arising in our country due to unawareness of people. Thalassemia is a blood disorder inherited through families. The speaker shared his entire life experiences and regarding treatment of Thalassemia of his son. The session proved to be extremely informative and inspirational for students.

Sensor Based Communication Using Harmonic Potential Fields

Control Systems Society, IEEE CUST Student Branch under the supervision of Prof. Aamer Iqbal Bhatti organized a session on "Sensor Based Communication Using Harmonic Potential Fields" on October 29, 2019. The Guest Speaker at the event was Dr. Waqas Afzal. The speaker addressed that the mission planning and execution has gained a lot of attention in recent years, and falling costs and increasing efficiency of sensors have significantly increased the interaction of agents with their environment. The aim of this study was to induce motion in agents operating in cluttered environments using techniques that integrate sensing, motion, control and communication constraints. The activity turned out to be an interactive session which was evident from Q/A session.

Timer Implementation Competition on PLC

Control Systems Society, IEEE CUST Student Branch organized a Timer Implementation Competition on PLC on December 17, 2019 under the supervision of Engr. Attabik Tabib. A total of 4 teams participated, each comprising 5 members. Timers and counters have been in existence for as long as relays and they provide an important component in the development of logic. Timers were constructed in the past as an add-on device to relays slowing down the transition of the plunger from immediately opening or closing. On conclusion certificates were awarded to the winner and runners up teams.

Web Front End Designing Competition

Computer Society, IEEE CUST Student Branch organized an event named "Web Front End Designing Competition". The competition was held under the supervision of Mr. Fawad bin Tariq. A challenging task related to Web Front End Designing was given to the participants. Mr. Fawad bin Tariq distributed the certificates of appreciation among winners at the end of particular competition.

Seminar on Web Development Skills

A seminar was arranged to enhance Web Development Skills of the students. The seminar was organized by the Software Engineering students of Technical Report Writing, Section. It was conducted under the supervision of Ms. Humera Aftab. Seminar started with the recitation of Holy Quran and then the Guest speaker, Mr. Umair Jassa, an alumna of MAJU was invited to share his knowledge and skills with the students. Mr. Umair Jassa is successfully running his own Software House. The purpose of seminar was to engage students in the discussion of an academic subject with an aim to gain a better insight into the subject. The web development process includes web design, web content Development, Client-side/Server side scripting and Network Security Configuration, among other tasks. It was a good experience for students to learn more about web development. The students enjoyed the interactive session and it was a good opportunity to understand things in a better way. At the end of Seminar, a souvenir was presented to the guest speaker by Ms. Humera Aftab. Hi-tea was served to the guest speaker and the faculty members.

Seminar on How Pakistan managed with COVID-19 Pandemic Situation

Department of pharmacy organized a seminar on "How Pakistan managed with COVID-19 Pandemic Situation" for pharmacy students and faculty on 15th May, 2020 through video link. The guest was Dr. Muhammad Haseeb Tariq, Assistant Director Drug Regulatory Authority of Pakistan (DRAP), Islamabad. Dr. Muhammad Haseeb Tariq enlightened the audience about COVID-19, its mode of transmission, sign and symptoms, current statistics, therapeutic options, clinical management guidelines, and clinical trials in Pakistan. Dr Muzaffar Abbas, HoD Pharmacy thanked Dr. Muhammad Haseeb Tariq for sharing his valuable thoughts and experience with the audience. Moreover, the active participation and interest of pharmacy faculty, students and staff was highly acknowledged.

Icebreaking Session with Pharmaceutical Industry

In pursuit of academia-industry liaisons an "Icebreaking Session with Pharmaceutical Industry" was conducted by Office of Research Innovation and Commercialization (ORIC) in collaboration with Department of Pharmacy on 27th Feb, 2020. The visit was purposed to have an interactive session with representatives of pharmaceutical Industry for their valuable input in preparing a student with the skills, expertise and knowledge that meets industrial demands. The session also focused on how to bridge the Industry and academia to collaborate for solution of local industrial problems. Guests from renowned pharmaceutical Industries including Shaigan Pharma, UniMark Pharma, Amson Pharma, Bio-Labs and Agror Pharma participated in the session. Dean Research & innovation welcomed the guests. HoD Pharmacy provided a brief introductory presentation of his Department to the audience. The meeting turned out to be an interactive session and provided valuable direction to pharmacy department in building industry-academia collaboration. The industries representatives also visited and appreciated Labs of Department of Pharmacy.

Special Lecture on Medicinal Plants and Drug Discovery

The Department of Pharmacy organized a seminar on February 12, 2020 "Medicinal Plants and Drug Discovery". The guest speaker was Prof. Dr. Ghulam Abbas Miana, who is currently working as Rector, Advisor to Vice-Chancellor, as well as Director Research of Riphah Institute of Pharmaceutical Sciences. Riphah International University, Islamabad. This event was arranged to motivate students and help them understand the basic concepts of alkaloidal drugs, their extraction, isolation and characterization. Professor G. A. Miana's emphasized that medicinal plants of Pakistan are of great national interest. He explained that, how he was able to isolate and establish the structure of a large number of interesting and novel compounds such as Pakistannine, Pakistanmine Baluchistanamine, and Baluchistanine. The compounds discovered by Professor Miana, are a valuable addition to both the literature and the knowledge of Natural Product Chemistry.

Online Literary Festival 2020 (OLF-20)

The Department of Pharmacy organized Online Literary Festival (OLF) 2020 on calligraphy, painting, sketching, debate and poetry during current pandemic situation due to COVID-19 from 21st April 2020 to 27th April, 2020. The students actively participated in different activities of the OLF 2020 and appreciated the efforts of the department. Dr. Muzaffar Abbas, HoD, announced the winners of different activities and appreciated the active participation of the students and help of faculty members and staff in making the festival successful.

Online Seminar on Professional Ethics for pharmacists - An Islamic perspective

The Department of Pharmacy, Capital University of Science & Technology, organized an online seminar entitled "Professional Ethics for pharmacists - An Islamic perspective" on Thursday, July 9, 2020. The students and faculty members of Pharmacy Department and faculty members participated in this online seminar through MS teams. Dr. Sohaib Z. Malik, Assistant professor, Head of Riphah's Leaders of Tomorrow Program and Assistant Director of Tarbiyah Dept. at Riphah International University, Islamabad was invited as guest speaker for the talk.

Mr. Muhammad Tariq Khan, lecturer Pharmacy Dept. welcomed and introduced the guest speaker to the attendees of online seminar. Dr. Sohaib Z. Malik discussed various aspects of professional ethics for practicing pharmacists and undergraduate students. He also explained the core Islamic values and Islamic principles for working in pharmaceutical and health sector. In question answer session, faculty members and students participated actively and shared their thoughts about the topic. Faculty members and students highly acknowledged and thanked the guest speaker for the wonderful and inspiring talk.

Special Seminar on V3 WESTERN WORKFLOW

The Department of Pharmacy CUST arranged a seminar on January 16, 2020 entitled "V3 Western Work Flow" from Bio-Rad. Dr. Alan Lowton & Dr. Ashan Musafer, Bio-Rad application specialists of Life Sciences Group enlightened students and faculty on V3 western workflow on key topics including running of PAGE, Protein transfer, Protein detection and Imaging. The speakers talked about various instruments from Bio-rad's to carry out the whole workflow.

They introduced various vertical gel electrophoresis instruments, their unique features, ease of use and time saving. Furthermore, Bio-rad's ready gels facilitate the researcher to run the gels in less than 30 mins, without the need of staining and de-staining, transfer of proteins in as low as 10mins with Transblot turbo. Easy detection using western C ECL reagents and visualizing them on a variety of stain free technology enabled imaging systems.

A wide range of imaging systems capable of imaging the gels and blots in single channels to multichannel options (to detect multiple proteins tagged with various fluorescent dyes) with fully automated, one-touch operations. The output is of publishing quality images without the need of pixel/bit setting and In-gel normalization with housekeeping proteins. The honorable guest was presented university shield by Dr. Muzaffar Abbas Head of Department Pharmacy CUST.

Session on Astrobiology and Extremophile Microbiology

A seminar on "Astrobiology and Extremophile Microbiology" was organized by the Genix Society of Department of Biosciences, Faculty of Health and Life Sciences, Capital University of Science and Technology Islamabad, on October 17, 2019 under the supervision of Dr. Arshia Amin Butt. The program started with the recitation of Holy Quran followed by introduction of the guest speaker, Dr. Fariha Hassan, Professor of Microbiology, Quaid e Azam University Islamabad.

Dr. Fariha Hasan, started the seminar with a brief introduction of Astrobiology and Extremophiles. Further, she discussed about the possibilities of Life in outer space. The main aim of the seminar was to deliver the idea and knowledge about the vastness and immensity of the universe and to inform the students that there are planets besides earth which are habitable and suitable for the survival of life. Overall the session was interactive, students showed quite an interest in the topic. Students asked questions to the guest speaker after the seminar ended. The souvenir was presented to the guest speakers bythe Genix Patron, Dr. Erum Dilshad along with Dr. Arhsia Amin Butt and Hi-tea was served to the guest speaker and the faculty afterwards.

Educational Trip to Margalla Hills National Park Trail-S

An Educational trip was organized on December 07, 2019 by the Department of Bioinformatics and Biosciences to Margalla Hills National Park, Trail-S, Islamabad. It was held under the supervision of Dr. Arshia Amin Butt and Mr. Ziauddin Tanoli. The Islamabad Wildlife Management Board welcomed the students and faculty on their arrival and briefed them on the biodiversity present across Margalla Hill National Park, particularly trail-S which was very informative and gave the students an in depth knowledge and idea about the diversified wildlife, ecosystem present.

Mr. Shujjat Hussain and Mr. Shafaqat (Wild Life Officers) engaged the students in seed ball activity and highlighted the significance of conservation of native plant species. Despite its small size, the fauna of MHNP is quite diverse due to its rich variety of habitats including thick vegetation cover and steep hillsides that provide shelter to a variety of animals, birds, and reptiles. The national park was setup to provide refuge to the Grey Goral, Barking Deer and the Leopard, as well as the Rhesus Monkeys, Jackals, Wild Boars, Porcupine, Mongoose and the Pangolin or scaly anteater. After the educational session IWMB let students to proceed for hiking of trail-S which is estimated to be 5 or 6 km and takes about 3.5 hours to cover the hike till peak. Overall the trip was quite entertaining, informative and the students enjoyed outdoor learning.

Educational Trip to National Tea and High Value Crops Research Institute

An educational trip was organized on October 05, 2019 by the Department of Bioinformatics and Biosciences to National Tea and High Value Crops Research Institute Shinkar, Mansehra. The event was held under the supervision of Head of BioInformatics and Biosciences Department, Dr. Sahar Fazal and Dr. Erum Dilshad, Patron Genix Society; accompanied by Dr. Arshia Amin Butt, Miss Fatima and Mr. Ziauddin Tanoli.

The trip was organized in a well-managed and entertaining way which also provided the students with knowledge about the research being done on plants and the benefits of high value crops being used and produced for the betterment of Pakistan. The students were given a tour of the Institute and educated about the process of making tea of different varieties such as, white tea, green tea and black tea using advanced machinery and technology.

SESSION ON BUILDING CODES

A Trip to Khewra Mines

Department of Civil Engineering organized a site visit for students to "Khewera Mines" under the supervision and team lead of Engr. Muhammad Usman Farooqi on November 17, 2019. The faculty members of department demonstrated the geological conditions and briefed about the soil strata and their variation in different region. Faculty members also briefed about the effects of slat range in potable and drinking water.

Seminar on Building Codes

A seminar was conducted by Civil Engineering Department, Capital University of Science and Technology Islamabad on October 25, 2019. The target audience were students of Civil Engineering. The guest speaker was Engr. Asad Mehmood, Technical Manager at Energy Conservation Fund-National Energy Efficiency & Conservation Authority Pakistan. Engr. Asad Mehmood delivered a very well-structured lecture which covered and highlighted every aspect of "Building Codes". At the end, a souvenir was presented to Engr. Asad Mehmood by Engr. Dr. Ishtiaq Hassan, Head of Civil Engineering Department.

