



## **ORIC Activities Report**

Spring-2023

**Dated:** 18<sup>th</sup> October, 2023

**Prepared by:**

Office of Research, Innovation and Commercialization (ORIC)

Capital University of Science & Technology, (CUST)

Islamabad

## **Preface**

Capital University of Science & Technology (CUST), Islamabad since its foundation has always focused on providing quality higher education in the country. The University believes that nations can flourish through an active research culture and a continual process of knowledge building for productivity. The core objective of Office of Research, Innovation and Commercialization (ORIC) 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 at CUST is working under three major domains namely Research Operations, Technology Incubation & Innovation and Industrial Liaison.

Office of Research, Innovation and Commercialization is working on integration of research and education at all levels of the institution. ORIC at CUST have a central role in facilitating the University's research outcomes and Technology Incubation & Innovation activities. We are diligently working in translating research for the public's benefit by facilitating University faculty and students in doing quality research publications and increasing external research funding.

We believe in continual capacity building of our students to equip them with modern tools and skills vital for the industry. In this regard numerous 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. ORIC is also working on the establishment of CUST Business Incubation Center and commercialization of low risk, small investment and marketable project ideas.

A number of joint ventures are being done with industry through mutual collaborations. ORIC at CUST is continuously working on to build and maintain strong Academia-Industry Linkage with the focus on promoting and making CUST graduates the premium choice for the employers. The industrial visits are being arranged on continual basis where notable organizations are invited on campus. ORIC is working to promote academic collaborations and to explore the areas of mutual interest and employment possibilities for CUST students.

ORIC Activities Report Spring-2023 showcases progress of ORIC in Spring-2023. The report presents accomplishments and contributions of ORIC in accordance with its defined domains.



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No./CUST/ORIC/2023

Dated: 18<sup>th</sup> October, 2023

### **ORIC Activities Report Spring-2023**

The Office of Research, Innovation and Commercialization (ORIC) at CUST derives the research of university. In advancing the vision of the Capital University of Science and Technology (CUST), which is one of the top ranked institutes in Pakistan, ORIC was established in September 2017 under the patronage of Prof. Dr. Muhammad Mansoor Ahmed, Vice Chancellor, CUST. The dossier for ORIC recognition from HEC was submitted in May, 2022. It is heartening to mention that ORIC has been recognized by HEC as one of recognized bodies of HEIs in Pakistan vide **Ref No. CUST/ORIC/RFI/R&D/HEC/2022-23-10**.

The mission statement for ORIC at CUST is titled as *“To motivate and facilitate the university researchers to innovate and collaborate with the stake-holders leading to resource generation through commercialization”*. The objective of ORIC is to develop, expand, enhance and manage the university’s research program and to link research activities directly to the educational, social and economic priorities of CUST and the society. ORIC at CUST have a central role in facilitating the University’s research outcomes and Technology Incubation & Innovation activities. In order to advance the mission of HEC and taking in to consideration the HEC guidelines, the operations of ORIC have been divided into following major Key Performance Indicators (KPIs).

- a) Research Excellence
- b) Innovation and Commercialization
- c) Sustainability and Capacity Building
- d) Human Resource and Operations

### **Salient Features of ORIC Activities Report Spring-2023**

ORIC at CUST is setting pace to match up the challenges in the field of research through promoting and enhancing cross-cutting and multi-disciplinary research initiatives, diversifying external research funding and improving translation of research into the public benefit. Around 42 projects are either completed or being worked on by ORIC including 08 projects from HEC, and a number of projects from Defense Industry. 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 established CUST Incubation Center and facilitated the Startups to inculcate the culture of commercialization and entrepreneurship. “Tech Flickers”, “Flex Tracker”, “Amazon Virtual Assistant Based Trading”, “Tissue Culture Lab” and “White Oyster Mushrooms Cultivation” are recent examples of some of the startups incubated by ORIC. ORIC has awarded an amount worth 690,000 PKR to 22 projects over a period of 3 years that have sound marketing potential.

ORIC at CUST has maintained a comprehensive Research Database regarding Publications, R&D Projects, Donors/Funding Agencies, PhD Repository, Research Groups, Patents and Industrial links in concurrence with HEC requirements. In pursuit of academia-industry linkage more than 40 MOUs have been signed with various national/international organizations. A



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number of ventures are done with industry through mutual collaborations. HEC ORIC Evaluation Matrix has due share for University's Research/Innovation/Commercialization Policies. Keeping in view its significance ORIC has developed University's Ethical Policy.

## 1. CUST Ethical Review Board

The CUST Ethical Review Board was constituted vide **Ref No. CUST/ORIC/Reg/2023**, which is convened by Prof. Imtiaz Ahmed Taj, Dean Faculty of Engineering (FoE). The board contains one member from each department, and Manager (I&C) as its secretary. A total of 02 meeting of CUST Ethical Board have been conducted till date. ORIC has also constituted the Ethical Policy of the university and approved it from Executive Committee. The policy is designed to ensure that academic and research activities at CUST are conducted in an ethical and responsible manner with transparency and accountability.

## 2. ORIC Steering Committee

ORIC Steering Committee was established vide **Ref No. No.55/CUST/Reg/2023** to support university-based research through strategic planning and provide dedicated advice to the Vice Chancellor for actions to be taken in accordance with the mission, vision and KPIs of ORIC. The objective of Steering Committee is to ensure that ORICs activities are coordinated with relevant stakeholders, to bridge the gap between academia and industry and provide advice to promote university-industry linkages and commercialization. The committee is jointly convened by Vice Chancellor, CUST and Mian Mudassar Farooq, Head Tower Tech, including Director ORIC, 04 members from CUST and 07 members from renowned industries (CEOs/Executive level). The Manager (I&C) is secretary of the committee.

## 3. ORIC Recognition

### A. Submission of HEC ORIC Recognition Case to HEC

Office of Research, Innovation and Commercialization (ORIC) prepared, documented and sent HEC recognition case to HEC. The dossier contained Application Performa consisting of progress report of ORIC till date in the domains of Research Excellence, Innovation & Commercialization and Sustainability & Capacity Building, ORIC 05 Year Strategic Plan and SWOT analysis with reinforced with supporting documents/proofs. In follow-up, a few recommendations were also proposed by HEC including HR Requirements (Re-Designation of Managers and Notification of Support Staff) which were promptly addressed by ORIC.

### B. 05 Years Strategic Plan of ORIC

ORIC prepared its 05 Year strategic Plan which was endorsed by Executive Committee of university. The document contains the working plan of ORIC for next 05 years in terms of quantified Short Term, Medium Term and Long-Term Goals. The goals are linked with Key Performance Indicators (KPIs) in terms of domains of Research Excellence, Innovation & Commercialization and Sustainability & Capacity Building.

### C. HEC Team Visit and ORIC Recognition

A team from HEC visited CUST in response to CUST ORIC recognition application on 25<sup>th</sup> August, 2023. On arrival, HEC team met with Vice Chancellor, CUST. The Vice Chancellor articulated them about the University's academic and administrative operations. After meeting



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with Vice Chancellor, the HEC team attended the presentation session. After the presentation session, the team visited Research Group Labs and Incubation Centers. Thereafter, the team visited ORIC and appraised the documentation related to Patent filing and Commercialization. The HEC team appreciated the efforts of ORIC to conduct the visit in a proficient manner.

### 4. Research Excellence KPIs

ORIC has 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 legal requirements and operational standards of university. The job of ORIC is to facilitate its faculty/students in doing quality research. ORIC plays its potential role to reward faculty/researchers and assist them to acquire/accomplish Research Grants, Consultancy, Policy Advocacy, Joint/Contract Research Projects etc.

#### A. Meetings and Interactive Sessions

##### i. Twenty First (21<sup>st</sup>) ORIC Research Committee Meeting

The ORIC Research Committee was reconstituted with Prof. Imtiaz Ahmed Taj, Dr. Arshia Amin Butt and Dr. Mudassar Ali as its new members from Electrical Engineering, Biosciences and Management Sciences Departments respectively. The 21<sup>st</sup> ORIC Research Committee Meeting chaired by Dean Research & Innovation was held on 22<sup>nd</sup> June, 2023. The meeting was held on agenda points including “CUST-ORIC Policy and HEC ORIC Policy”, “Strategic Plan for ORIC Targets and Actions to meet KPIs from each Faculty”, and “Capacity Building on Patent and Intellectual Property Rights”.

#### B. Research Proposals Advertisement, Documentation and Facilitation

##### i. Advertisement of Call for Proposals/ Research Grants

The advertisement of Call for Proposals was done by ORIC. The advertisement/associate procedures/requirements were shared with faculty members. The full guidance was provided to faculty members in this regard. The following Programs were advertised:

1. Digital Pakistan Cybersecurity Hackathon – 2023
2. Horizon Europe
3. IRM Symposium 2023
4. ISOC, USA
5. HEC RTTG
6. HEC Research Awards
7. Pakistan Science Foundation (PSF)
8. RCCI International Education Summit-23
9. IBM Free Machine Learning Professional Certificate
10. National Expansion Plan of NIC (Cohort-4)
11. NICAT Startup Cohort 2023
12. NGIRI (2022-23)
13. HEC RTTG
14. PM National Innovation Award



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### ii. Devolution Case of HEC NRPU Funded Project

ORIC has facilitated in transference case of HEC NRPU funded project titled “Isolation and Identification of therapeutic agents involved in the activation of PPAR- $\gamma$  to ameliorate Type 2 Diabetes.” The Project is led by Dr. Rizwan-Ur-Rehman, Assistant Professor, Biosciences Department, who recently joined FHLS, CUST. Previously, he submitted the proposal from the platform of University of Management and Technology, Lahore.

### iii. Documentation/Support of HEC NRPU Funded Projects

The faculty of CUST won numerous projects under HEC NRPU Programme. Office of Research, Innovation and Commercialization not only facilitated faculty members in Proposals Submission and associated documentation, but also copiously assisted them in successful initiation of projects upon approval. The funds for following projects were disbursed by HEC.

1. eHealth supported interventions for improving care for young people in Pakistan
2. Automatic Personal Identification Biometrics System for Large Scale Applications
3. Development of Building Products from Recycled Plastic for Housing

### iv. Advertisement of NESCOM R&D Funded Projects

Research & Academia Coordination (R&C), Directorate General HRD, NESCOM shared some Research Projects with ORIC. A total of 04 (R&C) Projects are currently being worked on by faculty members. The new list of projects was projected/shared with relevant departments.

## C. MOUS and Mutual Agreements with Industry/Corporate Sector

### i. Memorandum of Understanding (MOU) MGBio: Tech-Bio Company, NUST

A Memorandum of Understanding (MoU) was signed between Capital University of Science and Technology and MGBio, NUST to collaborate in the domains of R&D Projects, Labs and Testing Facilities, Training/Special Courses and Curriculum Design. The parties also agreed to collaborate in Hiring and Internships of students and exploration of opportunities for the Commercialization of Technology with a greater sense of commitment and responsiveness.

### ii. Memorandum of Understanding (MOU) with National Institute of Health (NIH)

A delegation from Capital University of Science & Technology, Islamabad on Friday, 15<sup>th</sup> September, 2023 visited National Institute of Health (NIH), Islamabad to sign an MOU. Both parties have shown keen interest to collaborate in the areas of mutual interest and to facilitate each other in Students Internships, R&D Projects, Labs and Testing Facilities, Vaccination Development and Advances in Diagnostic Techniques. Both parties expressed that the signing ceremony is a valuable step in advancing mutual goals, provision of synergistic solutions that add value to the healthcare system in Pakistan and its readiness to respond health challenges.

