

ORIC

NEWSLETTER



Capital University
of Science and Technology Islamabad



Table of Contents

Capital University of Science & Technology

E

• Research Proposals	2
• HEC Local Challenge Fund (LCF)	2
• CUST Faculty Won Two Projects under HEC, NRPU Program	3
• ORIC Proposals Dashboard	4
• Initiation of Certification Courses at CUST	5
• 12 th ORIC Research Committee Meeting	5
• Online Seminar on Change Management with respect to COVID-19	6
• Virtual Training Session on Recent Approaches in Literature Review	6
• Online Session on Depression Management During University's Academic Tenure	7
• Virtual Session on Difficulties faced by Students and Faculty in VLE Classes	7
• Certificate Distribution Ceremony of FYPs Business Plan Competition	8
• Virtual Learning Environment (VLE) Committee Meetings	8
• Icebreaking Session with Pharmaceutical Industry	9
• Virtual Learning Environment (VLE) Emails	9
• Collaboration with Departments for Commercialization of "Flex Tracker"	9
• Incubation of Tech Flickers	10
• Virtual Classes and Exams Held Summary	10
• ORIC Presentation in Faculty Development Program	10
• CUST PhD Repository Update	10

Patron

Prof. Dr. Muhammad Mansoor Ahmed

Chief Editor

Prof. Dr. Aamer Iqbal Bhatti

Editors

Muhammad Farhan

Muhammad Raheel Anjum

Graphic Designer and Photographer

Taaruf Ullah Khaweri



Dean ORIC Message



Capital University of Science & Technology (CUST) Islamabad is a progressive academic institution determined to produce competent professionals, who could be instrumental in the development of a prosperous society. The core objective of ORIC at CUST is to provide strategic and operational support to the university research activities, strengthen academia-industry linkages and promote entrepreneurship, technology-transfer and commercialization activities. 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. We believe in continual skill development of our students to satisfactorily equip them with modern tools and technical skills set vital for the industry. A number of joint ventures are being done with industry through mutual collaborations. To showcase our recent progress report, the ORIC Newsletter Spring-2020 is in your hands. This Newsletter entails the contribution of ORIC towards its explicated domains i.e. Research Operations, Technology Incubation & Innovation and Industrial Liaison. It is comforting to see that ORIC is playing its leading role in facilitating university's research outcomes, Technology Transfer and Commercialization activities. The Office of Research, Innovation and Commercialization has done great work in compiling this Newsletter of great value and is committed to unfold its prolific endeavor to the next level.

Prof. Dr. Aamer Iqbal Bhatti

Research Proposals

Submitted Research Proposals

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.

Sr. 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)

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.





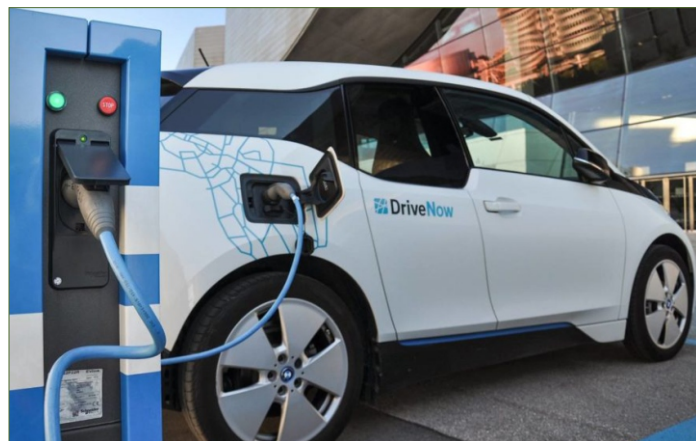
CUST Faculty Won Two Projects under HEC, NRPU Program

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 submitted by Dr. Sabahat Haqqani, Assistant Professor, Management Sciences Department CUST. The other accepted project is “Molecular Epidemiology and Prevalence of Antibiotic Resistance Genes in Smog Particulate Matter: Implications for Human Exposure in Pakistan” by Dr. Arshia Amin Butt, Assistant Professor, Bioscience Department, CUST.