DEPARTMENT OF CIVIL ENGINEERING

DEPARTMENT OF CIVIL ENGINEERING

Seminar on Development Projects in Public Sector

Department of Civil Engineering organized a seminar entitled "Development Projects in Public Sector" under the supervision of Engr. Sana Gul and Engr. Wajahat Ali on December 16, 2019. The guest Speaker, Engr. Sumera Khalid is a Civil Engineer by profession. She did her Masters in Structural Engineering from UET Taxila, currently serving as Infrastructure & Services Design Engineer at Planning & Development Directorate Fatima Jinnah Women University Rawalpindi. Engr. Sumera Khalid delivered a very well-structured lecture which covered and highlighted every aspect of Development Projects

in Public Sector. At the end, a souvenir was presented to Engr. Sumera Khalid by Engr. Usman Farooqi, Assistant Professor, Department of Civil Engineering.

A Site Visit to Rasool Barrage

Department of Civil Engineering, CUST organized a site visit to Raossol Barage , Mandi Bahaudin under the suprvision and team lead of Engr. Abdul Qadeer on December 15, 2019. The trip was assisted by the sub engineer of the barrage. During the visit students were instructed and briefed about the barrage head. components and turbine installed. The sole purpose of the visit was to familiarize students with turbine installed at specific barrage and its working.

Interactive Session on Change Your Mind, Change Your Life

Department of Civil Engineering, CUST organized a seminar on "Change Your Mind, Change Your Life" under the supervision of Engr. Faiza Khalid and Engr. Ali Ejaz on October 30, 2019. The guest Speaker, Mr. Tehseen Wahid, is a Civil Engineer by profession and an entrepreneur with a vast range of experience. Mr. Tehseen is co-founder of institute "Shaping Future" which focuses on training three dimensions of society, students, teachers and workforce. The seminar provided the students with an opportunity to look at the life of a successful man in the light of failures, he faced and opportunities he had because of those failures.

Special Lecture on 3D Graphics and Rendering

Software Engineering Society organized a seminar on the topic of "3D Graphics and Rendering" on November 26, 2019 under the supervision of Mr. Syed Awais Haider. The seminar was organized to provide students an overview of the role of computer graphics in film-making and Gaming industry. The guest speaker, Mr. Abdul Qavi, having a vast industrial experience, discussed a number of concepts in the area of computer graphics including various rendering techniques. It was an interactive session that lasted more than an hour with a question & answer session at the end. Prof. Dr. Nayyer Masood, Head of CS Department presented the souvenir to speaker at the end of session.

Workshop on individualism, Collectivism and Empathy

On November 06, 2019, a workshop on the concept of "Individualism, Collectivism and Empathy" was conducted by Ms. Maryam Khan for personal grooming of students. The guest speaker was Ms. Maria Mashkoor. Based on a series of three hands on activities, the students were taught about the nature, with pros and cons of each aspect.

Interactive Session on Conversation Skills

On November 06, 2019, a seminar was conducted on the topic "Conversation Skills" by Management & Social Sciences Department, under the supervision of Ms. Maria Mashkoor. The guest speaker was Mr. Adeel lqbal, CEO of Tech Company, Concept & Advertising Specialist, Marketing Professional, Research Analyst, Graphic Designer, Photographer and Entrepreneur. Mr. Adeel discussed the importance of conversation skills in practical and professional life. He mentioned the point why it is important for a person to work on choosing the right words, to avoid unnecessary and meaningless conversation and should have the information about what they decide to talk about. In the end, he advised the students to put their little achievements in their CV because as an employer he finds it really important since it tells an employer the candidate is goal-oriented person and is proud of his/her achievements.

Special Lecture on Roadshow to Digi Skills

On October 16, 2019, a seminar on "Roadshow to Digi Skills" was held under the supervision of Ms. Maria Mashkoor, Dr. Ansir Ali Rajput, Dr. Jaleel and Mr. Hafiz Adnan. The guest speaker was Ms. Syeda Yumna Hasany. She spearheaded the development of women empowerment center project for female prisoners in Lower Dir, Malakand that aimed to provide vocational training to female prisoners. She is also affiliated with Radio Pakistan since 2009, in addition to being a member of Legislative Fellowship Program for India and Pakistan, organized by US department of state for policy makers

and development practitioners. The guest speaker updated the students about Digi Skills which is a nation-wide program funded by the Ministry of Information Technology & Telecom with the aim of training around 1 million people in the future of work using technology. Digi Skills allow the students to get enrolled in their programs which are taught by the experts, totally free of cost. The 12 courses include Search Engine Optimization, AutoCAD, WordPress, Digital Marketing, E-commerce Management, Freelancing, Digital Literacy, QuickBooks, Graphic Design and Creative Writing.

Seminar on Islamic Banking and Finance

Department of Management & Social Sciences, CUST organized a seminar entitled "Islamic Banking and Finance" on November 22, 2019 under the supervision of Dr. Sajid Basheer. The Guest Speaker at the event was Mr. Zulqarnain Haider, Assistant Vice President, Product Development and Shariah Compliance Department of Meezan Bank.

Interactive Session on How to Run a Successful Business

A seminar on "How to Run a Successful Business" was organized on October 24, 2019 under the supervision of Ms. Maria Mashkoor. Dr. Asad Raft, owner of four companies, namely, Micronox, Ghar.org, Vision TV and lbtada Events, was the guest speaker. Starting with his personal life story, he took the students on the journey which emphasized on starting from the scrap and making it to the top. According to him obedience is the key to success, not hard work. He emphasized on creation of ideas, stating that an idea always attracts money but money can't buy an idea. To run a successful business, one must have a clear business plan in mind and a passion to lead that plan through. He guided students that one must start small, and then eventually through consistent efforts, make it big. Employee relationships matter a lot and taxes must be paid on time. It was an interactive and interesting talk for the students.

6.4. Capacity Building Events Organized by Office of Research, Innovation and Commercialization

Ideas Hunting Sessions on Innovation and Commercialization

Office of Research Innovation and Commercialization at Capital University of Science and Technology has the ambition not only to enhance research culture at the university but also to translate research results into practice to have a positive impact on our region's economy. In this regard brainstorming and ideas hunting sessions about innovation and commercialization were held with all academic departments to identify low risk, small investment and marketable ideas and then work for their potential commercialization. The first session was held with the faculty of Biosciences on 18th October 2019 in the ORIC office. Faculty members were briefed about ORIC and its aim to avail funding opportunities. Dean ORIC apprised that purpose of the meeting was to have an Ideas hunting session with the faculty members to discuss and share ideas and to identify domains in the field of Biosciences that have commercialization potential. After comprehensive and deliberate discussion, three major workable domains were identified and agreed upon by participants, namely Genetic and Molecular Diagnostics, Tissue Culture and Microbial Enhanced Oil Recovery.

The second session was held with faculty of Pharmacy on 23rd October 2019. Dean Research & Innovation requested the faculty members to share low-risk, high-yield opportunities that can be addressed utilizing available lab facilities of the Department. After comprehensive and deliberate discussion, some major directions were identified and decided to be worked on for their potential commercialization. The brainstorming session with faculty of Civil Engineering (CE) was held on 6 November 2019. Dean Research & Innovation assured CE Department that ORIC will provide full assistance required in the commercialization of any type of product or idea shared by the respective department. A detailed discussion was carried on Building Information Modeling and Consultancy Services with regard to Civil and its allied fields. The Ideas Hunting session with Mechanical Engineering (ME) Department was held on 22 November 2019. The purpose of the meeting was to have an interactive meet up with the faculty members to discuss and share ideas and to identify domains in the field of Mechanical Engineering that have commercialization potential. The meeting attendees agreed upon some workable and revenue generation ideas like Cold Storage System, Faculty Training and Certifications and Commercial Testing. The particular session with faculty of Mathematics was held on 28 November 2019. Dean Research & Innovation shared that in the modern era of technological advancement, Cyber security is a hot issue that can be looked to from Mathematics point of view. Similarly, organizations are very much involved in new Encryption Schemes, Computational Fluid Dynamics (CFD) and Optimization. The faculty agreed that collaborative work can be started with the particular organizations in these domains and was keen to collaborate with ORIC in its strive of industrial liaison. A Commercialization Matrix consisting of commercializeable ideas having specific marketing and sales potential was created upon the conclusion of the sessions. The last session was held with the Faculty of Management and Social Sciences on January 02, 2020. Dean Research & Innovation apprised that ORIC has conducted brainstorming sessions with all departments. The participants were asked to indicate the market potential and highlight way forward of the tabulated ideas. The faculty was also asked to submit their expertise in terms of providing trainings and skill consultancy so that their expertise can be utilized by conducting workshops and skills development session through the platform of ORIC.

Initiation of Certification Courses at CUST

Continuing Education and Certification Courses help an individual to showcase his/her competency, commitment for the profession, build expertise in his/her professional area, and help with job advancement. These courses not only provide training on various aspects of subject but also deliver detailed knowledge and skills required to perform real-world job responsibilities. Keeping in view the significance of these courses for Industry personnel, Office of Research, Innovation and Commercialization (ORIC) initiated specific one semester long Certificate Courses in Spring-2020 for professionals and practitioners,who intend to develop on job skills and professional growth. The eligibility criteria for the particular courses was having minimum 16 years of education in the relevant discipline. The classes for each course were held once in a week from 6 PM – 9 PM in the evening to facilitate the industry professionals. A total of 16 professionals were registered in four different Certification Courses. Keeping in mind the success of these courses and as per recommendation of departments, ORIC has again advertised and offered certification courses for Fall-2020 and found promising response from various organization.

Virtual Training Session on Recent Approaches in Literature Review

Literature review is a survey of scholarly sources on a specific topic. It provides an overview of current knowledge allowing you to identify relevant theories, methods and gaps in the existing research. Conducting a literature review involves collecting, evaluating and analyzing publications, such as books and journal articles that relate to research question.

Keeping in view the significance of this topic for students especially in pandemic lockdown, ORIC organized an Online Training Session entitled "Recent Approaches in Literature Review" on 09 June 2020. The session was held on Microsoft Teams under "ORIC Seminars Team". The objective of the particular session was to enlighten CUST faculty members, research scholars and students with the updated knowledge about the most recent practices in Literature Review. A total of 22 participants including faculty members and research scholars from various departments attended the seminar. The resource person for the particular session was Dr. Lakhi Muhammad, Assistant Professor, Management Sciences Department, CUST. The session ended on a high note and proved to be a great source of knowledge and acquaintance to the participants, and research scholars in particular.

Online Session on Avoiding Depression During University's Academic Tenure

Office of Research, Innovation and Commercialization Conducts Training Sessions/Seminars on depression and load management for research scholars and students on continual basis. An online session on a similar topic entitled "How to Avoid Depression During University's Academic Tenure" was held on 21 July 2020. The session was held on Microsoft Teams under "ORIC Seminars Team" which is specifically created by ORIC for its Online workshops, seminars and similar activities. The objective of the particular session was to educate students about how to cope with the depression and uneasiness during their academic period. The resource person for the particular session was Engr. Qazi Abdul Moqueet, Lecturer, Electrical Engineering Department, CUST. The speaker educated the addressees about the effective practices and routines to effectually avoid rigorousness and associated depression during University education. The participants included the undergraduate students of various departments. The seminar lasted till 1:30 PM including Q/A session. The session concluded with the vote of thanks, to the resource person by Assistant Director ORIC.

Certificate Distribution Ceremony of FYPs Business Plan Competition

The Certificate Distribution Ceremony of FYPs Business Plan Competition FYPs was held on 27 February 2020. The event was organized by Office of Research, Innovation and commercialization to instigate the students for their innovative project ideas and explicit business plans. Prof. Arshad Hassan, Dean FMSS was chief guest at the occasion. The faculty members/project supervisors of award winning FYPs and students were present at the event. The event started with the recitation of a few Verses from Holy Quran. The chief guest and faculty members were briefed about the particular competition and the evaluation procedure adopted. Subsequently Dean FMSS was invited for certificates distribution among the students.