## D. Research Database and Repository

### i. Updation of Research Database and Research Groups 5Ps Data

The Research Database was updated including university Journal and Conference Publications, MOUs signed and R & D Projects accomplished by CUST faculty in Spring-2023. The Research Groups 5Ps data was also updated which included information about number of Publications, PhDs, Prototypes, Patents filed and R&D Projects won/completed by CUST faculty. A one Pager profile of each project was also prepared and documented.





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### **ii. CUST PhD Repository and Research Posters**

ORIC maintains a comprehensive database of PhD Graduates of CUST which includes all details of PhD alumnus including name, thesis title, supervisor name and year. ORIC has also designed a standard PhD Poster Template and is responsible for coordination and revision of students' posters. It is requirement for every PhD student to submit a poster related to his research to ORIC. The objective is to promote/acknowledge research work of students and faculty. The posters are displayed in university to highlight research output of departments.

### **iii. Impact Factor Verification of Faculty Research Honorariums**

It is core responsibility of ORIC to verify the Impact Factor of faculty research publication honorariums in accordance with the updated HEC Journal Recognition System (JRS). ORIC performs this activity on daily basis.

### **iv. Upgradation of ORIC Webpage**

The webpage of ORIC is updated on monthly basis as per directions of Vice Chancellor. The data about ORIC Events, Industrial Collaborations, R&D Projects, Research Publications, PhD Repository and Downloads Section is updated regularly.

### **v. Faculty Research Profiles/Publication Update**

The faculty research profiles were updated on website by ORIC under the kind directions of Vice Chancellor. The Resumes/CVs were taken from faculty members to attain the relevant research profile. The latest data was obtained and shared with Web Development Office.

## **E. DOIs of Jinnah Business Review (JBR) Journal**

ORIC has responsibility to regularly issue DOIs to CUST Jinnah Business Review (JBR) Journal. Recently, the DOIs of Volume No. 11 and Issue No. 2 were allotted.

## **5. Innovation and Commercialization KPIs**

ORIC not only accomplishes research and development operations but also ensures continual activities in terms of technology innovation and commercialization. ORIC is running an active CUST Incubation Center (CIC) and is also animatedly working on various commercialization endeavors including students/faculty startups and projects Patents/Copyright/Trademark, IP Licensing, Industrial Visits/collaborations etc.

### **A. Innovation Endeavors**

#### **i. Patent of “Novel Composite Coating Material”**

ORIC in collaboration with Civil Engineering Department, CUST has prepared patent titled “Composite Coating Material for application on locally available insulation materials to improve energy efficiency”. Coating insulating materials is one of the most effective and economical passive methods for lowering the cooling needs of the buildings. In this patent, the experimental observations on the evaluation of using insulation material with new organic coating are presented and the best energy-efficient insulation material with/without coating is recommended for the construction sector.



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### **B. Incubation Center and Startups**

#### **i. CUST Incubation Center (CIC)**

Office of Research Innovation and Commercialization (ORIC) under the mentorship of Vice Chancellor initiated the concept of Incubation Center at CUST. The purpose was to help CUST students and alumni initiate new startups, and develop their business by providing facilities like workspace, high speed internet, mentoring, and training. ORIC is also providing technical and legal documentation support to these startups to get registered at Securities & Exchange Commission of Pakistan (SECP).

#### **ii. COHORT-II Program**

The COHORT-II program offered by the CUST Incubation Center provides a valuable platform for young entrepreneurs to nurture their ideas and transform them into viable businesses. The program aims to identify and support promising ventures. The availability of a monthly stipend, office space, and mentorship further enhances the prospects for the selected cohort members to succeed in their entrepreneurial journey. A total of 04 startups registered for CIC. One of the projects titled “Cultivation of White Oyster Mushrooms as a small-scale Bioentrepreneurial model” having potential commercialization prospects received around 0.1 million PKR funding from ORIC.

### **C. ORIC FYPs/Startups/Projects Funding**

#### **i. IGNITE Funding (NGIRI-2023)**

The National Grassroots ICT Research Initiative (NGIRI) aims to assist final year undergraduate students of ICT related disciplines studying in the Institutions by providing them financial assistance for developing prototypes/working models of their Final Year Projects (FYP) in order to increase creativity, innovation and hands on engineering and development skills. ORIC has advertised NGIRI-2023 to faculty and students and displayed the program on notice boards. ORIC is also the official coordinator of Ignite funding.

## **6. Sustainability and Capacity Building KPIs**

ORIC at CUST is continuously working on Sustainability and Capacity Building endeavors to provide students, faculty members and professionals with the contemporary technical tools and skills in accordance with industry and corporate world. In this regard numerous technical trainings, workshops, short courses and seminars are conducted on regular basis. These activities also generate handsome volume of revenue for the university.

### **A. Capacity Building Events**

#### **i. Crash Course on Earthquake Resistant Design of Buildings**

Office of Research, Innovation and Commercialization (ORIC) in collaboration with Engr. Prof. Dr. Majid Ali (Civil Engineering Department) organized “One Week Crash Course on Earthquake Resistant Design of Buildings” on 21<sup>st</sup> -25<sup>th</sup> August, 2023. The purpose of workshop was to equip participants with hands-on knowledge about design of earthquake resistant buildings with practical illustrations. The workshop was conducted by Engr. Prof. Dr. Majid Ali. The resource person has around 20 years of rich teaching, research and professional industry experience. The participants included Civil Engineering students and professionals from renowned construction industries of Twin Cities, Abbottabad, Multan and Jhelum



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### **ii. Two Days Hand-on Workshop on Latex**

Office of Research, Innovation and Commercialization (ORIC) organized “Two-Days Workshop on Latex” on 16<sup>th</sup> July, 2023. The purpose of the workshop was to equip participants with the most updated knowledge about creation of technical documents using Latex with practical illustrations. The workshop was conducted by Dr. Sohail Rizwan from Fatima Jinnah Women University (FJWU), Rawalpindi. A total of 20 participants including students from Biosciences/Bioinformatics/Microbiology Departments attended the workshop. The response of participants was quite promising and workshop proved to be a great source of hands-on knowledge to the participants.

### **iii. 03 Days Professional Training on SAP Modules**

ORIC CUST-ORIC in collaboration with TMC - TallyMarks Consulting Private Limited has arranged 03 days professional training on SAP Modules. The training was conducted from May 30 -June 01, 2023 at Auditorium A1, B Block, CUST. A total of 165 participants attended the SAP training in which 155 participants were from corporate sector. Six resource persons from TMC delivered the hands-on training on three major SAP modules. The event has provided fair amount of opportunity to CUST-ORIC to discuss and develop corporate linkages with the participants. TMC expressed gratitude to Capital University of Science & Technology, Islamabad for their support and hospitality.

### **iv. CUST International Conferences Database**

As per kind request of Registrar Office, the database of CUST International Conferences as created and shared by ORIC. The data includes the list/associated detail of all the International Conferences accomplished by CUST till date.

## **B. Industrial and Societal Outreach**

### **i. Visit of Secours Islamique France (SIF) to CUST**

A delegation from Secours Islamique France (SIF) led by Dr. Altaf Abro (Head of Mission SIF), visited Capital University of Science & Technology, Islamabad on 26<sup>th</sup> May, 2023. Secours Islamique France (SIF) is a non-governmental organization (NGO) of international solidarity with a social and humanitarian vocation acting in the fields of humanitarian assistance and development aid, in France and around world. Both parties took keen interest to collaborate in the areas of mutual interest. The SIF Officials invited CUST faculty members and ORIC Team to visit SIF and present their research expertise, success stories and areas of mutual interest to explore collaboration prospects.

### **ii. Participation of ORIC in Dialogue on RCCI Sustainable Development Goals (SDGs)**

Rawalpindi Chamber of Commerce & Industry in collaboration with United Nations organized Sustainable Development Goals (SDGs) Dialogue that aims to engage and empower Pakistani local leaders in meaningful discussions on the Sustainable Development Goals. Commissioner Rawalpindi Division Mr. Liaqat Ali Chattha graced the occasion as a chief guest & appreciated the efforts of RCCI. As a guest of honor, Mr. Julien Harneis UN Resident Coordinator and Humanitarian Coordinator in Pakistan and Ms. Fauzia Viqar Federal Ombudsperson for



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Protection against Women Harassment were also present. A team led by Mr. Jahanzeb Sarwar Malik, Manager (I & C), ORIC represented CUST in the event.

## 7. Additional Tasks

### A. ORIC Newsletters and Semester Activities Books/Reports

#### i. Drafting, Editing and Publication of ORIC Activity Report Fall-2022

The ORIC Activities Book for Spring-2021 was compiled and published as per directions of VC Office. The book showcases the activities and events proceeded by ORIC as per its stated domains in the recent semester.

#### ii. ORIC Progress Report (2016-Till-date)

The Progress Report of ORIC has been compiled by Office of Research, Innovation and Commercialization (2016) from 2016-till date. The document showcases in detail the progress report of ORIC in terms of its explicit domains i.e., Research Operations, Technology Incubation & Innovation and Industrial Liaison.

#### iii. CUST Annual Report-2022

As per directions of VC Office, the initial draft of CUST Annual Report 2022 was compiled by Office of Research, Innovation and Commercialization. The document showcases the progress report and provides a detailed overview about various aspects of the university. The report will prove a source of narration about CUST academic and extensive research culture.

### B. HEC University Ranking

CUST applied for its inaugural HEC National University ranking. Above 40 % of the data containing around 20 Performance Indicators was provided by the ORIC. The data was particularly relevant to R&D Projects, Research Publications, Conferences, MOUs, Journals, Patents, Technology Transfer etc.

### C. Data for DSE Green Matrix Ranking-2023

The Directorate of Sustainability and Environment (DSE) has developed their Activities Report for 2023. ORIC provided the SDGs relevant data of Publications/R&D Projects/FYPs to DSE. The data would be used for participation of CUST in Global Green Matrix Ranking.

### D. Projection of ORIC Activities/Events on social media (FB) Handle

ORIC Social Media Page has been created to continually update students, faculty, industry and relevant stake holders about ongoing Projects, R&D Funding, Capacity Building Events and Commercialization Endeavors. The page is updated regularly on weekly basis.

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# HIGHER EDUCATION COMMISSION

H-9, Islamabad, Pakistan

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Ref No. CUST/ORIC/RFI/R&D/HEC/2022-23-10

Date: Thursday, August 31, 2023

**Director (RFI-R&ID)**

**Subject: Recognition of ORIC at Capital University of Science and Technology, Islamabad**

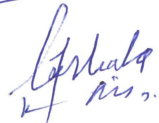
With reference to ORIC recognition application received from Capital University of Science and Technology, Islamabad (CUST), the Director General, Research, and Innovation Division (R&ID), HEC, is pleased to recognize "**Office of Research, Innovation and Commercialization (ORIC)**" at CUST, subject to due diligence and fulfillment of all requirements as per policy and rules.