Sr. No.	Project Title	Principal Investigator (PI)	Dept.	Duration	Approved Funding (PKR)
1	Molecular Epidemiology and Prevalence of Antibiotic Resistance Genes in Smog Particulate Matter: Implications for Human Exposure in Pakistan	Dr. Arshia Amin Butt	BS	2 years	6.5 Million
2	Preparation of Indigenous Manual Based Intervention for Lowering anxiety and Depression Levels among Pakistani Youth	Dr. Sabahat Haqqani	MS	3 years	14.63 Million

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 electric vehicles. 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. The proposed center would create effective outreach and Industry-Academia linkages.



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 m² to 0.1 m², placing a huge requirement on the radar power and signal processing. To cope with these stringent requirements a new Drone Detection Radar System is 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” in collaboration with Department of Bioinformatics and Biosciences, CUST

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 Collaboration with Department of Bioinformatics and Biosciences

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.



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

The submitted proposals are further subdivided in accordance with the funding agency.



Initiation of Certification Courses at CUST

Continuing Education and Certification Courses help an individual to showcase his competency, commitment for the profession, build expertise in his professional area, and helps 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 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 in evening to maximally facilitate the industry professionals. The following professionals were registered in four different courses as per detail tabulated below.

Sr. No.	Course Title	Participants' Names	Organization
1	Radar Signal Processing	Dr. Ijaz Hussain Ms. Sabeeqa Batool Mr. Syed Waqar Haider Mr. Maqsood Ahmed	Ministry of Defense Ministry of Defense Ministry of Defense AQSA SDS
2	Machine Learning	Mr. Syed Waqar Haider Ms. Rahat Saadia Ms. Sabeeqa Batool Mr. Muhammad Ali Akhtar Dr. Hussain Abbas Dr. Ijaz Hussain	Ministry of Defense Ministry of Defense Ministry of Defense Ministry of Defense Ministry of Defense Ministry of Defense
3	Robust Control Systems	Ms. Amna Arshad Mr. Muhammad Raza Mr. M Shoaib Khan Mr. Waleed Arshad Mr. Fawad Farooq Ashraf Mr. Muhammad Sadiq	Ministry of Defense Ministry of Defense Ministry of Defense Ministry of Defense Ministry of Defense Student
4	Product Design & Development	Mr. Ubaid Ali Bakar Mr. Musharaf Abbas	Ministry of Defense Ministry of Defense

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 observed promising response from various organization.

12th ORIC Research Committee Meeting

The 12th ORIC Research Committee Meeting was held on March 05, 2020 and was chaired by Dean Research & Innovation, Prof. Aamer Iqbal Bhatti. The meeting started with the presentation of ORIC Activities Calendar Spring-2020 by Dean Research & Innovation before Research Committee members. He briefly explained the events and tasks intended by ORIC in current semester. He apprised members about the research publications update mechanism recommended by VC office.

Dean Research & Innovation briefly discussed the list of research proposals submitted by CUST faculty members of almost all departments in HEC NRPU Program. He acknowledged the efforts of faculty members and added that proposals submission itself is a big challenge and is worth to be appreciated. The meeting discussed ORIC policy draft to be presented in subsequent Executive

Committee Meeting, CUST Commercialization Matrix formulated after Ideas Hunting Sessions held with various departments, and Certification Courses initiated by ORIC in Spring-2020.

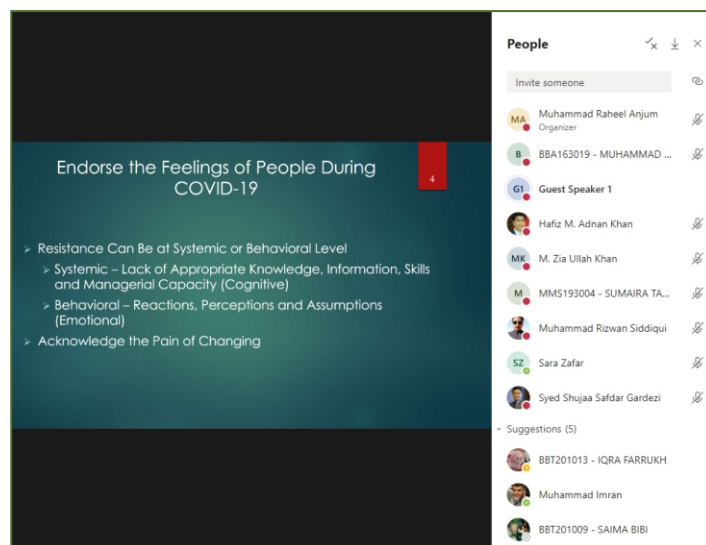


Online Seminar on Change Management with respect to COVID-19

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 09th 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 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 faculty members and students across various departments.