After the certificates distribution, Dean FMSS delivered a brief talk. He inspired the students about their endurance and highlighted the importance of business plans in present age of commercialization. He appreciated the efforts of students and highlighted the significance of entrepreneurship and marketing the product in the present age of commercialization. The faculty members wished that such type of awards and funding should be conducted on continual basis. They also agreed on interdepartmental collaborations and joint projects for better progression of students and faculty.

Incubation of Students' Start-Up Company "Tech Flickers"

Office of Research, Innovation and Commercialization has initiated an incubation company entitled "Tech Flickers" at Capital University of Science& Technology, Islamabad. Dean Research & Innovation, Prof. Aamer Iqbal Bhatti has laid his special devotion to make this workroom possible. Tech Flickers is a SECP registered Start-Up incubated by two of the much endowed Computer Science graduates, Mr. Arslan Akram and Mr. Shoaib Ali in collaboration with ORIC. Before startup of the company a number of meetings and collaborative sessions were held with field experts, the most notable been the session with Dr. Muhammad Yousaf, Associate Dean, Faculty of Computing, RIPHAH who is a certified expert in Information

and Cyber-Security. The company provides services in different areas of software development. The startup upholds the highest standards for project planning and execution, and is dedicated to delivering the perfect services for business needs on-time and on-budget. At present, Tech Flickers is successfully pursuing various projects in accordance with customer requirements. The company provides its services in following major domains:

1 Web Development
2 Graphic Designing
3 SEO
4 Web Security
5 Malware Analysis
6 Data Security
7 Computer & Web Forensics
8 Desktop Application Development

Dean ORIC Presentation to EE Dept. for Faculty Development Program

To showcase the recent progress report, and to enlighten the faculty members of EE Department about Office of Research, Innovation and Commercialization and its role, Dean Research & Innovation, Prof. Aamer Iqbal Bhatti presented a faculty development session on 8 September 2020. Prof. Aamer Iqbal Bhatti presented the contribution of ORIC towards its stated domains i.e. Research Operations, Technology Incubation & Innovation and Industrial Liaison. He gave a brief overview about the various activities and events accomplished by ORIC and its future prospects.

Online Seminar on Teaching Techniques for Virtual Learning Environment (VLE)

Office of Research, Innovation and Commercialization assisted and collaborated with Quality Enhancement Cell (QEC), CUST to conduct a series of Online Training Sessions/Seminars for Training of faculty members about the Virtual Learning Environment (VLE) and online education system during COVID-19 Pandemic. In this regard, the virtual session entitled "Online Teaching Techniques" was held on July 08, 2020. The session was held on Microsoft Teams under "VLE Seminar Team" which is specifically created for training/sessions/seminars related to online teaching. The objective of the particular session was to educate CUST faculty members about some effective online teaching techniques.

The resource person for the particular session was Dr. Ahsan Mahmood Ahmed, Assistant Professor, Department of Management and Marketing, CUST. Dr Ahsan is an enthusiastic, energetic and motivated professional with track record of almost 6.5 years teaching experience and 4 years of overseas experience in the areas of Human Resources and Administration as well as Customer Services. The participants included the faculty members across various departments. The talk ended on a high note and proved to be a great source of knowledge and acquaintance to the participants.

Professorial Inaugural Lecture of Dr. Muhammad Tanvir Afzal

An Inaugural lecture is an occasion of significance in a faculty member's career. The activity allows a newly appointed professor an opportunity to share his research interests and celebrate an important personal milestone with a broad audience, including campus community, colleagues and the general members of the public. Office of Research, Innovation and Commercialization organized the Professorial Inaugural Lecture to honor Dr. Muhammad Tanvir Afzal, Prof. SE Department, CUST on Oct 02, 2019. The lecture was delivered on the topic entitled "Scientometrics: A Science for Measuring Scientific Output". A total of 38 faculty members from various departments attended the event. Dean ORIC acknowledged Dr. Tanvir Afzal for an enlightening and thought provoking talk. He also thanked faculty members for their keen interest and wished to arrange such type of events on continual basis.

Virtual Session on Difficulties faced by Students and Faculty in VLE Classes

Office of Research, Innovation and Commercialization in collaboration with Quality Enhancement Cell (QEC), CUST conducted a virtual session entitled "Difficulties faced by Students and Faculty during VLE Classes" on June 5, 2020. The session was held on Microsoft Teams under "VLE Seminar Team" which is specifically created for training/sessions/seminars related to online teaching. The objective of the particular session was to discuss and find solutions about major problems faced by students and faculty in CUST online education system. The resource person for the particular session was Dr. Irfan Anjum Manarvi, Professor, Mechanical Engineering Department, CUST. The participants included the faculty members across various departments. The talk ended on a high note and proved to be an interactive session with regard to online teaching related issues.

Visit of high Level Delegation from Pakistan Navy to CUST

A high level delegation of Pakistan Navy led by Commodore Dr. Junaid Khan ACNS (NR&D) visited Capital University of Science & Technology, Islamabad on 22 October 2019. The delegation members included Captain Dr. Muhammad Farhan, Director R&D and Captain Dr. Faisal Amir Khan, Director NCW (Tech), Pakistan Navy. The formal session started with the presentation of Dean Research & Innovation about Capital University of Science and Technology, particularly about its students' strength, Research Groups, R&D Projects and Research Collaborations with academia and industry. The guests were pleased to know about the strong industrial backgrounds of CUST faculty members.

The officers took keen interest in Radar Based Projects and similar ventures that can be substantial for defense industry of Pakistan. Dr. Irfan Anjum Manarvi affirmed that CUST have adequate lab facilities, human capital and allied expertise to develop certain product. He added that CUST have an excellent infrastructure and labs facilities for Product Design and Development. Both the parties agreed to start collaboration through smaller projects and then move towards the greater endeavors. The Navy Officials invited CUST faculty members to visit Naval Headquarter and present their research expertise, success stories and areas of mutual interest to explore collaboration prospects.

Training Session on Communication and Presentation skills

An interactive session on Communication Skills focused on Verbal Skills, One on One & Public Speaking and Presentation Skills was organized by ORIC on 7 October 2019. The purpose of particular session was to train future engineers about Verbal and Non-Verbal Communication Skills. The workshop was intended to present the basic introductory material and most recent knowledge about Communication and its types, Presentation Skills, Communication Style and Interview tips with an activity and assignment. The workshop resource person was Ms. Bismah Mirza who works as Manager Human Resource Development in TPL Corp. Ltd Karachi. The training session was followed by an informal meeting of Dean ORIC and Mr. Inam Elahi, Instructor (Communication Development Courses, CUST) with workshop trainer to deliberate over potential schemes to improve communication and presentation skills of CUST students. Ms. Bismah was thanked and acknowledged with university memento by Dean ORIC and Mr. Inam Elahi at the end of the session.

Online Seminar on Transition to Virtual Learning: Challenges vs. Adaptation

Office of Research, Innovation and Commercialization in collaboration with Quality Enhancement Cell (QEC), CUST conducted a virtual training session entitled "Virtual Learning: Challenges vs. Adaptation" on June 12, 2020. The session was held on Microsoft Teams under "VLE Seminar Team". The objective of the particular session was to educate CUST faculty members about reality based challenges of virtual learning. The resource person for the particular session was Ms. Maryam

Khan, Lecturer, Department of Management Sciences, CUST. The participants included the faculty members across various departments. The session ended on a good note and proved to be a great source of knowledge and education to the participants.

Participation of ORIC in HEC CPEC Conference

ORIC has actively participated in HEC CPEC Conference held on 18th November 2019. The objective of this conference was to review progress of academic collaborations among partner institutions, expand academic linkages among the universities of the two countries, promote civilizational harmony, explore joint research projects, plan joint conferences, seminars and workshops and strive for internationalization of higher education under CPEC.

Professorial Inaugural Lecture of Dr. Sajid Bashir

Office of Research, Innovation and Commercialization organized the Professorial Inaugural of Dr. Sajid Bashir, former Associate Dean Corporate Linkages, CUST on November 25, 2019. The lecture was delivered on the topic entitled "The Art of Academic Writing". The session started with the recitation of Holy Quran followed by a brief introduction of Dr. Sajid Bashir regarding his extraordinary academic and research achievements presented by Dean Research & Innovation. The talk enclosed the basic techniques, methods and tips to create an effective academic and research writing. The speaker also discussed the research paper write up process in an extremely interactive and simpler way.

The response of faculty members was quite promising. A total of 32 faculty members from various departments attended the event. Dean ORIC acknowledged Dr. Sajid Bashir for an enlightening and thought provoking talk.

Online Seminar on Managing and Implementing Change with respect to COVID-19

Office of Research, Innovation and Commercialization conducted a series of Online Training Sessions/Seminars for Knowledge Building/Enlightenment of faculty members, research scholars and students about the most recent subject matters during COVID-19 Pandemic. The seminar entitled "Managing and Implementing Change with respect to COVID-19" was held on 09 July 2020. The session was held on Microsoft Teams under "ORIC Seminars Team". The objective of the particular session was to educate CUST faculty members, research scholars and students with the updated research and comprehension about Change Management in COVID-19 pandemic.

The resource person for the particular session was Dr. Muzaffar Asad, Assistant Professor, Department of Management and Marketing, University of Bahrain. Dr Asad is an internationally acclaimed trainer and has conducted several trainings in the domains of Communication Skills, Leadership, Entrepreneurship, SPSS, Smart PLS etc. at various academic and professional institutes. The speaker educated the addressees about the current practices and methodologies adopted worldwide to effectively implement and adapt to the changes transpired as a result of COVID-19 pandemic. The participants included the faculty members and students across various departments. The talk ended on a high note and proved to be a great source of knowledge and acquaintance to the participants.

Visit of ORIC and CUST Faculty Team to PAC Kamra

A CUST faculty team from Departments of Mechanical Engineering, Electrical Engineering and Pharmacy visited Pakistan Aeronautical Complex (PAC) Kamra on 27 November 2019. A brief presentation was delivered to CUST team by PAC personnel highlighting the capabilities, working domains and salient accomplishments of PAC Kamra. Dean Research & Innovation also conferred a presentation to PAC officials showcasing CUST research capabilities and collaboration potential. CUST team also visited various factories including Aircraft Rebuilt Factory, Aircraft Manufacturing Factory, Avionics Production Factory and Aviation Research, Indigenization & Development (AvRID).

Seminar on Cancer Drug Development from Natural Sources

Office of Research Innovation and Commercialization (ORIC) in collaboration with Department of Biosciences conducted a seminar on "Cancer Drug Development from Natural Sources: The Neem Story" on 16 December 2019. The guest speaker of the seminar was Dr. Aneel Paulus who is an Assistant Professor of Medicine and Cancer Biology at the Mayo Clinic in Florida, U.S. He is a translational oncologist and serves as the Director for Translational Research in B-Cell Cancers. Dr. Paulus and his team have expertise in the development of new drugs for cancer and conducting clinical trials in patients.

The seminar was followed by an interactive session with Dr. Aneel Paulus. Dean Research & Innovation, HoD Bioscience and HoD Pharmacy, faculty members and research students were present in the session. Dr. Paulus was briefed about the extensive research being conducted at CUST in Department of Biosciences and Department of Pharmacy. Dr. Paulus offered to work in collaboration in several domains including Bioinformatics, molecular biology, pharmacognosy and toxicity studies.

Collaborative Session with Project AZM Team from PAC Kamra

A team of project AZM headed by Group Captain Irtaza from Pakistan Aeronautical Complex (PAC) Kamra visited Capital University of Science and Technology (CUST), Islamabad on December 19, 2019. Project AZM aims to develop a fifth-generation fighter aircraft as per ASR requirements. The project requires synergetic participation of a large number of organizations and stakeholder. Dean Research & Innovation and Dean FoE welcomed the guests. Group Captain Irtaza showed his interest to work in collaboration with CUST in the areas of Flight Controls and Computer & Pattern Recognition. He acknowledged the expertise of CUST in these areas, both parties agreed to meet after two weeks to discuss the mode and terms of collaboration.