2. As per the Higher Education Commission's ORIC Policy 2021, CUST is now eligible for the enhanced overhead cost up to 15% against HEC sponsored competitive research grants. The overhead will be solely dependent upon the performance of the ORIC as per categories mentioned in the table below:

Category	Overhead Percentage
W	15%
X	10%
Y	5%
Non-Complying	-

For the first year of notification, the ORIC at CUST is eligible for **5% overhead**, corresponding to Y category, and afterwards it will be validated based on annual performance and audit of self-assessment scorecard, in accordance with the above cited categories. The overhead will be utilized by the ORIC for research-support activities and shall be subject to review and audit by the HEC.

3. Furthermore, The HEC, based on its on-site evaluation visit of ORIC at CUST, has made recommendations for the sustained growth and improvement of the ORIC, which are attached at Annex-A. It is requested that compliance against the recommendations may be intimated to the HEC within a period of 3-months from the issuance of this letter. We look forward to the persistent commitment by the ORIC towards its foreseen objectives and compliance with HEC ORIC Policy and SOPs.

  
(Noshaba Awais)

**Prof. Dr. Muhammad Mansoor Ahmed**  
**Vice Chancellor,**  
**Capital University of Science and Technology, Islamabad**

**Copy To:**

1. ES to Executive Director, HEC, Islamabad
2. ES to Vice Chancellor, CUST, Khairpur
3. PS to Director General (R&ID), HEC, Islamabad
4. PS to Director General (Finance Division), HEC, Islamabad
5. Dy. Director (Research Grant Management-R&ID), HEC, Islamabad
6. Head of ORIC, CUST, Islamabad



**ORIC Strategic Plan  
(2022-2026)**

**Office of Research Innovation and Commercialization  
Capital University of Science and Technology, Islamabad**



## Capital University of Science and Technology

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### 1. Introduction

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 technologies have grown more sophisticated and emerging industries have become more high-tech, universities have become more important players in the process of invention, innovation, and commercialization. The ultimate aim of scientific research, after all, is to improve the human condition, support the transfer and commercialization of discoveries and serve the interests of the inventor and society. Ideally, university structures should support all aspects from invention to innovation, as well as commercialization. It is important for education sector to play its vital part in addressing the need for mass employment. This can only be achieved through large scale industrialization, encouragement of SME enterprises, and a vibrant service sector.

To make research a top priority for a sustainable economic growth and future knowledge economy, a pivotal center known as Office of Research Innovation & Commercialization was established at the University. Office of Research, Innovation & Commercialization (ORIC) is responsible for facilitating and supporting the discovery and innovation process at CUST. The Office of Research Innovation and Commercialization is responsible to link research and commercialization from the University with emerging and existing firms across Pakistan and around the world. ORIC is guarantying that all research programs and policies reflect the core values of academic freedom, professional integrity and ethical conduct and full compliance with all policies, legal requirements and operational standards of the university. ORIC is working under three major dimensions Research & Development,





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Technology Incubation/Innovation and commercialization and Industrial Liaison. The strategic plan provides direction, clarity, and focus, enabling university to make informed decisions, allocate resources effectively, and adapt to changing circumstances. By having a strategic plan in place, ORIC will achieve its goals and remain competitive in Research, Commercialization and Entrepreneurship.

### **2. CUST Vision**

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

### **3. ORIC Mission**

ORIC at CUST has the mission, “To motivate and facilitate the university researchers to innovate and collaborate with the stake-holders leading to resource generation through commercialization”.

### **4. ORIC Objective**

The objective of the establishment of ORIC is to develop, expand, enhance and manage the university’s research programs and to link research activities directly to the educational, social and economic priorities of the university.

### **5. Scope and Purpose**

The Office of Research, Innovation and Commercialization (ORIC) 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 to motivate university researchers to innovate and collaborate with the stake-holders leading to resource generation through commercialization.

### **6. Competitive Advantage**

The faculty and researchers of Capital University of Science & Technology are passionately



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motivated towards 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. A number of research and commercial projects have been successfully completed in collaboration with various international funding agencies and organizations. CUST has always been proactive in the field of practical research. It has been possible through hard work and extreme dedication of faculty members that they are successful in publishing their work in renowned Impact Factor (IF) Journals.

ORIC has maintained sound collaboration with R&D organizations and defense industry of Pakistan. A number of projects of national eminence have been accomplished, and there is still a number of projects being currently worked on. A number of officials from defense organizations have successfully completed Certificate Courses, administered by ORIC. One of the biggest advantages CUST is its location being in the vicinity of industrial hub of local industry of Rawalpindi and Islamabad. ORIC invites personnel from local industry and corporate sector on regular occasions to visit campus. The university has plausible openings in creation of strong bonds with local industry in terms of joint projects, industry problem solving and student placements.

## 7. Roles, Responsibilities and Services Offered at ORIC

### 6.1 ORIC Role:

- Research Operations
- Technology Incubation and Innovation
- Industrial Liaison and Commercialization

### 6.2 Responsibilities and Services Offered:

- Proposal Writing, Increasing and diversifying external research funding
- Strengthening university-industry relationships
- Maintenance and updating of ORIC Webpage
- Signing and maintaining MoU list and details



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- Maintaining and updating CUST Research Database
- Maintaining and Updating CUST PhD Repository/Archive
- Preparing and Displaying CUST Faculty Research Group Posters
- Conducting Short Courses, Trainings, Seminars and Certificate Courses
- Organizing Business Plan Competitions
- Managing BIM Center of Excellence
- Managing CUST Incubation Center (CIC) and to ensure their training
- Facilitating Registration of Incubates to Register with SECP
- Preparing ORIC Newsletters and ORIC Activities Books
- Preparing CUST Annual Reports
- Projects Commercialization/Technology Transfer and Projects Funding
- Developing University Research, Innovation and Relevant Policies
- Filing Patent/Intellectual Property

## 8. Short-Term, Medium-Term and Long Term-Goals

### 7.1 Short Term Goals

- R&D Projects and Proposals Write-Up (Submission of at least One Proposal Per Department-Annually)
- Official Social Media Handle of ORIC (Creation and regular Weekly Posting)
- Competitive Research Grant Opportunities (Target of Annual Departmental External Research Income 01 million)
- Policies (Testing Policy, Certificate Courses Policy) (Approval and Implementation)
- PhD Research Excellence Framework (Approval and Implementation)
- Capacity Building Events (At least One Event Per Department each Semester)
- Capacity Building of ORIC Staff (At least one Training of each of the Managers per Semester)
- Effective Projection of ORIC (Newsletters, Activities Books, Social Media Handle and Courses Advertisement)



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- CUST Business Incubation Center/Startup Incubator (Separate Space and Cohort Launch Annually)

### 7.2 Medium Term Goals

- Increase in Competitive Research Grants (Target of Annual Departmental External Research Income 04 million)
- Industrial outreach with local Industry (MOUs and Industrial Visits with Local Industry of Rawat and Humak)
- Research collaboration with HEIs (MOUs with Nearby Institutes like IST, UOL, PIEAS etc.)
- Research Portal (Publications, PhDs, Patents, Prototypes and Projects)
- Annual Departmental Capacity Building and Certificate Courses Calendars
- Exhibitions / Showcasing Events and Industry Linkages Fairs (At least One in a year)
- Research Liaison with PhD Alumni (At least one PhD Alumni Gatherings/Meeting in Year)
- Industrial Visits (At least two Industrial Visits Per Semester)
- To register at least ten (10) startups with Security Exchange Commission of Pakistan (SECP)
- Provision of appropriate training to students for Incubation/Launch of companies

### 7.3 Long Term Goals

- Research Collaboration with International Organizations (MOUs and Research Proposals)
- Capacity Building/Training Centers (ORIC Capacity Development Center(s))
- Contract Research/Collaborative Projects (Their number would be increased)
- Annual Departmental External Research Income (10 million)
- Commercialization of students/Faculty Projects/Startups
- Patent Office (Fully Functional Office with Filing of at least one Patent each Semester)



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- Industrial Consultancy (Subject to availability of Consultancy and Facilitation of ORIC in this regard)
- National level Events (At least Once in a Year)
- Generation of at least 01 million PKR from startups and provision of jobs/internships to CUST students

### 9. Key Performance Indicators (KPIs)

Research Support	
i	Number and volume of research proposals submitted, approved, and completed
ii	Number and volume of joint research projects submitted, approved, and completed
iii	Research links established with other universities, industry, government, or NGOs
iv	Contract research awarded by industry or government organizations
v	Acceptance ratio of proposals in percentage
vi	Annual research revenue generated (million)
vii	Research grant opportunities identified and circulated to faculty
viii	Consultancy opportunities identified and circulated to faculty
ix	Consultancy contracts executed through ORIC
x	Research Groups
Innovation & Commercialization	
i	Number of Patents Filed/Granted
ii	Number of policy briefs
iii	Number of IP licensing negotiations initiated
iv	Number of non-exclusive or exclusive licenses signed
v	Yearly revenue earned from licensing, royalties, policy advocacy, or other academic activities. (million)



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vi	Number of visits by representatives of industry or community members regarding potential research subjects
vii	Number of events organized for industry or entrepreneurial stimulus, or for community engagement or community awareness
viii	Number of agreements signed for collaboration with industry, government
ix	Number of national or international honors or awards won.
x	Capacity Building Events / Certificate Courses
xi	Incubation Center Induction/Cohort Startups / Registration with SECP
xii.	Training to students for Incubation/Launch of companies
<b>Human Resource &amp; Operations KPIs as per ORIC's defined criteria</b>	
i	Dedicated ORIC Functional Office with ICT facilities
ii	Three full-time dedicated positions of Head of ORIC, Manager Research Support Manager I&C
iii	Status of ORIC-SC: constitution, number of meetings, minutes, actions taken.
iv	Support Positions (full-time or part-time) for effective functioning of ORIC
v	ORIC Website, social media presence
<b>Additional Activities KPIs</b>	
i	Capacity Building of ORIC Staff
ii	Effective Projection of ORIC (Newsletters, Activities Books, Social Media Handle and Courses Advertisement)
iii	CUST Business Incubation Center/Startup Incubator (Separate Space and Cohort Launch Annually)
iv	Research Portal