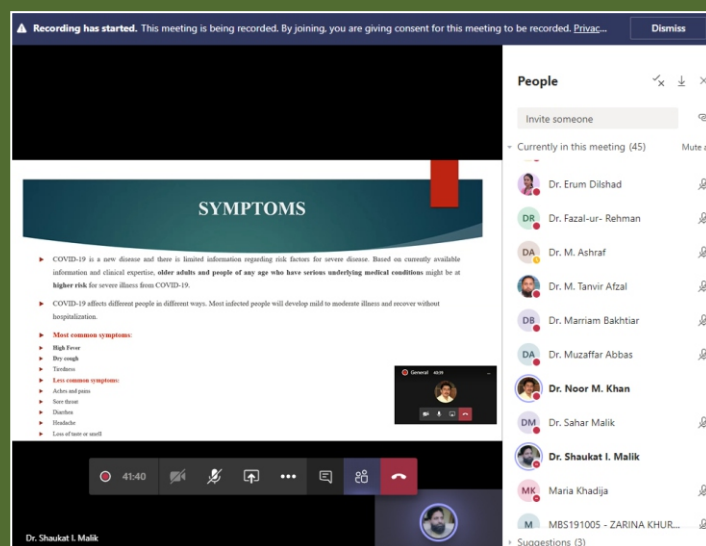


Virtual Seminar on SARS COVID-19

Office of Research, Innovation and Commercialization organized an interactive Online Seminar entitled “SARS COVID-19” on 17th June 2020. The session was held on Microsoft Teams under “ORIC Seminars Team”. The objective of the session was to educate the CUST audience about the most updated research and comprehension about COVID-19 pandemic. The resource person for the particular session was Dr. Shaukat Iqbal Malik, Professor, FHLS and Director VIS, CUST. The speaker discussed 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 societal impact of COVID-19.

A total of 45 participants including senior faculty members, research scholars and students across various departments attended the seminar. The faculty members and students took

keen interest in the interactive debate regarding the pandemic that was also evident from the Q/A session.



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 your 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 09th 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. The participants of the seminar included faculty members and research scholars from various departments. 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 Depression Management 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 21st 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.



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

Office of Research, Innovation and Commercialization assisted 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 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.

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 faculty members across various departments.



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". The objective of 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.

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

Office of Research, Innovation and Commercialization collaborated with Quality Enhancement Cell (QEC), CUST to conduct a virtual training session entitled "Virtual Learning: Challenges vs.

Certificate Distribution Ceremony of FYPs Business Plan Competition

The Certificate Distribution Ceremony of FYPs Business Plan Competition was held on 27th Feb 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 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 certificate distribution among the students as per following merit standing.

Sr. No.	Project Title	Supervisor	Students
1	Design and Fabrication of Shoe Testing Rig	Dr. Salman Sagheer Warsi	Muhammad Usman Ayaz Saleem Qureshi M. Yamin Jan
2	Home Automation using Rasbery pi	Dr. Muhammad Shahid Iqbal	Muhammad Hamza Haris Khan M. Hamza Bhatti
3	Thermal Heat Storage Unit	Dr. Muhammad Mahabat Khan	Mamoon-ur-Rasheed Muhammad Sheryar Shahid Ali
4	Solar PID Reversal Unit	Prof. Muhammad Ashraf	Shahbaz Tariq Faizan Butt Abdul Wasay
5	Cafe 97	Dr. Ansir Ali Rajput	Warda Imtiaz
6	Smart Living Solar Solutions	Prof. Sajid Bashir	Aiman Arshad Alina Sajjad Hamza Toor

After the certificate 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.



Virtual Learning Environment (VLE) Committee Meetings

Virtual Learning Environment (VLE) Monitoring Committee was constituted, under the Dean Quality Enhancement Cell (QEC), to monitor all the online classes through a proper formal mechanism. All the matters relevant to VLE were discussed in twelve meetings of the committee held in Spring-2020 during COVID-19 pandemic. There was one member from ORIC which provided its full sustenance to VLE Monitoring Committee. It was core responsibility of ORIC to prepare meetings' minutes and communicate them to all departments and concerned offices.



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.