Auto Desk Revit Electrical Workshop

Capital University of Science and Technology hosted a 3 days "REVIT Electrical Workshop" on 02-04 January 2020. Office of Research, Innovation and Commercialization in collaboration with the Department of Electrical Engineering organized the particular workshop aiming to enlighten CUST future Electrical Engineers and students with the practical knowledge and applications of REVIT in Construction Industry and Building Electrification in particular.

Autodesk Revit is a 4D Building Information Modeling (BIM) software for architects, engineers, designers and contractors with tools to plan and track various stages in the building's lifecycle, from concept to construction and later maintenance and/or demolition. A total of 30 participants including CUST undergraduate and postgraduate students from Electrical Engineering Department and Alumni attended the workshop. The resource person for the particular workshop was Mr. Shafaqat Iftikhar from Designmen Consulting Engineers, Islamabad. The participants were also provided certificates at the end of the workshop.

Visit of high Level Delegation from Harbin Engineering University, China to CUST

A high level delegation of 6 senior academicians from Harbin Engineering University (HEI), China led by Prof. Ding Xuezhong, visited Capital University of Science & Technology, Islamabad on 15 January 2020. The meeting started with the brief introduction of CUST faculty team about their educational profiles and research expertise presented by Dean Faculty of Engineering, Prof. Imtiaz Ahmad Taj. This was followed by the corresponding introduction by visiting team from Harbin Engineering University about their academic and research backgrounds, presented by Vice Dean, International College (HEI), Prof. Ding Xuezhong.

Dean Research & Innovation, Prof. Aamer Iqbal Bhatti updated the officials about the research collaborations of CUST with academia and industry. The guests were amused to know the research expertise and sound industrial background of CUST faculty members. The Chinese delegation lead presented a brief overview about HEI and research and development expertise of its faculty. He named a few areas like Ship Building Technology, Underwater Acoustic and Nuclear Science Technology on which HEI is investing heavily and have collaborations with leading Pakistani organizations.

The delegation also took keen interest and talked about workable Joint Research Lab/Center and wished to endure the research collaboration with CUST. The guests presented the HEI mementos to Dean ORIC and Dean Faculty of Engineering, CUST. The guests were also acknowledged with CUST mementos by Dean ORIC followed by a group photo.

Virtual Seminar on SARS COVID-19

Office of Research, Innovation and Commercialization organized an interactive Online Seminar entitled "SARS COVID-19" on 17 June 2020. The session was held on Microsoft Teams under "ORIC Seminars Team". The objective of the particular session was to educate CUST faculty members, research scholars and students with the most updated research and comprehension about COVID-19 pandemic. The resource person for the particular session was Prof. Dr. Shaukat Iqbal Malik, Professor, FHLS and Director VIS, CUST. The speaker discussed the various types of Corona Viruses with their brief history. He educated the addressees about the symptoms, testing methods with their effectiveness, precautionary measures and treatment procedures. The presentation also covered the societal impact of COVID-19.

A total of 45 participants including the senior faculty members, research scholars and students from various departments attended the seminar. The faculty members and students took keen interest in the session that was also evident from Q/A session. The Resource Person and faculty members were graciously thanked by Assistant Director ORIC at the end, with the commitment to continue such type of sessions on consistent basis.

Visit of ORIC and CUST Faculty Team to Animal House, NIH, Islamabad

ORIC conducted a faculty visit to Animal House, National Institute of Health (NIH), Islamabad on 23rd January 2020. The faculty team was comprised of Dr. Muzaffar Abbas, HoD Pharmacy and Dr. Ansar Ali Rajput, Associate Professor, MS Department. The purpose of particular visit was to have a detailed overview of the Animal House in terms of food quality and cost, animal care and initial investment. The visit would prove to be a great source of guidance for the proposed Animal House at CUST.

6.5. Entrepreneurship Marketing Gala-2019

Entrepreneurial Marketing Gala 2019 was organized, by the Department of Management & Social Sciences on December 31, 2019 at Capital University of Science and Technology. Students organized various stalls. The event was an experiential activity of Entrepreneurship and Marketing Students where students displayed their products and services for selling and promotion perspective. More than 100 stalls were displayed which were comprising of entrepreneurial startup, marketing stalls, Gaming Zone, and Food Junctions. The students showed great quality of planning to make the event successful. The University students took keen interest in the event and participated with full enthusiasm. At the end, Dean Management Department, Dr. Arshad Hassan, gave the shields and cash prizes to the winners of event. During his address, he appreciated the efforts of organizing teams and emphasized that these kinds of activities should be continued in future as well.

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 regarding advanced technologies in constructions filed, 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.

Workshops Conducted by BIM Centre of Excellence

BIM Center of Excellence continues to arrange workshops and training on regular basis regarding Buildings Information Modeling and REVIT for people from different fields/professionals backgrounds. Until now six 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	Jan 11th & 12th 2019
2	Revit Structure Fundamentals	3 Days	Feb 15th, 16th & 22nd 2019
3	Revit Mechanical Fundamentals	3 Days	March 15th, 16th & 22nd 2019
4	Revit Electrical Fundamentals	3 Days	April 12th, 13th & 19th 2019
5	Revit Architecture Fundamental	2 Days	Oct 25th & 26th 2019
6	Autodesk REVIT Electrical Workshop	2 Days	Jan 02nd & 04th 2020

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

DMTL Pvt Ltd, Pakistan

A Memorandum of Understanding was signed between CUST and DMTL Pvt Ltd on Thursday i.e. July 16, 2020. DMTL Pvt Ltd is a Digital Marketing Training Firm which provides various training on marketing strategies on different digital forums. The Office of Corporate Linkages was lead by the Director, CL, Dr. Arif Vaseer who was accompanied by Head of the Department, FMSS, Dr. Mueen Zafar whereas DMTL was lead by the founder of DMTL Pvt Ltd, Mr. Husbi Ahmed who was accompanied by Mr. Ali Kamal. Both the organizations agreed to engage in joint activities regarding digital marketing training, considering its demand and requirement in the present times.

National Institute of Banking and Finance, Pakistan

A Memorandum of Understanding (MoU) was signed between Capital University of Science and Technology and National Institute of Banking and Finance on 28th Oct, 2019. The parties agreed to collaborate in exploration of areas of mutual interest in developing and grooming human resources in the fields of banking and finance.

Media Mint (Pvt.) Ltd. (Rime TV), Pakistan

Capital University of Science and Technology and Media Mint (Pvt.) Ltd. (Rime TV) signed an agreement of mutual interest on June 22, 2020 for opportunities of exchange and cooperation as well as joint research and development in disciplines of mutual interest and creation of a vibrant Entrepreneurial Ecosystem and promotion of Entrepreneurial Environment for the students. The parties also agreed for identification of opportunities for student internship and job opportunities, and promotion of innovation and creativity in youth.

DESIGNMEN Consulting Engineers (Pvt) Ltd, Pakistan

A Memorandum of Understanding (MoU) was signed between Capital University of Science and Technology and DE-SIGNMEN Consulting Engineers (Pvt) Ltd. on March 18, 2020 to identify the opportunities for exchange and cooperation in joint academic and scientific activities, students' internships and collaborative research projects at undergraduate and graduate level. The parties also agreed to identify the opportunities for industrial sponsorship for collaborative research projects.

Inspire Pakistan, Islamabad Campus, Pakistan

A Memorandum of Understanding (MoU) was scribbled between Capital University of Science and Technology and Inspire Pakistan, Islamabad Campus on December 20, 2019. Both the parties agreed to collaborate and support each other in exchange and cooperation in joint academic activities such as seminars, conferences, research work etc. and identify endeavors and opportunities for supporting education and making its accessible to marginalized segments of society.

Rawalpindi Chamber of Commerce and Industry, Pakistan

Capital University of Science and Technology and Rawalpindi Chamber of Commerce and Industry signed an agreement of mutual interest regarding the identification of opportunities for commercialization of technology and help each other in building the Entrepreneurial Ecosystem of Pakistan through building incubators.

The University of Lahore, Islamabad Campus, Pakistan

An Accord of Mutual Interest was inscribed between Capital University of Science and Technology and University of Lahore, Islamabad Campus on January 8, 2020 with regard to the possibilities and opportunities for exchange and cooperation as well as joint research and development in disciplines of mutual interest, vocational training and joint seminars, workshops and advisory council.

National Testing Service (NTS) Pakistan, Pakistan

A Concord of Mutual Interest was penned between Capital University of Science and Technology and National Testing Service (NTS) Pakistan on December 10, 2019 regarding the cooperation in areas of staff training and development of test material for conducting employment tests. NTS also agreed to facilitate CUST students in internships and related opportunities.

M/s Khubeeb Khan Architects (KKA), Pakistan

Capital University of Science and Technology and M/s Khubeeb Khan Architects (KKA) signed an agreement of mutual interest on March 12, 2020 regarding the identification of opportunities for exchange and cooperation in joint academic and scientific activities like seminars, advisory council and collaborative research projects. The parties also agreed to continue the collaboration through student internships and industrial sponsorship.

National Incubation Center (NIC) Pakistan , Pakistan

Memorandum of Understanding (MoU) was signed between Capital University of Science and Technology and National Incubation Center (NIC) Pakistan on November 19, 2019. Both parties agreed to identify opportunities for exchanges and

cooperation , and joint research & development in disciplines of mutual interest and to help each other in building Entrepreneurship Eco System of Pakistan.

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

National Testing Service (NTS) Pakistan and Capital University of Science & Technology, Islamabad agreed through an agreement of mutual understanding to accept NTS tests for admission at CUST at undergraduate and graduate levels.

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

Universidade De Evora, Portugal

A Memorandum of Understanding (MoU) was signed between Capital University of Science and Technology and Universidade De Evora. The parties agreed to collaborate in terms of Joint Research Projects, Faculty and Students Exchange, organization of courses, seminars, symposia and other areas of mutual interest.

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 was 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.

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 for the benefit of students who are in their final semesters.