**10. Action Plan/Process for Research Goals/KPIs**

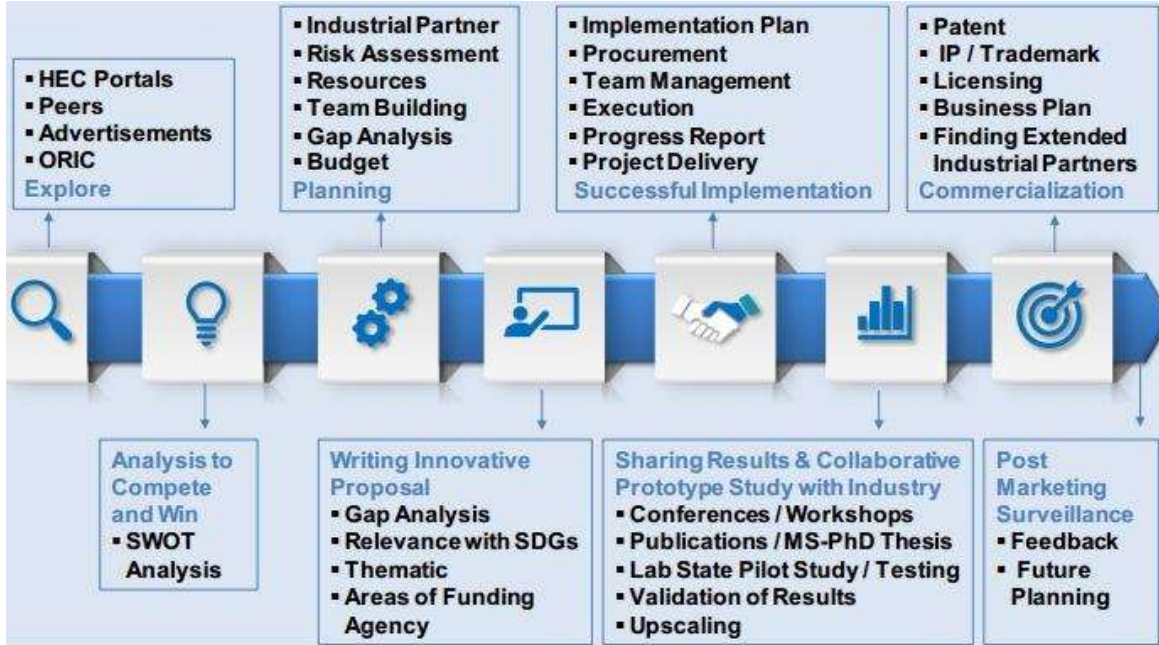


Figure 01: Action Plan to Achieve Research KPIs

**11. Action Plan/Process for Innovation & Commercialization Goals/KPIs**

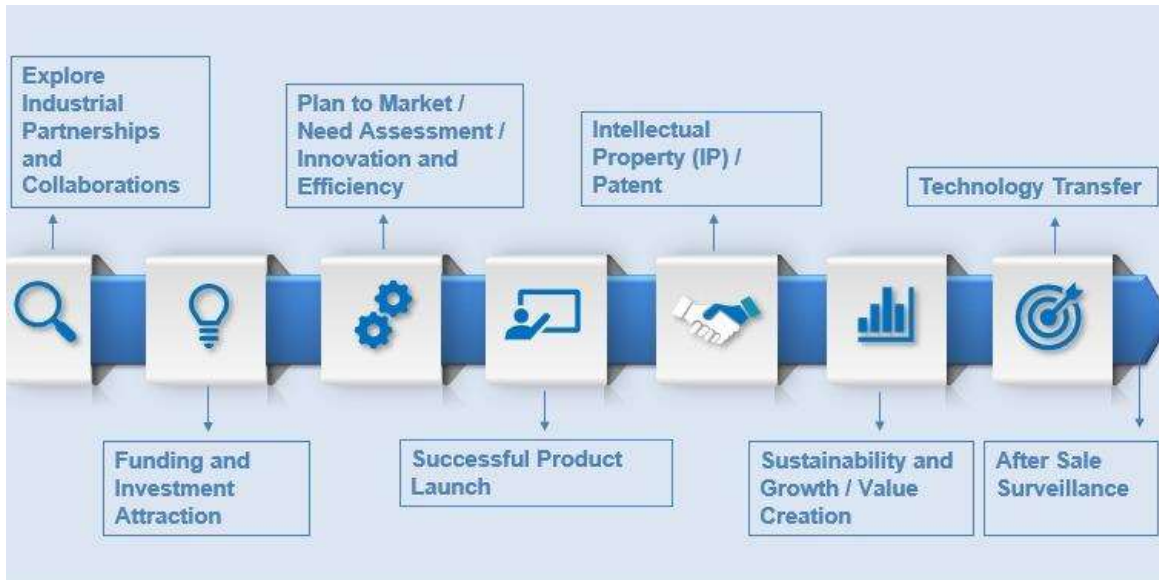


Figure 02: Action Plan to Achieve Research KPIs

## **HEC Visit to CUST-ORIC for Accreditation**

A team from Higher Education Commission, Office of Research, Innovation and Commercialization visited Capital University of Science and Technology, Islamabad in response to CUST ORIC recognition application on Friday, 25<sup>th</sup> August, 2023.

On arrival, the HEC team met with the Vice Chancellor of the CUST. The Vice Chancellor cogently articulated them about the University's academic and administrative operations. After the meeting with Vice Chancellor, the HEC team attended the presentation session. The presentation entails CUST Academics, Statutory Bodies, Quality Management System, CUST ORIC Policies, Operations, Achievement and Strategic Plan from 2022-2026. Director ORIC briefed about the modalities to achieve the targets which are quite align with the HEC ORIC KPIs.

After the presentation session, the HEC team visited the Research Group Labs and Incubation Centers in which they interacted with the research project students and faculty. Thereafter, the team visited CUST ORIC office and appraised the documentation related to Patent filing and Commercialization. The Director ORIC substantiated their queries and inquiries with relevant documents.



While concluding the visit, Head of the HEC team acknowledged and appreciated the magnanimity of the resources, operations and management capabilities which are pretty good and synchronized in order to advance the mission and objectives of the university and ORIC. The HEC team also appreciated the efforts of management, faculty and ORIC to conduct the visit in a proficient manner.







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No.58/CUST/Reg/2023

Dated: February 27, 2023

### Notification

The Competent Authority has been pleased to constitute the following Institutional Ethical Review Board: -

- |      |  |           |
|------|--|-----------|
| i.   | Prof. Dr. Imtiaz Ahmad Taj,<br>Dean, FoE       | Chair     |
| ii.  | Prof. Dr. Sahar Fazal,<br>Dean, FHLS           | Member    |
| iii. | Dr. Muzaffar Abbas,<br>Dean, Pharmacy          | Member    |
| iv.  | Dr. Nayyer Masood,<br>Professor, CS Department | Member    |
| v.   | Prof. Dr. Umar Farooq,<br>HoD, English         | Member    |
| vi.  | Dr. Sabahat Haqqani,<br>HoD, Psychology        | Member    |
| vii. | Mr. Jahanzeb Sarwar Malik,<br>Manager, ORIC    | Secretary |

Malik Arshad Mahmood  
Registrar

Distribution: -

- All Deans/HoDs
- All Sectional Heads
- All Members of the Board

Copy to: -

- P.S to the Vice Chancellor



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# Research Ethical Review Policy

## 1. Preamble

Research integrity and ethics refers to the ethical and responsible conduct of research activities, such as data collection, analysis, experimentation and reporting. It includes principles such as honesty, transparency, and respect for the rights of research participants and the integrity of research data and scholarly writing. Research ethics also deals with the concerns related to environment, wellbeing of animals or human subjects if their biological samples or medical data are used in research.

Capital University of Science and Technology (CUST) as a leading institution of higher education is committed to provide its students the academic and learning environment of highest quality following international best practices. As outlined in the University Mission statement, providing an ethical environment is crucial to achieve this goal both in academic activities as well as in research activities.

Research Ethical Review Policy is designed to ensure that academic and research activities at CUST are conducted in an ethical and responsible manner. This policy is intended to promote honesty, transparency, fairness, and accountability in all research activities, including teaching, learning, and scholarly research.

CUST has highly reputed graduate programs including Master and PhD programs wherein several mature research groups are conducting research in a variety of fields. Broad theme areas of research include:

- Engineering
- Computing
- Management Sciences
- Biosciences and Biotechnology
- Social Sciences
- Pharmaceutical Sciences

CUST Research Ethical Review Policy outlines the standards of conduct that researchers whether students or faculty members are expected to follow. In order to administrate the policy, it provides supportive system having essential processes to undertake all sort of researches in an effective and responsive manner abiding adherence to ethical standards (in general and to a particular subject) which are pre-requisite before the research is being allowed to proceed.

## 2. Applicability

The policy is applicable to all students, teachers, researchers and staff of CUST, who are involved in writing or publishing their research work or are involved in a research project / study that requires a pre-qualification in terms of ethical concerns

In this context a "Student" is a person who is a registered student of CUST, on the date of submission of his/her paper/work, or during the duration of a research project /study under



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the University umbrella in which is he/she is a participant. "Teachers and Researchers" include CUST faculty members or affiliated researchers. "Staff" is any CUST employee involved in research work.

### 3. Research Misconduct: Definition

All types of research misconducts are strictly forbidden. Research misconduct refers to any intentional or reckless action that deviates from accepted ethical and scientific norms in research, whether in the design, conduct, reporting, or communication of research results. The following are some examples of research misconduct:

**Fabrication:** Making up data or results that were not obtained through experiments or research.

**Falsification:** Manipulating research data or results to fit a predetermined outcome.

**Plagiarism:** Presenting someone else's ideas, words, or work as one's own without giving proper credit or citation. It can take various forms, including:

- i. Copying and pasting passages from sources without proper attribution
- ii. Paraphrasing or summarizing someone else's work without citing the source
- iii. Using images, graphs, or charts without permission or proper citation
- iv. Submitting someone else's work as one's own

**Misrepresentation:** Misleading others about the nature, scope, or significance of research findings or results.

**Redundant Publication or Self-Plagiarism:** Publishing the same results or findings in multiple publications without appropriate citation or acknowledgement. It also involves submitting one's own previously published work without acknowledging the earlier publication

**Ethical violations:** Failing to obtain informed consent from research subjects, breaching confidentiality or privacy, or engaging in other unethical behavior. Mistreatment of animals, if used in research, is also included.

**Conflict of interest:** Failing to disclose financial or other interests that may influence research findings or results.

**Failure to follow research protocols:** Ignoring established research protocols, procedures, or guidelines.

**Data manipulation:** Altering or modifying data to achieve desired results or outcomes.

**Obstruction of research:** Interfering with the research process, such as by withholding data, results, or funding.

Research misconduct is a serious offense under the rules of the University and Plagiarism Policy of the HEC. It can result in severe consequences including legal action, loss of reputation, and/or termination from service for faculty members, and academic penalties for students such as failing a course or losing a degree.

### 4. Ethical Review Board

The implementation of Ethical Review Policy is overseen by the Ethical Review Board (ERB) which will work in coordination with the Office of Research, Innovation and



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Commercialization (ORIC) which will be responsible to manage all activities under this policy and keep their records. ERB is a centralized body composed of Senior Professors from different departments to tackle ethical issues from different research areas and to maintain impartiality as per international best practices. The main functions of the ERB include:

### 4.1. Formulation and Review of Policy and Guidelines

The ERB shall develop and review the policy, procedures and guidelines for ethical review of all kinds of research in the University. It may involve relevant experts and form sub committees to formulate and review individual components of the policy.

### 4.2. Dissemination of Knowledge

The Board shall take steps to ensure that all University students, teachers, researchers and staff involved in research activities are aware of their ethical responsibilities while doing research along with the consequences of any misconduct. For this purpose workshops and seminars for prospective researchers and research groups shall be arranged from time to time by ORIC. Moreover, information about this Policy and the Plagiarism Policy by HEC will be readily available on University website and other University forums.

### 4.3. Investigations into Cases of Ethical Misconduct

The board will thoroughly investigate each case of ethical misconduct or violation to this policy reported to the Board directly or forwarded to the Board by other University authorities. This also includes cases reported to HEC under the Plagiarism Policy. All types of ethical misconducts are strictly prohibited including fabrication, falsification, unauthorized use, or plagiarism of research data, as well as other forms of serious deviation from accepted research practices.

For each case of misconduct the Board will also decide about the penalty imposed on the involved researcher(s) which may include academic sanctions, loss of research funding, or other disciplinary action according to the rules of the University and Plagiarism Policy defined by HEC.