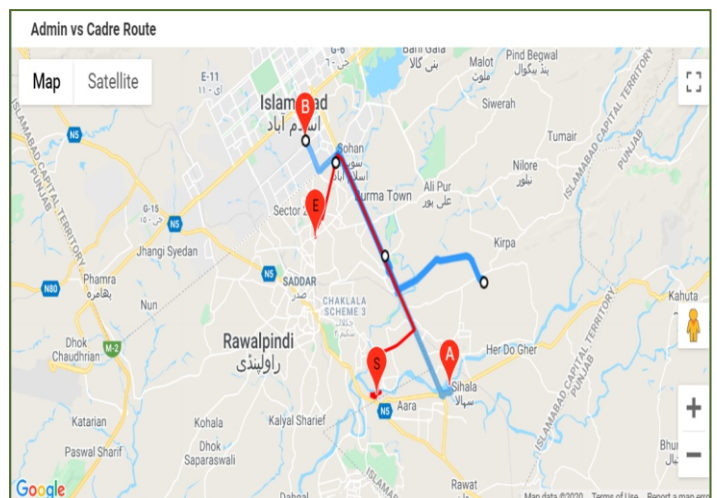
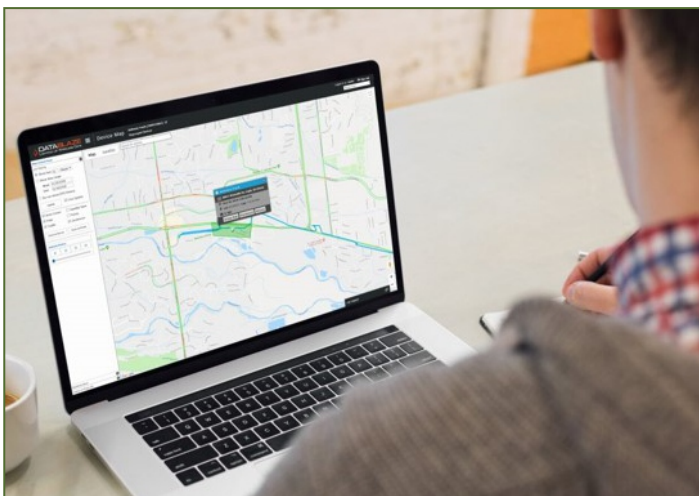
Virtual Learning Environment (VLE) Emails

A special Email Account was created to facilitate students during online classes. The email address was communicated to all the university students. Various complaints including connectivity issues, assignment / quiz submission problems, etc. were received from students. The record of all these emails was maintained for audit. So far, more than 200 emails were received from students, and all of them were resolved.

Collaboration with Departments for Commercialization of “Flex Tracker”

A series of meet ups of ORIC are held with CS and MS Departments for Incubation of “Flex Tracker”. Flex Tracker is an application developed by CUST students and faculty that can be employed by various companies/organizations to track their vehicles or goods. This application can manage multiple services in one platform. The system is capable of dynamic stop and route configurations, comparison of followed route by driver with actual defined route, live location of vehicles on map, and over speeding notification to admin. The potential clients for flex tracker can be universities, schools, and goods distributor.

After a deliberate discussion of ORIC with MS and CS departments, the participants agreed over the incubation of a company consisting of CUST faculty and students which would bring ownership among the team to sell their application. The proposed company team would consist of CUST faculty members with relevant students who would have privilege to be part of it. The collaborative sessions with departments are held on regular basis to make this dream reality, and a significant amount of progress has already been made.



Incubation of 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 have 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.

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:

- Web Development
- Graphic Designing
- SEO
- Web Security
- Malware Analysis
- Data Security
- Computer & Web Forensics



Virtual Classes and Exams Held Summary

Office of Research Innovation and Commercialization maintained Class held Reports of Online Classes on daily basis during COVID-19 pandemic. The status of class attendance was also discussed in the VLE Monitoring Committee meetings. Different strategies were adopted at departmental level to increase the students class attendance. ORIC also prepared detailed exam held summary reports during the Mid Term and Final Term exams held for Spring 2020 semester. Overall, 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.

ORIC Presentation in 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 8th Sep 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.