8.4. Events Organized by DCL

Events Organized by DCL (2019-20)			
S.No.	Event Title	Objective/Theme	Date
1	Virtual Session on Digital Marketing as an emerging Marketing Tool	Mr. Husbi Ahmed conducted a webinar for the graduating students of BBA and MBA on the topic of digital marketing and how it can be used to develop a cost effective marketing strategy.	16th June 2020
2	Virtual Session on Hospitality and Tourism	Webinar for students of different faculties including Management Sciences to make them aware of different strategies incorporating technology being implemented worldwide to boost tourism and future course of action. The speaker also talked about some automated projects which will become the new norm in hospitality and tourism 2030.	9th June 2020
3	Handling Stress and Anxiety during COVID-19	Online session for students and faculty regarding awareness about their mental wellbeing, productive and positive behavior amid COVID 19 pandemic. The speaker discussed various types of stressors with special focus on coping up with the COVID-19 induced stress and anxiety	4th June, 2020
4	Challenges and Opportunities for Sales Management Team	Online session for the graduating students of BBA and MBA who intend to adopt sales management as a career. The speaker stressed upon the market need of the sales force motivated the students that with resilience, motivation and drive, one can achieve far more than expected in this field.	2nd June, 2020
5	Premier Business Conference "Aspire" hosted by RCCI (Rawalpindi Chamber of Commerce & Industry)	RCCI hosted an online panel discussion "Aspire" in which experts from the corporate world were invited to talk about the new norm i.e. "Digitization in the Business World". The expert panelists stressed upon the flexibility, adaptability and developing a tech friendly attitude to adapt in accordance with COVID-19.	27th May 2020

6	Online Session about Ufone Strategy regarding coping up with COVID-19 Pandemic	Online Training Session for the students and faculty, enlightening them with about how Ufone has coped up with their operations amid COVID 19. The speaker updated that Ufone initiated the work from home culture which was followed by other companies as well which proved to be a blessing in disguise. He further added that during the COVID 19 lockdown three core operations remained the top priority of UFONE i.e. 1. Maintain the threshold of the ufone product sales, CSR activities for the pandemic affected ones and online marketing campaigns.	19th May 2020
7	Webinar on The Skillset required to maximize the chances of getting job amid COVID-19 pandemic	A webinar was conducted for the students of BBA and MBA, about developing appropriate digital skills for digitization. The guest speaker said that although the job market is extremely volatile due to the COVID-19 but opportunities still do exist even in this time. He also emphasized the importance of certifications related to soft and technical skills besides regular course of studies.	14th May 2020
8	2nd Virtual Session of NIC (National Incubation Centre)	The objective of session was to make awareness to students of faculties of computing and engineering about the operations of NIC and the details of their upcoming 8th Cohort.	12th May, 2020
9	1st Virtual Session of NIC (National Incubation Centre)	The 1st session of NIC was intended for the students of Faculty of Management & Social Sciences to make them aware about the operations of NIC and the details of their upcoming 8th Cohort.	5th May 2020
10	Awareness Session on UN New Ways of Working/ Nexus	The purpose of session was to bring awareness about the UN way of creating Nexus with parent countries workforce, bringing relief among the natural disasters affected ones, and OCHA framework collaboration with nations about ensuring timely relief measures for people.	11th March 2020

11	SME Financing Awareness Session of SBP	The objective of this session was to make awareness about SME financing, facilitation of the financial needs of entrepreneurs and SBP's resolve towards a stronger national economy.	28th Feb, 2020
12	Pink Ribbon and Coffee Morning (Breast Cancer Awareness Session)	The Pink Ribbon and Coffee Morning event was hosted by RCCI. Various oncologists and breast cancer survivors spoke on the said topic to create awareness for timely action. The guest speaker applauded the Breast Cancer Survivors for their hard battle against the cancer and motivated them to stay firm and strong	11th Feb,2020
13	RCCI Technology Expo at Pearl Continental Hotel Rawalpindi(Rawalpindi Chamber of Commerce & Industry)	Students of Computer Sciences, Electrical engineering, Civil Engineering and Mechanical Engineering exhibited their projects besides the Governor Punjab and other investors for the purpose of recognition and marketing of their products through the platform of RCCI	3rd & 4th Feb,2020
14	Awareness Session About Federal Inland Revenue Domestic Taxes	The objective of session was awareness of CUST students about the amended Sales Tax 2006 rules to make the installation of POS Invoicing System in Pakistan mandatory for all tier-1 shopping malls, hypermarkets, brand outlets hotels etc.The guest speaker briefed the students about the mechanism on how the POI system would operate to ensure the transparency of the tax paying.	7th Jan, 2020
15	Session on International Human Rights Day by Inspire Pakistan	The objctive of this session was the enlightenment of CUST faculty and students about the role played by INSPIRE in developing awareness of human rights in Pakistan. The guest speaker extended his hand towards CUST to make partnership with Inspire in this great cause.	10th Dec, 2019

8.5. Recruitment Drives and Job Expos

On Campus Interviews of Female Graduates for Emerging Visions Pvt Ltd

Emerging Visions Pvt Ltd contacted the OCL CUST to conduct initial interviews of female graduates of CUST for the positions of Business Development Executive, Social Media Executive and On Campus Internee. Prof. Sajid Bashir (Director Corporate Linkages at that time) conducted on-campus interviews of Management Sciences students on 20th January 2020 and shortlisted the eligible students.

1. Iqra Khan for Business Development Executive
2. Khateeja Babar for Social Media Executive
3. Warda Imtiaz for Campus intern

On Campus Hiring Of Graduates by Planet Beyond Pvt Ltd

Planet Beyond Pvt Ltd conducted on campus interviews of graduating students of CS department on 30th December, 2019. A total of 16 students were called for interviews, out of which 4 students were shortlisted for second round of interviews at the company's head office. After this final interview, Mr. Osama Shahbaz was selected for the job post.

Job Recruitment Drive by ATWICS (Immigration Consultancy)

ATWICS Pvt Ltd is an immigration consultancy firm whose team consisting of 6 members including their CEO, Mr. Waqas Riaz, visited the CUST on 18th Dec, 2019 to conduct interviews for the post of Market Development Executive. Out of 17 applicants, Ms. Iqra Tahir was selected for the desired post.

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 July 2019. The event was inaugurated by Prof. Dr. Muhammad Mansoor Ahmed, Vice Chancellor, Capital University of Science and Technology. Students' projects were viewed and evaluated by the notable representatives from industry and academia and on spot interviews were also held. 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 and showing keen interest in the students' projects. 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.

Participant 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

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 a total of 8790 students have graduated from the institute in different disciplines. Currently more than 4700 students including 1150 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. Faculty Student (FS) Ratio

The followings numbers present the overall and department wise faculty-students (FS) ratio. The overall ratio comes out to be 24.38 which is an outstanding figure showing the adequate faculty strength against the students.

S.No.	Department	Students	Faculty	FS Ratio
1	Faculty of Engineering	1140	74	15.4
2	Faculty of Computing	1675	66	25.3
3	Faculty of Health & Life Sciences	453	20	22.6
4	Faculty of Management & Social Sciences	1462	34	43
Total		**4730**	**194**	**24.3**

9.4. 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 2019-20, an amount around Rs. 176 Million has been disbursed among 4297 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 2019	2309	93.66 Million PKR
Spring 2020	1988	82.25 Million PKR
Total	4297	175.91 Million PKR
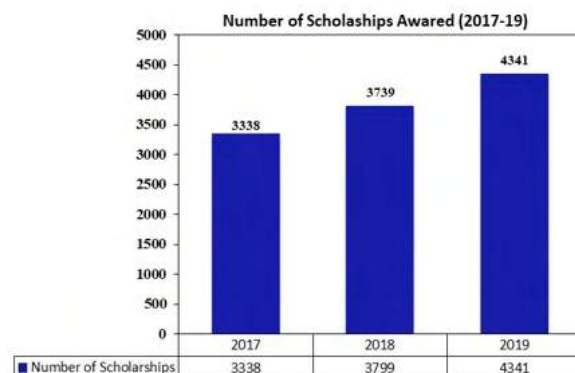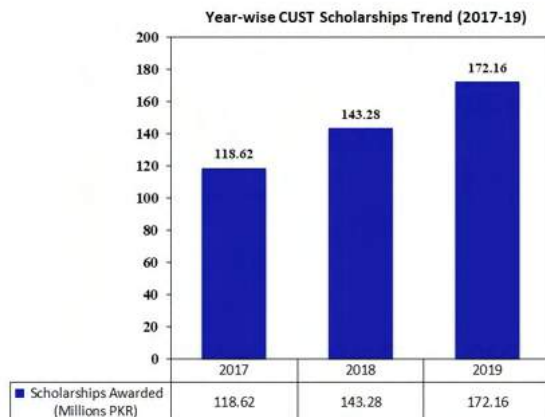
Scholarships Type at CUST

Undergraduate Programs Jinnah Scholarship

S. No	Percentage Earned in FA/FSc	Percentage Earned in FA/FSc (for Disabled)	Scholarship	Continuation GPA	Continuation GPA (for Disabled)
1	75 % Marks	65 % Marks	40 % Tuition Fee Waiver	GPA $\geq$ 3.0	GPA $\geq$ 2.5
2	85 % Marks	75 % Marks	50 % Tuition Fee Waiver	GPA $\geq$ 3.5	GPA $\geq$ 3
3	90 % Marks	80 % Marks	100 % Tuition Fee Waiver	GPA $\geq$ 3.75	GPA $\geq$ 3.5

Undergraduate Programs Merit Scholarships

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	Type	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 $\geq$ 2.5 Percentage $\geq$ 70
4	Employee's Son/Daughter	50 % Tuition Fee Waiver	CGPA $\geq$ 3.5

MS /MPhil Programs (Jinnah Scholarship)

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

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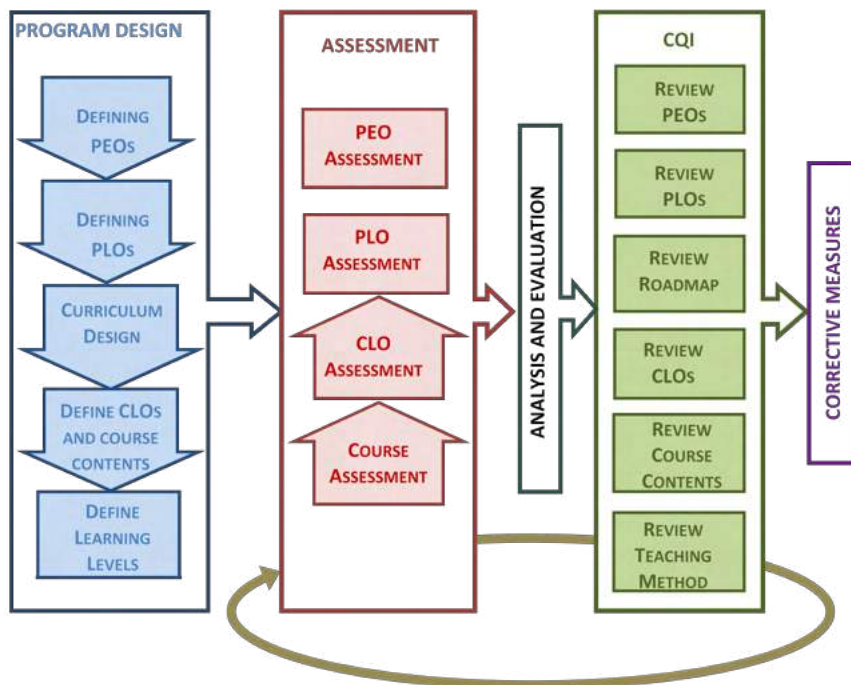
The program/courses design and CQI is a thorough process that involves various university bodies at different levels, which are a part of overall Quality Management System (QMS) of the University.

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.

Continual Quality Improvement
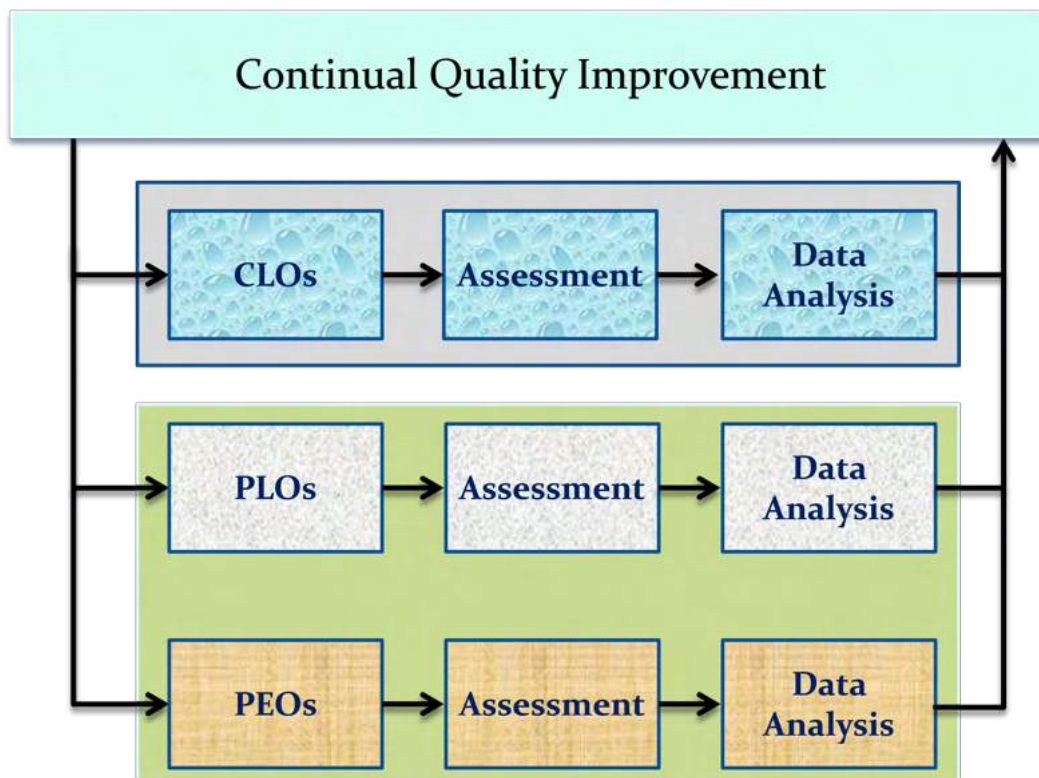
10.4. QEC Events and Activities

Institutional Performance Evaluation 2019-20 by HEC

Quality Assurance Agency (QAA) of Higher Education Commission (HEC) visited CUST on January 28-30, 2020 for an external review of Institutional Performance Evaluation (IPE). The aim of such visits is to promote good governance and enhance the quality of Higher Education Institutions (HEI). The purpose of this visit was to facilitate CUST and gauge the performance effectiveness of the institute from the perspective of predefined 11 qualitative standards. The standards provide a holistic baseline to measure and evaluate HEI's effectiveness in nurturing a quality education culture and satisfaction of key performance indicators. QEC at CUST prepared a detailed University Portfolio Report (UPR) based on the guidelines of Higher Education Commission. UPR is a pre requisite document which provides responses to all queries listed in each standard of IPE manual. QEC worked effectively with all academic and administrative departments to prepare the University Portfolio Report.