### 4.4. Ethical Review/Audit of Research Projects / Studies

All projects / studies being conducted in the University will be liable for ethical review and audit by the Board. The ethical review will consider the ethical implications of research studies conducted at the University and determine whether or not they are acceptable on ethical grounds. The ethical review shall ensure the following:

#### i. For Project / Studies requiring Informed Consent

An informed consent will be required from concerned parties if research involves the following:

- a. Collecting input and/or information from people (responses, reaction, measurements, opinions, experiences) or input collected by someone else, including in person, online, in writing, on the phone or by any other means
- b. Using human biological materials and if the sample comes from a human body
- c. Using data about people previously collected by someone else (for example students records, commercial records)



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- d. When research involves secondary data (publicly available data, publicly not available and data based on paid subscriptions)
- e. Collecting or using health information
- f. Collaboration with someone who is doing any of the above

### ii. For Project / Studies leading to Commercialization or Patent

It will be ensured that the Intellectual Property (IP) Policy of the University is fully followed in such cases.

### iii. For Project / Studies on Animal Subjects

When research involves animals or animal parts, ethical considerations should be addressed such as minimizing animal pain and suffering, providing proper care and housing, and using alternative methods when possible.

### iv. For Project / Studies impacting environment

When research has the potential impact on environment, a clearance from the University Directorate of Sustainability and Environment (DSE) will be required.

### v. To check plagiarism in all Project / Studies

All research projects /studies and their outputs in terms of publications will be subject to plagiarism check according to the HEC Plagiarism Policy. The review will also involve investigation in the case if plagiarized work / data is reported in any project / study.

### 4.5. Offering Help/Advice to Researchers:

The Board shall advise the researchers seeking its advice, on all matters pertaining to ethical research issues.

### 4.6. Ensuring compliance to the Plagiarism Policy:

The Plagiarism Policy defined by the University and the Plagiarism Policy defined by HEC both will be followed in letter and spirit. ERB will also monitor and review the progress on any pending cases pending cases with the HEC or within the University in its periodic meetings.

## 5. Administrative Procedures

The ORIC will administratively look after all the activities in connection to the procedures laid down in this policy under the guidance of ERB. All data related to this policy will be maintained by ORIC and it will ensure the confidentiality of the record.

### 5.1. Research Project / Study Initiation Process

At the start of any research project or study, the researchers must obtain informed consent from all participants before their participation in a project/study. For this purpose a research project initiation form will be used and the Project / Study Principal Investigator (PI) (or Co-PI in case of collaborative project where PI is not from CUST) will be required to submit the form with the consents of participating parties (if required) before the commencement of the project/study. The Initiation Form will clearly explain the nature of the research work, potential risks and benefits, confidentiality, IP issues, issues related to conflict of interest and the right to withdraw from the study. If the initiation form is not



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properly submitted or if the requirements are not fully complied, the project approval by the University may be halted /postponed by ERB until the requirements are fulfilled.

### 5.2. Research Project / Study Closure Process

At the conclusion of a research project / study, a project PI /Co-PI shall submit the Project completion form along with the completion report of the project. The completion report of the project / study, along with the research achievements, will clearly detail the source of data used in the project / study. An undertaking will also be given that misconducts regarding data collection, plagiarism of any sort, use of resources, treatment of experimental subjects (animals) and informed consent in case of Biological human parts or medical data, have not been committed.

In case of any violation observed, the case will be forwarded to an investigation sub-committee constituted by the Convener ERB. The Committee will recommend the action regarding the project according to University rules and the case will be discussed in the next ERB meeting.

### 5.3. Process for Handling Cases of Misconduct

The cases of ethical misconduct in research shall either be reported directly of ERB or shall be forwarded to ERB by other offices / authorities of the University.

- i. Upon receipt of each case, an initial scrutiny of the case will be done by the ERB Chair who will then assign the case to at least three members review committee of relevant field.
- ii. The review committee will submit its findings to ERB Chair.
- iii. ERB Chair shall call the meeting of ERB.
- iv. The ERB Chair may invite an individual to attend a particular meeting/s to give specialist advice to the Board. Such individuals should not participate in the final decision of the Board.
- v. If misconduct is proven, the Board shall impose penalty on the guilty party which may include academic sanctions, loss of research funding, or other disciplinary action according to the rules of the University and Plagiarism Policy defined by HEC.
- vi. The decision / minutes of ERB will be submitted to the Board of Advance Studies and Research (BASR) for final approval.
- vii. A researcher who is penalized by the Board due to any misconduct will have the right to appeal with in the two weeks of decision.

### 5.4. Use of Similarity Detection Software

Similarity detection software, such as Turnitin service, will be extensively used to check plagiarism in all research theses, publications, project/study reports, and other research documents created by researchers/students of the university. Following guidelines shall be followed in the use of similarity detection software.

- i. License of similarity detection software will be acquired and procedures to ensure its productive use shall be developed.
- ii. Students/faculty members will be regularly apprised about the HEC Anti-Plagiarism Policy.



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- iii. The administrator account for the similarity detection software will be held with the librarian of the University who will manage the accounts under the license.
- iv. Generally the privacy and confidentiality of the reports shall be maintained and any report shall not be disclosed to anyone except the concerned person and to the concerned authorities, if required. Only for predefined cases like similarity report of research thesis, it will be made part of thesis according to the university rules.





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No.55/CUST/Reg/2023

Dated: March 15, 2023

### Notification

In partial modification of Registrar Office Notification of even number, dated: 27-02-2023, the Competent Authority has been pleased to reconstitute the following ORIC Steering Committee of the University: -

i. Dr. M. Mansoor Ahmed	Vice Chancellor, CUST	Chairperson
ii. Mr. Mian Mudassir Farooq	Head, Tower Tech	Co-Chairperson
iii. Dr. Amir Qayyum	Professor, CUST	Member
iv. Dr. Majid Ali	Professor, CUST	Member
v. Dr. Muzaffar Abbas	Assoc: Prof., CUST	Member
vi. Dr. Nadeem Anjum	Assoc: Prof., CUST	Member
vii. Mr. Abdul Qadeer	Director, Berkeley	Member
viii. Mr. M. Furrukh Mahmood	CEO, 11 Values	Member
ix. Mr. Jafar Safdar	CEO, AQL Tech Solutions	Member
x. Mr. Tahir Mahmood Chaudhry	CEO, Falcon Engineering	Member
xi. Mr. Raise Naqvi	CEO, Electronic Interconnect Engineering (EIE)	Member
xii. Mr. Mehmood Ahmad Warraich	Director, Pre - Cast Products	Member
xiii. Mr. Bilal Farooq	Founder, Consulting 360	Member
xiv. Dr. M. Kamran Naqi Khan	Director, ORIC	Member
xv. Mr. Jahanzeb Sarwar Malik	Manager ORIC	Secretary

2. The TORs of ORIC Steering Committee (ORIC-SC) shall be as under: -

- Devise and approve the 5-year strategic plan for the ORIC and ensure its proper compliance.
- Review and approve the recommendations for implementation of initiatives for better achievement of ORIC objectives from ORIC leadership.
- Review periodic monitoring reports on the basis of KPIs and advise the ORIC leadership accordingly.
- Provide policy guidance to ORIC leadership.
- Ensure that ORICs activities and initiatives are coordinated with other relevant stakeholders, inside or outside the HEL.
- Bridge the gap between academia and industry and provide crucial advice on matters to promote university-industry linkages and commercialization.

Malik Arshad Mahmood  
Registrar

**Distribution: -**

- All Members of the Steering Committee
- All Deans and HoDs, CUST
- Director ORIC, CUST

**Copy to: -**

- PS to the Vice Chancellor



Dated: 27<sup>th</sup> June, 2023

**21<sup>st</sup> ORIC Research Committee Meeting**

**Minutes of the Meeting held on June 22, 2023**

- The 21<sup>st</sup> ORIC Research Committee meeting was held on Thursday, June 22, 2023 at 12:00 PM in Conference Room, F-Block, CUST.

- Director ORIC, Dr. M. Kamran Naqi Khan presided the meeting.

- The following members were present in the meeting:

- Dr. Imtiaz A. Taj	Professor, EE
- Dr. Majid Ali	Professor, CE
- Dr. Abdul Rehman Kashif	Associate Professor, Math.
- Dr. Mahboob Alam	Associate Professor, Pharmacy
- Dr. Nadeem Anjum	Associate Professor, SE
- Dr. Waqas Akbar	Associate Professor, ME
- Dr. Arshia Amin Butt	Assistant Professor, BI
- Dr. Mudassir Ali	Assistant Professor, MS
- Mr. Jahanzeb Malik	Manager, ORIC

- The meeting progressed as per agenda item listed below: -

**Item #1 Welcome and Opening Remarks Action By**

1.1 Director ORIC, Dr. M. Kamran Naqi Khan welcomed all the members of ORIC Research Committee to its 21<sup>st</sup> meeting. He acknowledged the efforts of Dr. Aamer Iqbal Bhatti for his outstanding contribution towards advancement of ORIC. He also appreciated the contribution of faculty members in proceeding research at CUST.

**Item #2 Confirmation of Previous (20<sup>th</sup>) Meeting Minutes**

2.1 It was informed to the committee that minutes of the 20<sup>th</sup> ORIC committee were circulated amongst the members on 19-12-2022. While reviewing the minutes, it was discussed that to reinforce the actions on agenda items 1 and 2 as follows:

i. All the active researchers should be registered on HEC Academic – Industry – Government linkages RFI portal to become part of expert list.

ii. ORIC will provide all assistance and services to enhance social visibility of CUST research activities at HEC RFI portal in a meaning and purposeful way to

Manager, ORIC

seek attention of industry, academia and government.

- |  |                                   |
|--|-----------------------------------|
| <p>iii. For agenda point 2, Dr. Nadeem Anjum apprised the committee for the requisite action in light of the 41<sup>st</sup> Executive Committee meeting. In this regard, it was resolved that a meeting of ORIC will be held with HoD SE on June 23, 2023 to finalize the process and to initiate the actions in light of the EC guidelines on agenda # 7 CUST Incubation Center.</p> | <p>Director ORIC /<br/>HoD SE</p> |
| <p>iv. Dr. Imtiaz Taj suggested that Industrial Advisory Board (IAB) meeting minutes should also be placed as a part of agenda of this forum from each faculty to monitor and evaluate the actions taken in order to strengthen industry – academia linkages.</p>  | <p>Director ORIC</p>              |
| <p>v. It was also resolved that ORIC will plan to develop and update industry list to explore opportunities for seeking final year projects for the session Fall 2024 onwards.</p>   | <p>Director ORIC</p>              |
- 2.2 The committee confirmed the minutes of 20<sup>th</sup> ORIC committee meeting held on 06-12-2022.