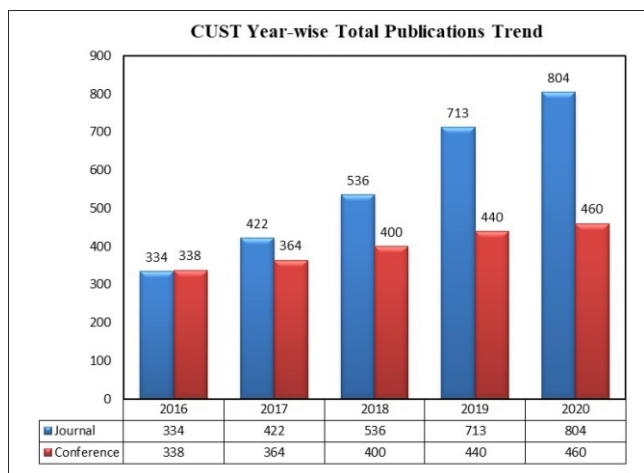
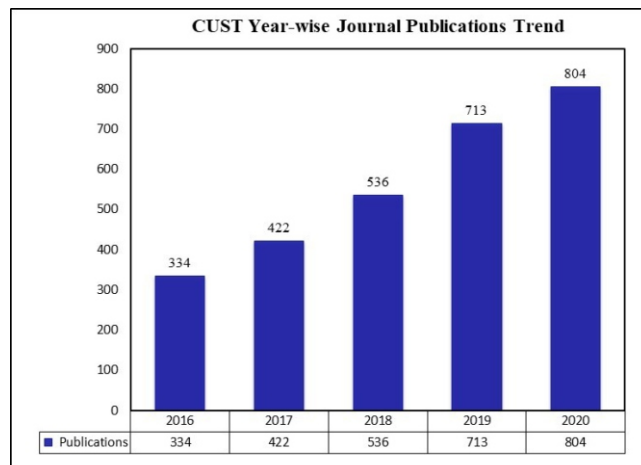
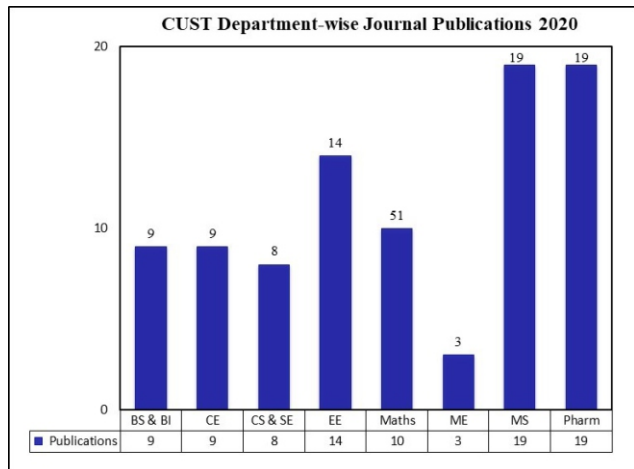


CUST PhD Repository Update

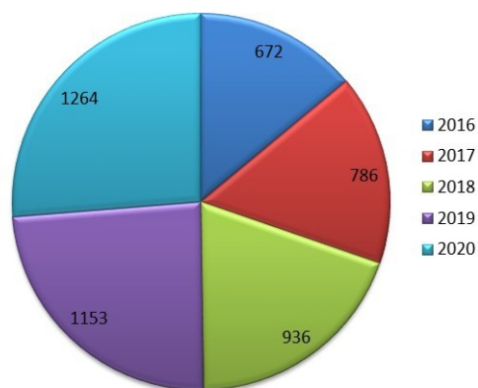
ORIC maintains a comprehensive database of PhD Graduates of CUST which includes all the details of PhD alumnus including name, thesis title, supervisor name and year with uploaded soft copies of thesis. The list is being updated on regular basis. Till now 169 PhD's are graduated in various disciplines including Management & Social Sciences, Computing, Engineering and Health & Life Sciences. ORIC has also designed a standard PhD Poster Template and is responsible for coordination and revision of posters sent by students. It is requirement for PhD students to submit a poster related to their research work to ORIC.


CUST Research Publications Trend

Capital University of Science and Technology has always been proactive in the field of practical research. The following graphs depict the Research Publications data (Journal and Conference) till 30th September 2020 as per the data provided by the respective departments.