The three-day external review visit of the HEC was centered around IPE manual. The activity was headed by the Vice Chancellor of Kohat University of Science & Technology Prof. Dr. Jamil Ahmed, while the other panel members included educationists, Prof. Dr. Zahoor Ahmed Bazai, Director QEC, University of Baluchistan; Prof. Dr. Arshad Karim, Dean QEC, Sir Syed University of Engineering & Technology Karachi. The entire review process was executed successfully by the QEC in collaboration with all administrative and academic departments at CUST. On the first day of the visit, the panel was welcomed by the university's senior officials. Vice Chancellor Dr. Mansoor Ahmed gave a detailed presentation on university processes and policies. Afterwards, the panel settled in the conference room with all necessary arrangements where they comprehensively went through the report and checked all the evidences. During their three days visit, the panel members met Deans, HoDs, faculty members and students of the university. The panel also took a tour of the campus to have a broad view of the facilities available. The panel visited all departments, labs, Library, Sports Grounds, Gymnasium, Medical Centre, Cafeteria and various administrative offices. The panel appreciated the efforts of the university's management and advised all stakeholders to continue strengthening their efforts to maintain and enhance the culture of quality at CUST

Faculty Satisfaction Survey

CUST offers a very conducive academic environment to its faculty and students. The system believes in disagreements and therefore, every individual is free to give opinion/feedback. In this connection, Quality Assurance Committee of CUST approved a survey form for Faculty Satisfaction Survey in its 27th QAC meeting. Almost all the faculty members from eight different departments participated and gave their valuable feedbacks. At CUST, the concerns and the feedback given by the faculty members are given due consideration and the remedial actions are immediately taken if they are necessary. Accommodating the feedback of the faculty enhances the satisfaction level of the faculty which is evident from their continued association with the University.

PhD and MS/ M.Phil. Self-Review

PhD and MS/ M.Phil. Review activity was done to evaluate the graduate programs (MS, MPhil, PhD) of Capital University of Science and Technology. This activity was conducted by a panel constituted by QAA-HEC of four members from different universities of Pakistan. The activity was conducted from January 28 to 30, 2020. The Review Committee was comprised of following members:

- Dr. Kahsif-ur-Rehman (Vice Chancellor CUSIT, Peshawar)

- Dr. Sohail Ahmed (Professor, Quaid-i-Azam University, Islamabad)

- Dr. Muhammad Shahid (Associate Professor, Habib University Karachi)

- Dr. Asif Ahmed Shaikh (Director QEC, NED, UET, Karachi)

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 Proforma 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 and suggested some recommendations for further enhancement of quality at CUST.

Higher Education Commission (HEC) International Conference on Quality Assurance

Higher Education Commission (HEC), in collaboration with USEFP arranged a two-day international conference on Quality Assurance System, Standards and Policies: Issues and Challenges from 4th to 5th December, 2019. The Conference was aimed to focus on ways to improve the quality of higher education and advance mutual understanding of international quality assurance standards. This provided an opportunity for Pakistani universities to learn from experience of the quality agencies of developed countries and their universities, and share Pakistani experience with them. During inaugural ceremony of the conference, Chief Guest Dr. Arif Alvi, President of Pakistan emphasized that universities must focus on continuous enhancement of Quality. He added that Education should be a pleasure for students and it should not keep the students under a continuous stress of achievement. In his talk, U.S. Ambassador Paul Jones said that HEC is effectively playing its role in improving the education quality in Pakistan. Ambassador said that U.S is a proud partner of Pakistan in education where various programs are being run to support higher education in the country.

Federal Minister for Education & Professional Training, Mr. Shafqat Mahmood appreciated the endeavors of HEC in improving the quality of higher education in Pakistan. He said that Pakistan is declining in the Learning Poverty Index, adding that quality had become a challenge with the expansion of access to education. A number of speakers from within and outside the country presented their talks during a two-day conference. During six different sessions of the conference, speakers included Dr. Judith S. Eaton, President Council for Higher Education Accreditation (CHEA), USA, Dr. Deepthi Bandara, Director, Quality Assurance and Accreditation Council, Sri Lanka, Dr. Susanna Karakhanyan, President, INQAAHE, Dr. Sohail Naqvi, Rector, University of Central Asia, Mr. Leigh Kamolins, Head of Evaluation, QS, London, UK, Dr. Steven John Burian, Director, University of Utah, Dr. Amitabh Kundo, India, Ms. Jane Towers, Head of Academic Partnerships, ACCA, London, Prof. Giavanni Abramo, Director, National Research Council of Italy. Each session was followed by a question and answers sessions where participants actively interacted with the speakers to learn from their knowledge and experience. A big number of academic experts from various universities of Pakistan attended the conference. Dr. Amir Qayyum, Dean QEC and Mr. Umair Manzoor, Assistant Director QEC attended the conference from CUST. The conference identified options for international cooperation for advancing the shared agenda, and reviewed national and regional developments in quality assurance in higher education.

International Symposium on Digital Transformation in Higher Education

Riphah International University, Islamabad organized an international symposium on Digital Transformation in Higher Education on July 02, 2020. The symposium was chaired by Mr. Hassan Muhammad Khan, Chancellor Riphah International University, Islamabad and attended by a number of Quality professionals from various universities. Mr. Umair Manzoor, Assistant Director, QEC and Mr. Faheem Ullah, Data Analyst, QEC attended the symposium from CUST. The main objective of symposium was to bring together leading academic scientists, researchers, and research scholars to exchange and share their experiences and research results on all aspects of virtual learning. The symposium provided a premier interdisciplinary platform for researchers, practitioners and educators to present and discuss the most recent innovations, trends, and concerns as well as practical challenges encountered, and solutions adopted in the fields of Distance Education.

The symposium was graced by world renowned keynote speakers: Prof. John Sanders (United Kingdom), Prof. Vernon

Curran (Canada), Prof. Hossam Hamdy (United Arab Emirates), Dr. S.G. Rao (United Arab Emirates), Prof. Michael Sankey (Australia), Prof. Paul Barach (United States of America), Prof. Dr. Ajantha Dharmasiri (Sri Lanka), Dr. Khurram Jamil (United States of America), Dr. Zarrin Seema Siddiqui (Vietnam), Dr. M. Saiful Bahri Yusoff (Malaysia), Dr. Tao Le (United States of America), Prof. Dr. Anis Ahmed (Pakistan) and Dr. Saad Naeem Zafar (Pakistan). Dr. Raheela Yasmin (Pakistan) moderated the symposium.

Assessment Team Meetings

Assessment Team Meetings were held to assess various SARs prepared by the departments. Assessment Teams were nominated by the Vice Chancellor in consultation with QEC, to review the SARs prepared by Program Team. These teams consisted of two members. It was preferred to include at least one member who is expert in the filed/ subject of which the SAR is reviewed. Assessment Teams reviewed the SARs as per HEC manual. They verified the relevance of all the responses in SAR, and validated the data provided. Teams visited the department, met with the students, teachers and staff where it was required. At the end of the assessment, every team compiled a report to present their observations regarding areas of improvement. The report was shared with the QEC for further compliance.

29th QAC Meeting

29th QAC Meeting was held on Wednesday, May 20, 2020. Meeting was chaired by Dean QEC, Dr. Amir Qayyum. The committee discussed and deliberated upon various matters to improve the quality of university. Dean QEC informed the committee that soon after the execution of Online Classes, VLE Monitoring Committee was constituted. He shared that the committee was constituted to oversee the online classes started after COVID-19 pandemic. The committee has representatives from all the departments of university. Chair of the meeting also apprised the members that 19th June, 2020 is the last date of online classes, and the methodology of Exit Survey has to be finalized well before time. The committee deliberate upon the matter to finalize a strategy for Exit Survey. Several other matters including second cycle of SARs, Assessment Teams Meetings and others were discussed in the meeting.

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

Microsoft Teams Training

An online training seminar on Microsoft Teams was organized by the Quality Enhancement Cell (QEC) on May 4, 2020. Mr. Salman Ahmed, Lecturer Computer Science Department was the Resource Person. Around 90 faculty members from all the departments of university attended the online training seminar. The resource person gave a comprehensive presentation covering major aspects of Microsoft Teams. The presentation majorly focused on the mechanism of effective online teaching on Microsoft Teams. He highlighted the problems faced during online classes and discussed how to avoid them. It was an interactive session where participants actively interacted with the resource person to learn from his knowledge and experience. Dr. Amir Qayyum, Dean QEC laid emphasis on the importance of capacity building of faculty staff for effective online teaching. He also showed his pleasure to note that the seminar was able to achieve its most important objectives. At the end of seminar, he thanked the Resource Person and all the participants for their participation.

Faculty Training on Online Assessment of Cognitive Nature Activities from Question Design to Marking

An online training session titled "Online Assessment of Cognitive Nature Activities from Question Design to Marking" was organized by the Quality Enhancement Cell of CUST on May 13, 2020. Dr. Majid Ali, Professor Civil Engineering Department was the Resource Person. The objective of this workshop was to enlighten the faculty members with the assessment of cognitive domain activities in online classes. The training session covered the areas including OBE brief overview, conventional vs online teaching, cognitive domain assessment in its different taxonomy levels and assessment of cognitive domain activities in online classes. The event was attended by around 70 faculty members from all the departments of CUST. It was an effective session where participants actively interacted with Dr. Majid Ali. Dr. Amir Qayyum, Dean QEC in his concluding remarks expressed his satisfaction to note that the training session was able to achieve its objectives. The respected presenter was acknowledged by Dean QEC for deliverance of provocative knowledge and successful conduct of a seminar.

Faculty Training on Evaluating Learning Online: Designing Open Book Exams

Capital University of Science & Technology has given special focus to the capacity building of faculty for effective online teaching, after the situation due to COVID-19. Regular training were conducted to enhance the online teaching skills of faculty members. Third session of this training series was conducted on Wednesday, May 20, 2020. More than 65 faculty members participated in this training session from all the departments of university. Dr. Sabahat Haqqani, Assistant Professor from Management Sciences Department was the resource person of this session titled "Evaluating Learning Online: Designing Open Book Exams".

Several important insights and action items were accomplished through this training session. It focused on designing online assessment from andragogic perspective to allow teachers help students demonstrate achievement of their course learning outcomes in a fair, reliable and valid manner. The training session covered the key elements of well-designed open book assessment in accordance with the limitations and strengths of the online environment. Examples of best practice were demonstrated for structuring and crafting questions for online open book assessment. Dr. Amir Qayyum, Dean QEC in his concluding remarks expressed his satisfaction to note that the resource person has made all efforts to create a good understanding of designing open book exams. Faculty members participated whole heartedly in this session and made best use of their time.