**Item #3 CUST-ORIC Policy and HEC ORIC Policy**

- 3.1 The chair apprised the ORIC committee members that the purpose of this agenda was to:
- |   |                                    |
|---|------------------------------------|
| <p>i. Each member of ORIC committee will communicate the CUST ORIC policy and HEC ORIC Policy to their respective faculty members / department.</p>   | <p>ORIC Research<br/>Committee</p> |
| <p>ii. It was also resolved and suggested by the Chair that the respective faculty/department should take necessary guidelines from CUST ORIC policy and HEC ORIC Policy while preparing their research plan and suggest necessary incentives keeping in view the merit of the case target/achievements.</p>                            | <p>ORIC Research<br/>Committee</p> |
| <p>iii. Regarding HEC funded projects, it was suggested by the Chair that concerned PI should communicate to HEC with respect to cost escalation of the project due to delay in releasing the funds. Moreover, he should also seek necessary guidelines from HEC to avoid any future inconvenience meeting the project competition.</p> | <p>Dr. Imtiaz<br/>Ahmad Taj</p>    |
| <p>iv. It was also discussed that progress reports of funded projects may be apprised in time so that ORIC is well sensitized accordingly.</p>  |                                    |



**Item #4 Strategic Plan for ORIC Targets and Actions to meet KPIs from each Faculty**

- 4.1 After a thorough discussion, it was desired that HEC ORIC Policy should be observed with greater sense of commitment and responsiveness so that it could meet the values and expectations of all key stake holders.
- 4.2 The Chair briefed that ORIC Strategic Plan which is an instrumental that derives the domains of research of the university in meaningful and purpose-oriented way. Moreover, attention of the committee members was invited on HEC ORIC KPIs which are important targets on the basis of which ORIC performance and progress are measured and is accordingly ranked.
- 4.3 Taking the lead from the above, the members discussed in this backdrop that how the targeted goals of their respective department for year 2023-2024 will be achieved and aligned with the ORIC KPIs.
- 4.4 The committee decided that ORIC Strategic Plan KPIs will be incorporated in the CUST Strategic Plan by the Dean of each Faculty.
- 4.5 With respect to conduct training/workshops and consultancy services it has been resolved that the proposals from the respective faculty may be processed after the approval from Dean.

Director ORIC

**Item #5 Capacity Building**

- 5.1 After a detailed discussion on Patent Filing, it was suggested that ORIC will arrange a workshop on Patent Filing and Intellectual Property Rights in Summer 2023 for all faculty members under Faculty Development Plan.

Director ORIC

The meeting ended with a vote of thanks to the Chair as well as the participants of the meeting.



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Prepared by:

Approved by:

**Jahanzeb Malik**  
Manager ORIC

**Dr. M. Kamran Naqi Khan**  
Director ORIC

### **Distribution**

- Vice Chancellor
- Registrar
- All Deans
- ORIC Research Committee
- File



No: Ref No. 20-16186/NRPU/R&D/HEC/2021-2020

Creation Date: 17.08.2023

1. Dr. Rizwan Ur Rehman,  
Assistant Professor,  
School of Food and Agricultural Sciences,  
Capital University of Science and Technology, Islamabad

**SUBJECT: PROVISIONAL AWARD UNDER National Research Program for Universities- NRPU**

Reference research project No 16186 entitled "Isolation and Identification of therapeutic agents involved in the activation of PPAR- $\alpha$  to ameliorate Type 2 Diabetes" having total cost of Rs. 6058500/- and project duration of 36 months, submitted for funding by Dr. Rizwan Ur Rehman, Capital University of Science and Technology, Islamabad, (the Principal Investigator).

The Higher Education Commission (HEC) hereby awards Rs. 6058500/- ( six million fifty eight thousand five hundred ) to the Capital University of Science and Technology, Islamabad (the Grantee) for the above mentioned project subject to the provision of following documents:

- a. Final revised proposal after incorporating reviewer's comments in letter & spirit, duly signed/endorsed by HoD, Director ORIC, Head of Institution (Vice Chancellor/Recto)
- b. A certificate duly signed by HoD and PI stating that reviewer's comments have been incorporated in the revised proposal (specimen attached)
- c. Revised Implementation Plan of the project after incorporating reviewer's suggestions if any. Gantt Chart of Procurement Plan of the project

You are, therefore, requested to execute an agreement on stamp paper as per attached specimen and the same may be furnished to this office within 15 days of the issuance of this award. The award shall stand cancelled upon failure on your part to submit the agreement with in the stipulated period of time. This award is subject to the Terms and Conditions of the Grant outlined in the specimen Grant Agreement.

Detailed breakup of budget is as under:

Budget Element	Total Budget PKR
PI: Dr. Rizwan Ur Rehman Assistant Professor School of Food and Agricultural Sciences Capital University of Science and Technology, Islamabad:	450000
Co-PI: Dr. Nauman Khalid Associate Professor	175000
Ms/M.phil Student	520000
Total Equipment Cost	3100000
Total Consumable Supplies	500000
Total Services Cost	950000
Total Travel Cost	75000
Total Budget (Direct Cost) - A	5770000
Project Overhead Cost	288500
G. Total Budget	6058500

Disbursement plan for the release of funds are as under

Item	%	Amount in Rs.	Remarks
1st Installment	50%	3029250	Upfront payment
2nd Installment	20%	1211700	will be released subject to the satisfactory review of 1st Annual Report
3rd Installment	20%	1211700	will be released subject to the satisfactory review of 2nd Annual Report
Final Installment	10%	605850	Will be released after successful completion of the project
Total Approved Cost		6058500	

Sincerely

RGM Section,  
R&D Division,  
Higher Education Commission,  
Islamabad

Copy for Information to:

- I. Vice Chancellor, Capital University of Science and Technology, Islamabad
- II. The Director Finance, Capital University of Science and Technology, Islamabad
- III. The Director ORIC, Capital University of Science and Technology, Islamabad

No: Ref No. 20-15604/NRPU/R&D/HEC/2021 2021

Creation Date: 20.03.22

1. Dr. Imtiaz Ahmad Taj,  
Professor,  
Electrical Engineering,  
Capital University of Science and Technology, Islamabad

SUBJECT: PROVISIONAL AWARD UNDER National Research Program for Universities- NRPU

Reference research project No 15604 entitled "A Multi-Biometric Access Control System (MBACS) for Highly Secured Environment" having total cost of Rs. 6009900/- and project duration of 24 months, submitted for funding by Dr. Imtiaz Ahmad Taj, Capital University of Science and Technology, Islamabad, (the Principal Investigator).

The Higher Education Commission (HEC) hereby awards Rs. 6009900/- (six million nine thousand nine hundred ) to the Capital University of Science and Technology, Islamabad (the Grantee) for the above mentioned project subject to the provision of following documents:

- Final revised proposal after incorporating reviewer's comments in letter & spirit, duly signed/endorsed by HoD, Director ORIC, Head of Institution (Vice Chancellor/Rector)
- A certificate duly signed by HoD and PI stating that reviewer's comments have been incorporated in the revised proposal (specimen attached)
- Revised Implementation Plan of the project after incorporating reviewer's suggestions if any. Gantt Chart of Procurement Plan of the project

You are, therefore, requested to execute an agreement on stamp paper as per attached specimen and the same may be furnished to this office within 15 days of the issuance of this award. The award shall stand cancelled upon failure on your part to submit the agreement within the stipulated period of time. This award is subject to the Terms and Conditions of the Grant outlined in the specimen Grant Agreement.

Detailed breakup of budget is as under:

Budget Element	Total Budget PKR
PI: Dr. Imtiaz Ahmad Taj Professor Electrical Engineering Capital University of Science and Technology, Islamabad:	400000
Co-PI: Dr. Muhammad Tahir Awan Assistant Professor	150000
Co-PI: Dr. Rab Nawaz Assistant Professor	150000
Co-PI: Usama Ijaz Bajwa Assistant Professor	150000
PhD Student	1200000
Ms/M.phil Student	1056000
Research Assistants: (BS/ MS/MPhil) equivalent to lecturer	600000
Short Term Support Staff Cost	150000
Total Equipment Cost	1050000
Total Consumable Supplies	50000
Total Services Cost	70000
Total Travel Cost	200000
Total Budget (Direct Cost) - A	5226000
Total Overhead Cost	783900
G. Total Budget	6009900

Disbursement plan for the release of funds are as under

Item	%	Amount in Rs.	Remarks
1st Installment	60%	3605940	Upfront payment
2nd Installment	20%	1201980	will be released subject to the satisfactory review of 1st Annual Report
Final Installment	20%	1201980	Will be released after successful completion of the project
Total Approved Cost		6009900	

Sincerely

RGM Section,  
R&D Division,  
Higher Education Commission,  
Islamabad

Copy for Information to:

- Vice Chancellor, Capital University of Science and Technology, Islamabad
- The Director Finance, Capital University of Science and Technology, Islamabad
- The Director ORIC, Capital University of Science and Technology, Islamabad

No: Ref No. 20-16645/NRPU/R&D/HEC/2021 2021

Creation Date: 15.12.21

1. Dr. Ishrat Yousaf,  
Assistant Professor,  
Management Sciences,  
Capital University of Science and Technology, Islamabad

SUBJECT: PROVISIONAL AWARD UNDER National Research Program for Universities- NRPU

Reference research project No 16645 entitled "eHealth supported intervention for improving care for young people with substance use disorder in Pakistan" having total cost of Rs. 7318500/- and project duration of 36 months, submitted for funding by Dr. Ishrat Yousaf, Capital University of Science and Technology, Islamabad, (the Principal Investigator).

The Higher Education Commission (HEC) hereby awards Rs. 7318500/- (seven million three hundred eighteen thousand five hundred ) to the Capital University of Science and Technology, Islamabad (the Grantee) for the above mentioned project subject to the provision of following documents:

- Final revised proposal after incorporating reviewer's comments in letter & spirit, duly signed/endorsed by HoD, Director ORIC, Head of Institution (Vice Chancellor/Recto)
- A certificate duly signed by HoD and PI stating that reviewer's comments have been incorporated in the revised proposal (specimen attached)
- Revised Implementation Plan of the project after incorporating reviewer's suggestions if any. Gantt Chart of Procurement Plan of the project

You are, therefore, requested to execute an agreement on stamp paper as per attached specimen and the same may be furnished to this office within 15 days of the issuance of this award. The award shall stand cancelled upon failure on your part to submit the agreement within the stipulated period of time. This award is subject to the Terms and Conditions of the Grant outlined in the specimen Grant Agreement.

Detailed breakup of budget is as under:

Budget Element	Total Budget PKR
PI: Dr. Ishrat Yousaf Assistant Professor Management Sciences Capital University of Science and Technology, Islamabad:	450000
Co-PI: Dr. Sabahat Haqqani Assistant Professor	150000
Research Assistants: (BS/ MS/MPhil) equivalent to lecturer	2400000
Short Term Support Staff Cost	600000
Total Equipment Cost	1200000
Total Consumable Supplies	30000
Total Services Cost	1140000
Total Travel Cost	1000000
Total Budget (Direct Cost) - A	6970000
Total Overhead Cost	348500
G. Total Budget	7318500

Disbursement plan for the release of funds are as under

Item	%	Amount in Rs.	Remarks
1st Installment	50%	3659250	Upfront payment
2nd Installment	20%	1463700	will be released subject to the satisfactory review of 1st Annual Report
3rd Installment	20%	1463700	will be released subject to the satisfactory review of 2nd Annual Report
Final Installment	10%	731850	Will be released after successful completion of the project
Total Approved Cost		7318500	

Sincerely

RGM Section,  
R&D Division,  
Higher Education Commission,  
Islamabad

Copy for Information to:

- Vice Chancellor, Capital University of Science and Technology, Islamabad
- The Director Finance, Capital University of Science and Technology, Islamabad
- The Director ORIC, Capital University of Science and Technology, Islamabad



No: Ref No. 20-16643/NRPU/R&D/HEC/2021 2021

Creation Date: 22.12.21

1. Dr. Majid Ali,  
Professor,  
Civil Engineering,  
Capital University of Science and Technology, Islamabad

SUBJECT: PROVISIONAL AWARD UNDER National Research Program for Universities- NRPU

Reference research project No 16643 entitled "Development of Building Products from Recycled Plastic for Housing" having total cost of Rs. 9982000/- and project duration of 24 months, submitted for funding by Dr. Majid Ali, Capital University of Science and Technology, Islamabad, (the Principal Investigator).