CUST Total Publications Trend (Journal and Conference)





Solutions To Energy Environmental Problems (STEEP)



GROUP INTRODUCTION

The Sustainable Development Goals (SDGs) set in 2015 by the United Nations General Assembly, are intended to be achieved by 2030. Pakistan too is a signatory of these SDGs that have made the world multidisciplinary in all its facets. The research group entitled Solutions to Energy Environmental Problems (STEEP) aims to address these facets via applied research towards providing sustainable solutions to global energy and environmental issues. The scope of STEEP includes areas such as Energy Distribution, Energy and Environmental Conservation and Water Problems pertaining to forecasting towards the mitigation of Climate change and Flood, Financial and Poverty crisis. STEEP is a multidisciplinary group that combines multiple faculties at CUST to bring together the best of futuristic and sustainable solutions. The overarching aim is to solve society's most urgent and pressing concerns. The group has published numerous research articles in the mentioned domains.

GROUP HEAD

Prof. Dr. Arshad Hassan

Prof. Dr. Arshad Hassan is Professor of finance with teaching, research and teaching experience in corporate reporting, corporate finance, portfolio management and financial risk management. Dr. Hassan is certified Cost and Management Accountant and has 10 years of experience of working as Professional Accountant / Auditor in public as well as private sector. He also holds membership of various professional bodies in Accounting and Finance. He is member of faculty board/Research Board of many prestigious institutions. Dr. Hassan's research and writings cover a variety of topics ranging from asset pricing to proper finance. He has more than 20 papers published in refereed academic journals to his credit. He has presented number of research papers at Academic / Professional conferences in Pakistan, Turkey and USA. He is also on editorial boards of various local and international indexed journals.

RESEARCH AREAS

- Green Finance
- Mega-Project Finance
- Climate Risk Adaptation and Mitigation
- Assessing Environments for Sustainable Cities
- Environmental Impacts of Energy Technologies
- Global Atmospheric Chemistry and Climate Change
- Water-Energy-Food Nexus
- Sustainable Energy Systems and Networks
- Water and Power Distribution and Allocation
- Globally applicable Principles of Energy Policy and Techno-economics

GROUP MEMBERS

1. Prof. Arshad Hassan
2. Prof. Asrar Iqbal Bhatti
3. Prof. Majid Ali
4. Dr. Imtiaz Hameed
5. Dr. Saib Ahmed

CURRENT MS/PhD STUDENTS

PhD STUDENTS

1. Mr. Abrar Hashmi (EE)
2. Ms. Farajul Akbar (EE)
3. Mr. Shabir Janjua (CE)
4. Mr. Muhammad Hassan (CE)
5. Mr. Arsan Awan (CE)
6. Mr. Waqar Zahir (CE)

MS STUDENTS

1. Mr. Samar Yamin (CE)
2. Mr. Khurshid Waseel (CE)
3. Mr. Tariq Khan (CE)
4. Ms. Anna Malik (MS)

SELECTED EVENTS

- Collaboration with Directorate of Sustainability and Environment (DSE), UCP
- Special Talk of Director (DSE), UCP on Sustainability and Green Metrics at Voice of Capital FM 97.6
- Seminar on Youth Development Program by WWF (World Wide Fund on Nature)
- Seminar on The United Nations Humanitarian Development System
- Special Talk of Director DSE, UCP on Royal News
- Awareness Session of Director DSE, UCP about COVID-19 at Voice of Capital FM 97.6
- Session with Director (DSE), UCP with Vice Chancellor CUST on Preparing CUST for UN's Sustainability Agenda
- Observance of Sustainability Week at CUST