Two Days Workshop on Research Methodology

A two days' workshop titled "Research Methodology" was organized by the Quality Enhancement Cell of CUST on 19th and 20th August 2019. Dr. Inam Ul Ahad who is Research Development Manager in I-Form Advanced Manufacturing Research Centre and Senior Materials Research Scientist in the Advanced Processing Technology Research Centre, Dublin City University, Ireland was the Resource Person. The objective of this workshop was to enlighten the faculty members and other researchers with the latest knowledge in Research Methodology area. The workshop covered the areas including Research Tools, Technical & Proposal Writing, Research Planning and Literature Review. The event was attended by graduate students, researchers and faculty members of CUST. It was an effective session where participants actively interacted with Dr. Ahad. Dr. Amir Qayyum, Dean QEC in his concluding remarks expressed his satisfaction to note that the workshop was able to achieve its objectives. The respected presenter was acknowledged by Dean QEC for deliverance of provocative knowledge and successful conduct of a workshop.

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 2019-20

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 Rs 14,30,390 was allocated for sports activities in recent year including Rs 10,50,000 for Annual Sports week and an amount of Rs 1,40,510 for sports equipment. The budget allocated this year is around Rs 94,000 more than the previous year. The following table lists the amount allocated for various sports activities at CUST.

S.No.	Particulars	Approved Budget (Rs)
1	Annual Sports week Spring-2020	1,050,000
2	Sports Equipment Purchase	1,40,510
3	Inter Faculty T20 Hardball Cricket Tournament	99,940
4	Inter Departmental Football Tournament for Freshies	30,520
5	Inter Faculty Hockey Tournament	36,120
6	Inter Departmental Sports for Newcomers (Boys & Girls)	73,300
Total		**1,430,390**

11.2. Major Sports Events held in 2019-20

Although sports activities were badly disturbed by COVID-19 pandemic especially the Annual Sports Week-2020 which was about to began when the pandemic and lock-down started in the country, still CUST managed to continue its extra curricular activities employing the available resources and potential.

Inter Faculty Hockey Tournament

The Inter Faculty Hockey Tournament was held on 7th December, 2019. The faculty teams from various departments took part in the event. The team from Faculty of Engineering won the tournament after a thrilling contest against faculty of Computing which stood runner up.

Schedule & Results			
Date	**Match**	**Team**	**Winner (Result)**
7th December, 2019	1st Match	FMSS Vs FOE	FOE
7th December, 2019	2nd Match	FHLS Vs FOC	FOC
7th December, 2019	Final	FOE Vs FOC	FOE

Inter Departmental Athletics for Newcomers Girls

The Inter Departmental Athletics Tournament for newcomer female students was held on 3rd December, 2019. The purpose of tournament was to provide a solid platform to females where they can showcase, practice and upgrade their sporting talent and aptitude. The tournament included following sports events:

1 100 Meter Race
2 Relay Race
3 3-Legged Race
4 Shot-Put Throw
5 Discus Throw
6 Javelin Throw
7 Tug of War

All the activities were held at the university grounds. Students from various departments enthusiastically took part in the contest. The event turned out to be an activity full of competition, amusement and healthy rivalry. The following table briefs the results of various athletic activities held under the tournament.

Results		
S.No.	Event	Winner
1	100 Meter Race	SE
2	Relay Race	SE
3	3-Legged Race	SE
4	Shot-put Throw	Pharm
5	Discus Throw	SE
6	Javelin Throw	Pharm
7	Tug of War	MS

Inter Departmental Athletics for Newcomers Boys

The Inter Departmental Athletics Tournament for incomer male students was held on 28th November, 2019. The main objective of the event was to provide a solid platform to students where they can showcase, practice and polish their athletics talent and abilities alongside academics. The tournament included following sports activities:

1 100 Meter Race
2 Relay Race
3 3-Legged Race
4 Shot-Put Throw
5 Discus & Javelin Throws
6 Tug of War

The following table briefs the results of various athletic activities held under the tournament.

Results		
S.No.	Event	Winner
1	100 Meter Race	EE
2	Relay Race	CS
3	3-Legged Race	CE
4	Shot-put Throw	SE
5	Discus Throw	SE
6	Javelin Throw	Pharm
7	Tug of War	CE

The newly established Pharmacy Department with the only section had gloriously shown their presence in the tournament and won several games overall.

Inter Departmental Football Tournament for Newcomers

The Inter departmental Football Tournament for newly inducted students was held between 28th to 31st October 2019. The teams from all the department took part enthusiastcally in the contest. The tournament was won by Civil Engineering department against the Management Sciences team in the final after an electrifying contest. The Chief Guest at the event, Director Students Affairs, Dr. Sagheer Ahmed handed over the trophy to the winning team.

Schedule & Results

Date	Match	Team	Winner
28th October 2019	Game 1	BI Vs MS	MS
28th October 2019	Game 2	EE Vs ME	EE
29th October 2019	Game 3	CE Vs PH	CE
29th October 2019	Game 4	SE Vs CS	SE
30th October 2019	Semi-Final 1	MS Vs EE	MS
30th October 2019	Semi-Final 2	CE Vs SE	CE
31st October 2019	Final	CE Vs MS	CE

Inter Faculty Hardball Cricket Tournament

Capital University of Science and Technology organizes Sports activities on continual basis, not for students only, but also for faculty members. The Inter Faculty Hardball Cricket Tournament was held on 26th to 27th October 2019 at CUST Sports ground. The faculty members keenly took part in the event. The team of faculty of Computing won the tournament against Management Sciences department which stood runner up in final.

Schedule & Results (Singles)

Date	Match	Teams	Winner
October 26, 2019	First Game	FMSS Vs FOC	FMSS
October 26, 2019	Second Game	FOE Vs FOC	FOC
October 27, 2019	Third Game	FMSS Vs FOE	FMSS
October 27, 2019	Final	FMSS Vs FOC	FOC

11.3. Chess Competition

Civil Engineering Department, CUST arranged an inter-batch chess competition for Civil Engineering students from November 28, 2019 to November 29, 2019 at Irrigation & Hydrology lab. Students participated in the competition with full zeal and zest which provided them a change from their hectic study routine.

11.4. CUST Auto Show Chapter-3

Co-curricular activities are the true and practical experiences received by students which enable students to express themselves freely through their hidden abilities. In this backdrop, CUST Auto Show 2019 was organized, by the Department of Management & Social Sciences, on December 31, 2019 at University campus. Students brought different types, models and styles of vehicles in the show. The students showed their keen interest in Auto Show full of fun.

11.5. Recreational Trip of Pharm.D Students

The Department of Pharmacy, Capital University of Science & Technology, organized a one-day recreational trip for Pharm.D. 1st semester students on February 01, 2020 to "Katas Raj Temple" and "Kallar Kahar Lake", Chakwal. Dr. Muzaffar Abbas, HoD Pharmacy, led this trip. There was a healthy participation of Pharm.D students and faculty members. During this trip, faculty members briefed Pharm.D students about the historical background of these locations. Students and faculty members enjoyed and acknowledged the healthy activity of the department.

11.6. Annual Musical Festival 2019

As per tradition, Capital University of Science and Technology, Islamabad organized Annual Musical Festival 2019 at Open Air Theatre Shakarparian, Islamabad. The renowned singer of Pakistan performed at Annual Musical Festival. A large number of students and faculty members were present to amuse the event. The festival provided students with a break from their hectic study routine. The event was well enjoyed by the students and faculty.

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	Skyians Welfare Organization	Mr. M. Adil Khan
51	Women Awareness & Rural Development Association	Ms. Christina Peter
52	Sade Welfare Foundation	Ms. Saeeda Begum
53	Step Kashmir	Ms. Shaista Rehman
54	Skill Development Facility	Mr. Javaid Qadeer
55	Act of Kindness	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 students are required to work in any one of the partner organizations in social domain. Around 595 students from all departments were systematically obliged to get indulged in communal service in previous academic year.

During COVID-19 pandemic and lock down situation in the country, VIS-CUST still successfully placed more than 325 volunteers in its various partner organizations. The following figures highlight the number of students who have successfully completed their social work in 2019-20.

VIS Activities Completion Record 2019-20		
S.No.	Department	Number of Students
1	Fall-19	210
2	Spring-20	60
3	Summer-20	325
Total		**595**

12.5. Social Events and Community Service

CUST VIS-Tabdeeli Society

Social change is the transformation of the social order in the community by making positive adjustments and variations to social institutions, behavior, and relations. It involves prospective social evolution where the society makes amendments to traditional societal norms and negative trends leading to the constructive change.

Keeping in view the significance of change in present age, VIS Directorate constituted a society named CUST VIS-Tabdeeli Society to bring a positive change around us. The 6th meeting of the society with HoDs was held on January 27, 2020. It was agreed upon that each department will nominate a candidate for VIS-CUST Tabdeeli society for the session 20-21. The position of candidates was administered in the same meeting and the following students were nominated by the respective department.

CUST VIS-Tabdeeli Society

S.No.	Name	Position	Department
1	Hasnain Khan	President	Management Sciences
2	Shehryar Safder	Vice President	Civil Engineering
3	M. Umer Ghauri	Event Manager	Electrical Engineering
4	Zahra Zahid	Female Representative	Computer Science
5	Sundus Aamir	Social Media	Software Engineering
6	Rafae Bin Nauman	Finance	Mechanical Engineering
7	Hina Arooj	Publicity Sectary	Biosciences
8	Zartash Fatima	General Sectary	Pharmacy

Blood Donation Camp Jointly organized by VIS-CUST and Pakistan Thalassaemia Welfare Society

Volunteers In Service Directorate (VIS), CUST and Pakistan Thalassaemia Welfare Society jointly organized a blood donation camp On 23rd October, 2019. The event was highly appreciated by Vice Chancellor, CUST who personally visited the camp. Manager VIS, Mr. Naeem Saud lead the management team of the camp. A large number of students and faculty members participated in blood donation activity, which is evident from the fact that no bed remained empty during 10:00 am till 3:00 pm. More than 100 bottles were donated by students and faculty. Pakistan Thalassaemia Welfare Society paid their heartfelt gratefulness to all esteemed donors for their blood donation, cooperation and support to the noble cause of saving lives.

Social Responsibility in the Light of Surah Al-Furqan

Department of Civil Engineering organized a seminar entitled "Social Responsibility: In the light of Surah Al- Furqan" under the supervision of Engr. Faiza Khalid and Engr. Ali Ejaz, on December 17, 2019. The guest Speaker, Dr. Abdul Karim Usman, is an active public speaker with a doctorate degree in Sharia and Law from International Islamic University Islamabad with more than two decades of teaching experience.

The event was arranged to reconnect our youth with the guidance provided in Quran regarding Social responsibility. The key aspect, explained in detail by the guest speaker, was kindness. He said that Allah loves his laves who are kind and humble. The speaker focused that each human being is Allah's creation and being an educated/privileged person we should be empathetic. Other aspects discussed were Inter-Faith harmony, respecting parents & respecting all the sources of knowledge. A souvenir was presented to Dr. Abdul Karim by Engr. Usman Farooqi at the end of session.

Mountains Eco Friendly Walk

Energy & Environement Society organized a "Mountain Eco Friendly Walk" on Margalla hills (Trail3 & 5) for garbage collection under the supervision of Engr. Iqbal Ahmad & Engr. M. Umer Jadoon on December 22, 2019. The walk was arranged to educate the students about the harmful effects of not preserving the environment. A rapid increase in floods and droughts is the evidence of climate change. The mountains are an asset for us and need to be preserved. Not only the ecosystem and biodiversity, but the existence of mankind will be in danger if we do not take proper precautionary measures to preserve our environment and natural resources. The students not only collected the litter all over the trails but also educated the general public present at the tracks about needs of saving our environment.