The Higher Education Commission (HEC) hereby awards Rs. 9982000/- (nine million nine hundred eighty two thousand ) to the Capital University of Science and Technology, Islamabad (the Grantee) for the above mentioned project subject to the provision of following documents:

- Final revised proposal after incorporating reviewer's comments in letter & spirit, duly signed/endorsed by HoD, Director ORIC, Head of Institution (Vice Chancellor/Recto)
- A certificate duly signed by HoD and PI stating that reviewer's comments have been incorporated in the revised proposal (specimen attached)
- Revised Implementation Plan of the project after incorporating reviewer's suggestions if any. Gantt Chart of Procurement Plan of the project

You are, therefore, requested to execute an agreement on stamp paper as per attached specimen and the same may be furnished to this office within 15 days of the issuance of this award. The award shall stand cancelled upon failure on your part to submit the agreement within the stipulated period of time. This award is subject to the Terms and Conditions of the Grant outlined in the specimen Grant Agreement.

Detailed breakup of budget is as under:

Budget Element	Total Budget PKR
PI: Dr. Majid Ali Professor Civil Engineering Capital University of Science and Technology, Islamabad:	400000
PhD Student	2400000
Total Equipment Cost	1200000
Total Consumable Supplies	2500000
Total Services Cost	1400000
Total Travel Cost	780000
Total Budget (Direct Cost) - A	8680000
Total Overhead Cost	1302000
G. Total Budget	9982000

Disbursement plan for the release of funds are as under

Item	%	Amount in Rs.	Remarks
1st Installment	60%	5989200	Upfront payment
2nd Installment	20%	1996400	will be released subject to the satisfactory review of 1st Annual Report
Final Installment	20%	1996400	Will be released after successful completion of the project
Total Approved Cost		9982000	

Sincerely

RGM Section,  
R&D Division,  
Higher Education Commission,  
Islamabad

Copy for Information to:

- Vice Chancellor, Capital University of Science and Technology, Islamabad
- The Director Finance, Capital University of Science and Technology, Islamabad
- The Director ORIC, Capital University of Science and Technology, Islamabad



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No.23/CUST/ORIC/2023

June 05, 2023

### **MoU Signing Ceremony between CUST and MGBio: A Tech-Bio Company, NUST, H-12 Campus, Islamabad**

A delegation from Capital University of Science & Technology, Islamabad on Friday, 2<sup>nd</sup> June, 2023 visited MGBio: A Tech-Bio Company, NUST, H-12 Campus, Islamabad. The meeting included the following participants.

Dr. Sahar Fazal

Dr. Amjad Ali

Dr. Syeda Marriam Bakhtiar

Dr. Sami Ullah Jan

Mr. Jahanzeb Sarwar

Mr. Zia ud Din Tanoli

Dean, FHLS

CEO, MGBio, NUST

HoD, Bioinformatics and Biosciences, CUST

Senior Lecturer, CUST

Manager, ORIC, CUST

Academic Officer, CUST

The meeting started with the brief introduction of NUST and its project MGBio: A Tech-Bio Company. Thereafter, CUST and its team introduced themselves to the house. Both parties have shown keen interest to collaborate in the areas of mutual interest and to facilitate each other in R&D Projects, Labs and Testing Facilities, Training/Special Courses and input in Curriculum Design. It was also decided that both parties will also collaborate in Hiring and Internships of students and will discover the opportunities for the Commercialization of Technology with a greater sense of commitment and responsiveness.



In concluding remarks Dr. Amjad Ali and Dr. Sahar Fazal expressed that the signing ceremony is a valuable step in advancing our mutual goals, provision of synergistic solutions that add value to the healthcare system and strategically link them with stream of national development.





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### **MoU Signing Ceremony between CUST and National Institute of Health (NIH), Islamabad**

A delegation from Capital University of Science & Technology, Islamabad on Friday, 15<sup>th</sup> September, 2023 visited National Institute of Health (NIH), Islamabad to sign an MOU. The delegation had a productive discussion on industry academia linkages to formalize collaboration between CUST and NIH and to make it durable and sustainable.

Both parties have shown keen interest to collaborate in the areas of mutual interest and to facilitate each other in Students Internships, R&D Projects, Labs and Testing Facilities, Vaccination Development and Advances in Diagnostic Techniques. It was also highlighted that both parties will collaborate and discover the opportunities for the Commercialization of Technology with a greater sense of commitment and responsiveness. In the concluding remarks both parties expressed that the signing ceremony is a valuable step in advancing our mutual goals, provision of synergistic solutions that add value to the healthcare system in Pakistan and its readiness to respond health challenges.





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### CUST Faculty Research Group 5P's Data

Sr. No.	Research Group	Group Head	Journal Publications	R&D Projects	Prototypes /products	PhDs Produced	Patents Filed/Granted
<b>Faculty of Engineering (FoE)</b>							
1	Research Group of Microelectronics & RF Engineering	Prof. Dr. M. Mansoor Ahmed	80	-	-	14	-
2	Vision and Pattern Recognition Group (VisPR)	Prof. Dr. Imtiaz Ahmad Taj	47	07	-	08+01(Co-supervised)	-
3	Acme Center for Research in Wireless Communications (ARWiC)	Prof. Dr. Noor M. Khan	45	-	-	11	-
5	Thermofluids	Dr. M. Mahabat Khan	35	02	0)	02	
8	Water and Environment Research Group (WE R)	Dr. Ishtiaq Hassan	26	-	-	02	
9	Structural Materials Research Group (SMaRG)	Engr. Prof. Majid Ali	46	02	02	7 (02 Co Supervision + 03 In-Progress)	



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Faculty of Computing (FoC)							
1	Center for Research in Data Science, Semantics & Scientometrics (CRDS <sup>3</sup> )	Prof. Dr. Abdul M. Qadir	52	02	-	08	01
2	Data Management and Analytics (DMA)	Prof. Dr. Nayyer Masood	22	01	-	04	-
3	Center for Software Dependability (CSD)	Prof. Dr. Aamer Nadeem	32	04	02	05	-
4	Center of Research in Network & Telecom (CoReNet)	Prof. Dr. Amir Qayyum	27	17+1	04	07	-
Faculty of Health & Life Sciences (FHLS)							
1	Integrative BioSciences Research Group	Prof. Sahar Fazal	42	-	-	03 (02 In-Progress)	-
2	Cancer Cytogenetics	Prof. Shaukat Iqbal Malik	42	01	01	01	-
3	Green Biotechnology	Dr. Erum Dilshad	41	-	-	-	-
4	Genetic and Molecular Epidemiology Research Group (GMER)	Dr. Syeda Marriam Bakhtiar	48	01 (As Co-PI)	-	-	-



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5	Industrial & Environmental Bio Technology Research Group	Dr. Arshia Amin Butt	19	03		02 (In-Progress)	
<b>Faculty of Management &amp; Social Sciences (FMSS)</b>							
1	Financial Markets	Prof. Arshad Hassan	34	-	-	19	-

**Application for the patent of:**

**“A new composite coating material for application on locally available insulation material to improve energy efficiency.”**

## Abstract

In the household and commercial sectors, air conditioning systems require the most energy to offer thermal comfort. Thermal insulation is one efficient method that uses energy to deliver the desired thermal comfort while being ecologically beneficial in solving the issue. The notion of Thermal insulation is achieved through proper insulation installation utilizing energy-efficient materials, which reduces heat loss or gain and hence energy expenses. In the computation of building energy consumption and load, thermal conductivity is currently assumed to be a constant value. However, when building materials are employed, they are subjected to a continually changing environment in terms of temperature and relative humidity. Thermal conductivity of materials will unavoidably alter with temperature and humidity, causing mistakes in predicting energy usage in the building. Improving energy efficiency in buildings is crucial to fulfilling the Paris agreement's 2015 goals since it reduces energy use and, as a result, greenhouse gas emissions without endangering human comfort. Many researchers have become interested in porous materials as a feasible and affordable way to improve building energy efficiency. Coating insulating materials is one of the most effective and economical passive methods for lowering the cooling needs of the buildings. We present the experimental observations on the evaluation of using insulation material with new organic coating and then recommending the best energy-efficient insulation material with coating or without for construction sector.



## **Field of the Invention**

This invention is beneficial for construction sector. As it provides maximum profit to stakeholders in terms of cost. Basically, inventing a new coated insulation material by utilizing existing resources is the goal. Pakistan is going through high inflation crisis and also knowing that real estate business is the most profit generating sector for Pakistan, so there is a dire need to invent something useful for this sector. The invention will also help in achieving Global Sustainable Development Goals.

## **Background of the Invention**

In Pakistan, energy efficiency and conservation have long been overlooked. All government have prioritized increasing generation capacity rather than decreasing energy demand. The main contributors to greenhouse gas emissions are the production of products, raw material processing, and building construction. As outdoor air temperature and humidity change dynamically, the thermal conductivity of all the building materials will inevitably change. The main focus of research is the exterior wall of the building. Because it is the main area exposed to sun and other environmental conditions. The main consumption of energy may be drastically reduced, and the energy efficiency can be increased, with the help of a combined cooling, heating, and power system proposed a technique which tells how much a building is energy efficient by insulation, which is typically utilized in attics, roofing, and wall systems of homes, makes use of one or more low-emissivity reflecting surfaces enclosing air spaces. Research showed that there is very less trend of developing sustainable structures in Pakistan. As mostly stakeholders don't pay much interest to this aspect of construction. Eventually, due to lack of negligence, Pakistan has become a concrete jungle. So, this particular research will basically help the technical and non-technical persons involved in real estate sector to develop most economical sustainable structures which are energy efficient and have positive impact on environment, without disrupting the strength of structure. The greatest time to incorporate sustainable practices into a structure is during the conceptual design phase.

## Brief Description of the Drawings

Figure 1: Insulation materials and new composite coating

- a) Commercially available insulation materials
- b) New composite coating material
- c) New composite coating material applied on commercially available insulation materials

## Detailed Description of Embodiment of the Invention

The sole purpose of current research is to educate technical and non-technical persons involved in construction industry to move towards sustainable construction practices in order to meet Global Sustainable Development Goals. A comparison will be done between locally available insulation material and applying a new coating on material for better insulation. The new innovative is a natural chlorophyll coating and using it on insulation material for testing thermal conductivity of the material. There are already numerous insulation materials available in market but the awareness about its usage in buildings is not done properly. The insulation material chosen are Glass, Plywood and Jumbolon sheet. The synthetic coating chosen is Acrylic and Isothane, other coating is natural which will be prepared physically that is chlorophyll coating, Chl is extracted from local fresh spinach. Green Window concept based on the natural material chlorophyll (Chl) developed by using a straightforward spin-coating technique on glass that exhibits excellent photothermal effect and high visible transparency (Zhao, Dunn et al. 2019). As is well known, about 57% of solar light is invisible, but this “free” energy can now be well utilized by the “Green Window” concept via the photothermal effect of natural materials. Inspired by unique optical properties, natural Chl is found to be an ideal coating for energy-efficient window applications (Zhao, Dunn et al. 2019). Secondly, to make use of insulation materials in every large-scale project a normal and must activity. Lastly after testing the material, we will be able to comprehensively guide the people to use which material is economical and gives better results for thermal conductance. Using insulation material with natural and synthetic coating is never done before this is the highlight of our project. And how these coating will have an impact on the thermal conductivity on the insulation material will be notable. The basic strategy is that to provide best economical and durable insulation materials to the construction industry, and encourage the industry to use it in construction.