SELECTED PUBLICATIONS


Journal Publications

- A. Hashmi, S. Ahmed, and I. Hassan, "Optimizing Pakistan's water economy using hydro-economic modeling," *Journal of Business & Economics*, vol. 11, no. 2, pp. 111-124, 2020.
- S. Janjua and I. Hassan, "Transboundary water allocation in critical scarcity conditions: a stochastic bankruptcy approach," *Journal of Water Supply: Research and Technology-AQUA*, vol. 69, no. 3, pp. 224-237, 2020.
- S. Janjua and I. Hassan, "Use of bankruptcy methods for resolving interprovincial water conflicts over transboundary river: Case study of Indus River in Pakistan," *River Research and Applications*, 2020.
- S. Janjua and I. Hassan, "Fuzzy AHP-TOPSIS multi-criteria decision analysis applied to the Indus Reservoir system in Pakistan," *Water Supply*, 2020.
- S. Ahmed, K. Munir, and H. Nadeem, "Relationship between foreign direct investment & financial market development: evidence from south Asian nations," *Journal of Independent Studies & Research: Management & Social Sciences & Economics*, vol. 17, no. 2, 2020.
- S. Ahmed, S. Bashir, and H. Abbas, "Making CPEC inclusive for informal workers," *Journal of Business Strategy*, 2020.
- M. H. Khan, A. Fraz, A. Hassan, and P. Abidfar, "Female board representation, risk taking and performance: Evidence from dual banking system," *Finance Research Letters*, p. 101541, 2020.
- S. Saad and I. Hassan, "Liquidity commonality risk and asset pricing in emerging and developed stock," *WSEAS International Journal of Business & Management*, vol. 19, no. 2, pp. 92-110, 2020.
- S. Jia, A. Hassan, A. Tarsai, and A. Fraz, "Linking bank competition, financial stability, and economic growth," *Journal of Business Economics and Management*, vol. 21, no. 1, pp. 200-221, 2020.


Conference Publications

- A. Hashmi, S. Ahmed, and A. I. Bhatti, "Using HMM for provincial water distribution," in *International Sustainable Development Conference*, 2018.
- A. Hashmi, M. Farhan and A. I. Bhatti, "Simulation and analysis of shuffling model using sliding mode control," in *International Conference on Communication, Computing and Digital Systems (C-CODES)*, pp. 326-330, 2017.





GENETIC AND MOLECULAR EPIDEMIOLOGY RESEARCH GROUP



GROUP INTRODUCTION

Genetic and Molecular Epidemiology Research Group works on the implementation of Integrated Molecular Genetics and genomics approaches to understand the etiology of infectious Genetic Diseases, their chain-link at molecular level and strategies for their control & prevention. The research group focuses on Infectious Diseases, Causative Mutations and corresponding Inherited Disorders by the host. The group is also employing Bioinformatics and Computational Biology approaches to analyze and interpret the vast amount of genomic data available on public database and utilization of this data with full potential to progress the scientific understanding in human health and disease.

GROUP HEAD

Dr. Syeda Mariam Bahtiar

Dr. Syeda Mariam Bahtiar completed her PhD in Human Molecular Genetics from National Institute of Biotechnology and Genetic Engineering, Quetta-14000 University, Faisalabad. Her research interests include molecular understanding of inherited infectious diseases and other risk factors that are associated with infectious diseases. She served as research assistant at Department of Bioinformatics, Federal University of Minas Gerais, Brazil. She is focused to accomplish the Strategic Molecular Biology Curriculum (EMBC) Fellowship in Wistar Institute, Philadelphia. She is an active member of American Society of Microbiology. Her research is currently in progress as Assistant Professor at Department of Bioinformatics, CUST, Islamabad where she is also supervising number of numerous postgraduate students, notably Health and Safety Certificate, Quality Assurance Certificate, Certificate in Quality Control.

RESEARCH AREAS

- Human Molecular Genetics
- Genetic and Molecular Epidemiology
- Genetic Diseases
- Host Pathogen Interactions
- Molecular Biology

CURRENT MS/Ph.D. STUDENTS

PhD Students

1. Ms. Hiba Azeem Butt
2. Ms. Narmad Iqbal Soomro
3. Mr. Muhammad Qasim Khan
4. Ms. Saba Khan

MS Students

1. Ms. Hiba Qayyum
2. Ms. Qasim ul
3. Ms. Aysha Ahsan
4. Ms. Nadeem Faraz Qureshi
5. Ms. Maham Faraz
6. Ms. Saad Raza
7. Ms. Shabir Faraz

SELECTED ALUMNI

Mr. Saad Iqbal

Thesis Title: Prevalence of Infectious Associated Diseases in Chronic and Non-Chronic Subjects of Karachi Region, Year: 2018

Mr. Muhammad Saifur Ali

Thesis Title: Prevalence of Hepatitis B and Hepatitis C Infection to Assess Risk Factors in Karachi Region, Year: 2018

Mr. Muhammad Nadeem

Thesis Title: Impact of infectious genetic HLA-TNF-alpha and ACE on diabetes and obesity as comorbidity of CA13, Year: 2017