Iqbal Day Celebrations

Iqbal day is celebrated on November 09 each year to pay tribute and recognition to the efforts of Sir Alama Muhammad Iqbal, the Poet of East. Students of Technical Report Writing, Department of Computer Science, CUST organized a speech competition on "Educational Philosophy of Iqbal" on November 15, 2019. The main objective of the event was to revive the educational philosophy of Iqbal. Besides, the key purpose of the event was to boost confidence level in students and provide them a platform to showcase their communication and oration skills. Syed Ali Ather Zaidi, Ex Principal Federal Government College for Boys, Islamabad was invited as guest speaker. He dedicated his entire life to the noble profession of teaching, particularly literature. He had always been active as a literary personality. His major research is also about Sir Alama Muhammad Iqbal. Prof. Dr. Nayyer Masood, Head of CS Department also graced the occasion with his presence. The event consisted of speeches by the students on philosophy of Sir Iqbal and students paid him tribute by singing Kalam-e-Iqbal. Then, Syed Athar Zaidi was invited to enlighten students about the educational philosophy of Iqbal. Dr. Nayyer Masood presented souvenir to the guest speaker at the end of the session followed by refreshment for guest speaker and faculty.

Colors of Happiness Week

Department of Computer Science at Capital University of Science and Technology organized a Color of Happiness Week to create a sense of unity, creativity, diversity and life among students. The event was celebrated under the umbrella of JSpark Society. Five lively colors were selected to be worn on each day. The main purpose of this activity was to create a happy environment and sense of unity, and to break the monotonous routine of the students in university. The students followed a particular theme for an entire week and enjoyed the event.

13. Online Readiness During COVID-19 Pandemic

13.1. Commencement of Online Classes

Online classes at Capital University of Science and Technology commenced on 18th March 2020, using the MS Teams software, and meeting the criteria set by HEC in Policy Guidelines. CUST Online Teaching Policy was also designed in the light of HEC's Policy Guidance. This policy covered all the necessary guidelines for instructors and students, required for the execution of online classes and included guidelines regarding course registration and withdrawal, fee submission, as well as assessment guidelines, etc. Microsoft Teams accounts were created for all students and faculty members of university, before the commencement of online classes. Basic training were provided to faculty and students for smooth transition to new VLE environment.

13.2. Formulation of Committees

Following committees were constituted to support online classes:

VLE Academic Council

In pursuance of the guidelines received from the Quality Assurance Agency, HEC, VLE Academic Council was constituted to act as a formal decision making body to authorize online delivery of courses and resolve the problems related to these courses. The council ensured that all the guidelines provided by the regulatory bodies for online classes are being followed. All the required policies were drafted in light of these guidelines, and approval was given by VLE Academic Council. VLE Academic Council approved a total of 404 courses, offered in Spring 2020, to go online.

VLE Academic Council

VLE Monitoring Committee was constituted, under Dean Quality Enhancement Cell (QEC), to monitor all the online classes through a proper formal mechanism. The committee chaired by Dean QEC consisted of one member from each department, Senior Manager IT and Librarian. All matters related to VLE were discussed in the meetings of committee held during regularly, and minutes of the meetings were prepared and communicated to all departments and concerned offices.

Technical Support Committee

In pursuance of the specific HEC Policy Guidelines, a Technical Support Committee was constituted. The committee was responsible for providing technical support related to MS Teams, as well as the university LMS and other relevant technological software and hardware, ensuring smooth access for faculty and students (including ID creation, login issues, etc.).

Grievance Committee

A four member grievance committee was constituted by the Academic Council in pursuance to the guidelines given by HEC, in order to address the problems and difficulties faced by students. The committee was headed by Prof. Dr. Mueen Aizaz Zafar, with Concerned HoDs, Director Students Affairs and Controller of Examinations (CoE) as its members.

13.3. Students' Support

CUST provided extensive support to students during online classes.

- Some students living in far flung areas faced connectivity problem. These students were given drop and courses withdrawal options.
- Twenty-nine students requested for semester break, which was approved by the competent authority.
- COVID-19 scholarships were introduced and given to the students who had to face financial problems during pandemic. The students were given up to 50 percent of fee waiver In these scholarships.
- Relaxation in fee submission deadline was also given to the students.

13.4. Learning Management System (LMS)

The university adopted Microsoft Teams for online classes. Groups were created on Microsoft Teams for all the online courses. Students were communicated about the creation of groups, and were furnished with their login details well before the start of online classes. Basic training were provided to faculty and students for the smooth execution of online classes. VPN service for faculty and students was deployed by the IT Department of CUST. By using this service students and faculty accessed the following university resources from home:

- Softwares
- Z Drives (home folder)
- Lectures
- Assignments

CUST portal had a prime importance in facilitating students in their online classes during pandemic. All the required information related to courses was uploaded on portal with due assistance of departments.

13.5. Weekly Departmental Meetings

All the departments organized departmental meetings on weekly basis. The objective of the meeting was to monitor and review the ongoing academic activities, and ensure the smooth conduction of online classes and exams. All policies from regulatory bodies and CUST were discussed for implementation. Problems faced by the faculty and students were discussed, and their solution was decided in the meeting.

13.6. Regulatory Authorities Guidelines

All the policies and guidelines shared by the Regulatory Authorities (HEC and PEC) were discussed in detail in VLE Monitoring Committee Meetings. It was ensured that all the guidelines are being followed by the departments. In light of these guidelines, various policies were drafted and approved by VLE Academic Council.

13.7. Graduate Studies Office

Graduate Studies Office continued its activities online in order to support students to save their time. Graduate Studies Office conducted PhD and MS Thesis Defense through video conference, using Microsoft Teams. Submission of theses were made electronically to the Graduate Studies Office. The submitted theses were then circulated electronically to both internal and external evaluators for review and comments. Emails were sent to all the students, teaching and administrative staff of university to ensure the open public defense of theses.

13.8. Capacity Development for Online Classes

Capacity development of faculty and students was required to smoothly adopt to the new virtual learning environment. A number of online training sessions were arranged in this regard by Quality Enhancement Cell (QEC), Office of Research, Innovation and Commercialization (ORIC) as well as by other departments.

S.No.	Department	Number of Training
1	QEC	11
2	ORIC	8
3	Electrical Engineering	17
4	Mechanical Engineering	7
5	Civil Engineering	22
6	Management Sciences	15
7	Computer Science	4
8	Bioinformatics & Biosciences	4
9	Pharmacy	4

13.9. VLE Email and Class Held Reports

An email with address vle@cust.edu.pk was created to facilitate students. This email address was communicated to all the students of university by sharing it on the university website, social media networks and student app. Various complaints including connectivity issues, assignment / quiz submission problems, etc. were received from students. Student

was acknowledged when the email was received. Head of Department of the concerned department was taken in loop, where required, and all such complaints were resolved on priority basis. Record of all these emails was also maintained for audit.

Class held reports were being maintained on daily basis by QEC. The status of class attendance was also discussed in VLE Monitoring Committee meetings. Different strategies were adopted at departmental level to increase the students class attendance.

13.10. HEC Students Survey for Online Teaching

Students survey for online classes was conducted as per the instructions of HEC. The methodology of survey conduction was finalized in VLE Monitoring Committee meeting. The survey was conducted using a survey form to collect the data from students online. Around 80 percent of the students responded to the survey. Report of the survey was compiled by QEC and was also submitted to HEC.

13.11. Student Internships

VLE monitoring Committee discussed and reviewed the departmental plans for students' internships and survey camps (for CE department) under the lockdown situation. Different strategies were adopted by respective departments, taking into consideration the regulatory authorities' guidelines. All the departments gave special attention to the graduating students, in order to facilitate them in completing their degrees on time.

13.12. Final Year Projects/ Labs

Issues related to Final Year Projects (FYPs) and labs were discussed in VLE Monitoring Committee. The committee proposed that the psychomotor part of labs for graduating students should be covered during crash program to be conducted when university opens. It was also suggested that if regulatory bodies allow an alternate solution for completion of psychomotor skills during this semester, departments should follow accordingly. Similarly, different options for FYPs were also discussed for timely degree completion of graduating students.

13.13. Examinations and Assessment

Assessment Mechanism

Assessment mechanisms for quizzes, assignments and exams was adapted for online teaching environment. VLE Monitoring Committee discussed and suggested some assessment strategies:

1. Exams should follow the open book approach, and students can be asked the application of knowledge, and hence being assessed based upon their understanding.
2. Exams were divided into different sections, with students distributed into these sections. Each group of students had different sections to solve at one time.
3. In order to make assessment more effective, parameters of numerical problems were replaced with registration number of the student, so that every student solved a different problem.
4. Handwritten exams were followed by a viva in which students were asked about how they solved the particular problem. Division of handwritten and viva marks was set according to the situation.
5. Students were also allowed to send their exam through email or WhatsApp, if he/ she faced problem in uploading the document on Microsoft Teams within the due time.
6. It was taken care that the time for examination was enough for students to solve it completely.
7. Later on, HEC Policy Guideline No. 6 on Assessment and Examinations was shared by HEC on May 21, 2020 which was adopted by CUST, as approved by the VLE Academic Council.

Mid-Term Exams

Suitable arrangements were made at university level, and detailed discussions were held in VLE Monitoring Committee meetings to make the Midterm examination successful. Makeup exams were arranged for the students who couldn't take the midterm exams due to connectivity issues. Overall, Midterm examinations were conducted successfully, maintaining the integrity of examinations and facilitating the students, and all issues were handled and resolved by the departments in a timely manner.

Final Exams

SOPs for final term examinations were issued by the Controller of Examination. These SOPs covered all the guidelines for smooth conduction of the examinations. SOPs were discussed in detail during the VLE Monitoring Committee meetings. Problems related to the exams were discussed, and their solutions were presented by the committee. Exams Held Report was being maintained by QEC on daily basis. This report gave department-wise details of exams held, students' attendance, problems faced by students and faculty with actions taken. The overall attendance of final term examinations was above 95 percent, which shows successful execution of exams.

14. University Governance Structure

14.1. 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 7 BOG Meetings have been conducted.

S.No.	Name/Designation	Status
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

14.2. 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 20 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. Muzaffar Abbas	Dean Pharmcy	Member
6	Dr. Amir Qayyum	Dean QEC	Member
7	Dr. Aamer Iqbal Bhatti	Dean ORIC	Member
8	Dr. Samra Bashir	Professor, Pharmacy	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

14.3. 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 22 meetings of academic council have been conducted. The committee consisting of 20 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. Amir Qayyum	Dean QEC	Member
6	Dr. Nayyer Masood Dar	HoD CS	Member
7	Dr. Muhammad Sagheer	HoD Math	Member
8	Dr. Aamer Nadeem	HoP SE	Member
9	Dr. Noor M. Khan	HoD EE	Member
10	Dr. M. Mahabat Khan	HoD ME	Member
11	Dr. Sahar Fazal	HoD BI & BS	Member
12	Dr. Mueen Aizaz Zafar	HoD MS	Member
13	Dr. Muzaffar Abbas	Dean Pharmacy	Member
14	Dr. Fazal Ur Rehman	Professor, EE	Member
15	Dr. Shaukat Iqbal Malik	Professor, BI & BS	Member
16	Dr. Majid Ali	Professor, CE	Member
17	Dr. Shafqat Hussain	Associate Professor, Maths	Member
18	Dr. Mahboob Alam	Assistant Professor, Pharmacy	Member
19	Dr. M. Masroor Ahmed	Assistant Professor, CS	Member
20	Mr. Malik Arshad Mahmood	Registrar	Member
21	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

14.4. 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 23 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. Mueen Aizaz Zafar	HoD MS	Member
8	Dr. Noor M. Khan	HoD EE	Member
9	Dr. Sahar Fazal	HoD BI & BS	Member
10	Dr. Majid Ali	Professor, CE	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

14.5. 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

14.6. 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
16 Directorate of Corporate Linkages
17 Placement Office