Ms. Hiba Azeem Butt

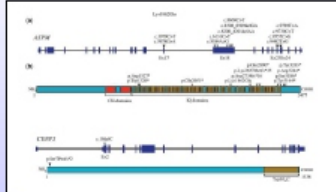
Thesis Title: Genetic heterogeneity in Pakistani Chronic Kidney Disease, Year: 2017

Ms. Saba Gul

Thesis Title: Prevalence and functional analysis of comorbidity of SNPs in Pakistani chronic kidney disease, Year: 2017

Ms. Saba Azeem

Thesis Title: Prevalence of Genetic and Non-Genetic risk factors for Diabetes among Chronic Kidney Disease, Year: 2017



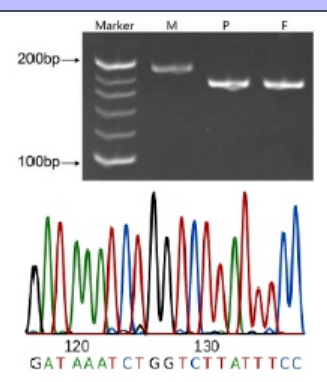
Selected Publications

Journal Publications

- M. Nadeem, U. Nae, and S. M. Bahtiar, "TNF-α Common Alleles of Infectious Diseases," *Journal of Biochemistry*, 2019.
- U. Nadeem, M. N. Khan, A. Jami, I. Ahmad, N. Ali, M. I. Ali, S. M. Bahtiar, and M. Iqbal, "Genetic and Functional Characterization of Infectious Diseases (CYP2D6) Infection from Artificially Generated and Predicted Data," in *Microbiology*, vol. 10, pp. 1-16, 2018.
- M. Faraz, Y. Mung, S. M. Bahtiar, A. Faraz, et al., "A Novel Mutation in CYP2D6 Gene: Genetic Primary Mutations with Specific Implications and Splice Site in a Comprehensive Population Study," *European Journal of Medical Genetics*, vol. 60, no. 12, pp. 627-631, 2017.
- N. Iqbal, A. Mohi, S. I. Soomro, N. I. Soomro, S. M. Bahtiar, and M. Iqbal, "Drug Gene Expression of Infectious Diseases (CYP2D6) Infection from Artificially Generated and Predicted Data," *Genetic Assessment*, vol. 4, no. 5, pp. 80995-16, 2016.
- S. T. Arif and S. M. Bahtiar, "Regulating the Protein Interactions Related to Hepatitis C Virus," *NUST J. Nat. Sci.*, vol. 3, no. 1, pp. 13-15, 2015.
- H. Saad, H. Ali, and S. M. Bahtiar, "Prevalence of Infectious Diseases in Karachi Region," *J. Appl. Environ. Biol. Sci.*, vol. 4, no. 25, pp. 109-113, 2014.
- H. A. Butt and S. M. Bahtiar, "Identification and Classification of Infectious Diseases (CYP2D6) Infection from Artificially Generated and Predicted Data," *Journal of Biological Sciences & Engineering*, vol. 7, no. 4-3, pp. 47-51, 2016.
- A. Ali, A. Nae, S. C. Soomro, S. M. Bahtiar, et al., "Functional Analysis of the Gene CYP2D6 in Pakistani Population: Computational Genomics and Pathogenetic Approaches to Identify Infectious Diseases with Pathogenicity and Prediction of the Infectious Diseases Target," *BioMed Res Int*, vol. 2015, pp. 1-17, 2015.

Conference Proceedings

- H. A. Butt, H. Qayyum, N. I. Soomro, and S. M. Bahtiar, "Infection of Infectious Diseases: A potential treatment strategy against infectious diseases," in *International conference on medical chemistry & drug discovery*, Islamabad, 2018.
- H. A. Butt, S. M. Bahtiar, A. Nae, and I. Ahmad, "Genetic Heterogeneity in Infectious Diseases (CYP2D6) Infection from Artificially Generated and Predicted Data," in *1st Annual Health Research Conference*, Islamabad, 2018.
- S. I. Soomro, H. Saad, N. I. Soomro, H. A. Butt, and S. M. Bahtiar, "The prevalence of Infectious Diseases in Chronic and Non-Chronic Subjects of Karachi Region," in *1st Annual Health Research Conference*, Islamabad, 2018.



Capital University of Science and Technology

Off Kaak Pul, Sihala Road, Zone-V, Islamabad

UAN: (051) 111-555-666

<http://www.cust.edu.pk>