## We Claim

1. A composite coating material to be applied on locally available insulated material for enhancing energy efficiency.
2. The prepared coating as claimed in claim 1 is the resultant of "spinach & TiO<sub>2</sub>" as chlorophyll coating and "isothane, acrylic & adhesive materials", where the idea of chlorophyll coating has been taken from literature.
3. The added/new materials in resultant composite as claimed in claim 2 is "isothane, acrylic & adhesive materials" which are responsible for highest energy efficiency.

# Drawings

Insulation materials have a low thermal conductivity and a low surface emissivity. Heat transfer through solid materials, conduction or convection through air in void areas, and radiation exchange across solid matrix surfaces are all examples of heat transmission across any insulating system. As a result, the material's emissivity is also critical. Figure 1 shows that the selected insulation material which has ideal insulation properties are glass, jumbolon roll, Plywood. These materials are applied to exterior walls of the building. As glass does not heat because it has a lattice structure. Jumbolon sheet has strong covalent bonds which restricts the movement of heat. Plywood has strong grain structure that stops heat conduction.

## Insulation materials and new composite coating

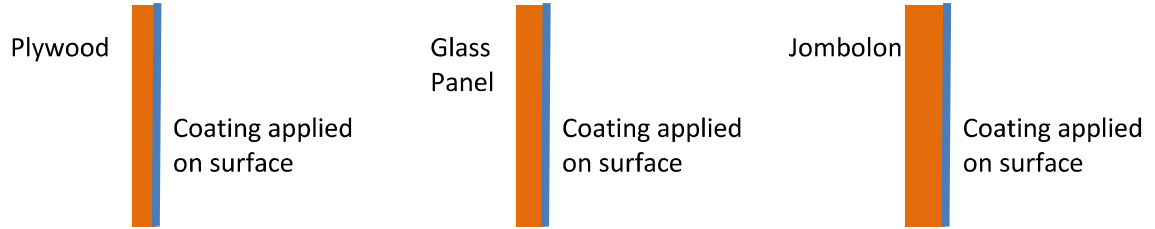


**Figure 1 (a) Commercially available insulation materials**

Spinach & TiO<sub>2</sub>  
+  
Isothane, acrylic, acetone & adhesive material



**Figure 1 (b) New composite coating material**



**Figure 1 (c) New composite coating material applied on commercially available insulation materials**

**Table1: Ingredients of Newly Prepared Coating**

<b>Materials Used in Newly Prepared Coating</b>				
<b>Already used materials</b>		<b>New Addition</b>		
Spinach	TiO <sub>2</sub>	Isothane Coating	Acetone	Acrylic Coating
<ul style="list-style-type: none"> <li>• A leafy green natural vegetable</li> <li>• Spinach consists of fiber</li> </ul>	<ul style="list-style-type: none"> <li>• Titanium and Oxygen</li> <li>• White Powder</li> <li>• Barium Titanate (BaTiO<sub>3</sub>)</li> <li>• Pigment White 6 (PW6)</li> <li>• Carbon, Hydrogen, and Oxygen atoms (C<sub>3</sub>H<sub>6</sub>O)</li> </ul>	<ul style="list-style-type: none"> <li>• Polyol Resins</li> <li>• Polyurethane</li> <li>• Isocyanate Hardeners</li> <li>• Solvents</li> <li>• Additives</li> </ul>	<ul style="list-style-type: none"> <li>• Main ingredient in Acetone is Acetone itself, with the chemical formula CH<sub>3</sub>COCH<sub>3</sub>.</li> <li>• Poly (methyl MethAcrylate) (PMMA)</li> </ul>	<ul style="list-style-type: none"> <li>• 40% water</li> <li>• 35% polymer binder</li> <li>• 25% pigments</li> <li>• Solvents</li> <li>• additives suspended emulsion</li> </ul>

**Table2: Results of tested materials**

<b>Materials</b>	<b>Quality</b>	<b>Thickness (mm)</b>	<b>Thermal Conductivity K<sub>exp</sub> (W/m.K) (Without Coating)</b>	<b>Thermal Conductivity K<sub>exp</sub> (W/m.K) (With Coating)</b>	<b>% diff</b>
Plywood	A	16	0.189	0.159	3.0%
	B	16	0.189	0.168	2.1%
	C	16	0.197	0.180	1.7%
Glass	A	20	1.155	1.076	7.9%
	B	20	1.175	1.109	6.6%
	C	20	1.199	1.174	2.5%
Jumbolon	A	25	0.051	0.045	0.6%
	B	25	0.055	0.053	2.0%

**Link with sustainable development goals:**

SDG 7: Affordable and Clean Energy

Progress in energy efficiency needs to speed up to achieve global climate goals. So, this research plays an important role to meet the criteria of SDG.

## Reference

- Nardi, I., E. Lucchi, T. de Rubeis and D. Ambrosini (2018). "Quantification of heat energy losses through the building envelope: A state-of-the-art analysis with critical and comprehensive review on infrared thermography." Building and Environment **146**: 190-205.
- Zhao, Y., A. W. Dunn and D. Shi (2019). "Effective reduction of building heat loss without insulation materials via the photothermal effect of a chlorophyll thin film coated "Green Window"." MRS Communications **9**(2): 675-681.

# Tech Flickers (pvt.) Ltd

[Website](#)

[LinkedIn](#)

[Behance](#)

[Instagram](#)

## About us

Tech Flickers is a software company that helps passionate people and businesses make an impact by providing them different quality services. Our main goal is to help you achieve your goals and to provide services that result in the greater benefit of your business. Bring your idea. Let us create it.

## Services

Our services include WordPress Designing, Web Development, Digital Marketing, Graphic Designing, SEO Services and Video Editing.

- **WordPress Designing**

We design business, ecommerce or any website using WordPress CMS with speed optimization and SEO.

- **Web Development**

We build business & fully custom websites that serve your business goals & give your user a slick experience.

- **Digital Marketing**

We work with solid research, and content planning together to lay the groundwork for your online presence.

- **Graphic Designing**

Design is POWER; it increases engagement. We design user-centric designs to convey your message

- **SEO (Website Ranking)**

Businesses lose giant revenue without SEO. Our extensive SEO expertise will rank your site at top of search results



- **Video Editing**

Video is the best source to convey your message & we can create, edit & transform videos

## Members

Currently we have an experienced team of **10 members**. That are also working on modern technology stacks & techniques to deliver future oriented solutions. We always upgrade ourself to meet industry & international standards.

## Products

Few of our Management systems include

- POS
- Restaurant
- School
- Hospital
- Ticket Booking
- CRM & Sale System

## Clients

Some of our prestigious clients are



## **CUST Incubation Center COHORT-II**

The purpose of this proposal is to outline the program's viability and potential, as well as provide detailed information about the idea and company selection criteria, and the steps involved in the application process.

### **1. Introduction**

The CUST Incubation Center's COHORT-II program aims to provide young entrepreneurs with the necessary resources and support to nurture their ideas and transform them into successful businesses. The program offers a platform where innovative startups and entrepreneurs can receive guidance, mentorship, and access to a vibrant community, enabling them to accelerate their growth and maximize their potential.

### **2. Idea and Company Selection Criteria**

The success of the COHORT-II program depends on the selection of promising ideas and companies. A comprehensive set of selection criteria is essential to ensure the evaluation process is thorough and objective. The proposed criteria are as follows:

#### **a. Innovation and Market Potential (Weight: 40%)**

- **Uniqueness:** Assessing the innovative and original nature of the idea.
- **Market Need:** Determining if the idea addresses a significant problem or fulfills an unmet need in the market.
- **Market Size:** Evaluating the potential market size and growth opportunity.
- **Competitive Advantage:** Assessing if the idea offers a competitive advantage over existing solutions or competitors.
- **Scalability:** Determining the potential for the idea to scale and expand in the future.

#### **b. Feasibility and Viability (Weight: 30%)**

- **Technical Feasibility:** Evaluating the technical feasibility of the idea and identifying any major technical challenges.
- **Economic Viability:** Assessing the business model's revenue generation plan and profit potential.
- **Financial Projections:** Evaluating the realism of the financial projections and the soundness of the underlying assumptions.
- **Resource Requirements:** Identifying the resources (financial, human, technological) required to implement the idea.
- **Sustainability:** Assessing if the business model demonstrates long-term sustainability and growth potential.

#### **c. Team Capabilities (Weight: 15%)**

- **Entrepreneurial Skills:** Assessing the team's possession of necessary entrepreneurial skills and mindset.
- **Expertise:** Evaluating the team's relevant domain knowledge and expertise related to the idea.
- **Track Record:** Reviewing the past track record and achievements of the team members.

- Team Dynamics: Evaluating how well the team works together and complements each other's skills.
- Commitment: Assessing the team's level of commitment to pursuing the idea and taking it forward.

#### d. Alignment with CUST's Focus Areas (Weight: 15%)

- Research Collaboration: Evaluating the potential for collaboration with CUST's research and development efforts.
- Industry Relevance: Assessing if the idea aligns with the focus areas and trends in relevant industries.
- Social Impact: Determining if the idea has a positive impact on society, community, or the environment.
- Intellectual Property Potential: Evaluating if the idea has potential for intellectual property creation or commercialization.
- Potential for University Support: Assessing the likelihood of CUST providing additional support, resources, or partnerships to the idea.

### 3. Steps in the Application Process

The application process for the COHORT-II program consists of several stages designed to identify the most promising ideas and companies. The steps involved are as follows:

#### a. Call for Applications

ORIC will announce the opening of applications for COHORT-II through various channels, including university websites, social media platforms, and industry networks.

#### b. Application Submission

Interested entrepreneurs or teams will be required to complete a comprehensive application form, providing details about their idea, business model, market analysis, team composition, and potential impact.

#### c. Initial Evaluation

The submitted applications will undergo a review by a panel of experts at the faculty level. The panel will assess the applications based on the selection criteria mentioned earlier and shortlist the most promising ideas. Subsequently, the Dean of the faculty will forward a minimum of two shortlisted proposals to the Office of Research, Innovation, and Commercialization (ORIC).

#### d. Pitching Session

Shortlisted applicants will be invited to a pitching session where they will present their ideas to a committee comprising faculty and industry experts. This session will provide an opportunity for the applicants to showcase their innovation, market potential, and team capabilities.

#### e. Selection of Cohort Members

Based on the pitches and evaluations, the panel of judges will select the final cohort members who will be offered the benefits of the program, including a monthly stipend, office space, and mentorship.

#### f. Incubation Period

The selected cohort members will enter into the incubation period, during the first four months they will receive mentoring, guidance, and support from industry experts, business advisors, and faculty members, and in the next six months, the idea will be transformed into a product.

#### g. Monitoring and Evaluation

Throughout the incubation period, regular monitoring and evaluation will be conducted to track the progress of the cohort members. This will help identify any challenges they face and provide appropriate assistance.

#### h. Graduation and Transition

At the end of the incubation period, the cohort members will have the opportunity to showcase their progress and achievements. They may graduate from the program and transition to the next phase of their business, securing funding, partnerships, or additional support.

### 4. Conclusion

The COHORT-II program offered by the CUST Incubation Center provides a valuable platform for young entrepreneurs to nurture their ideas and transform them into viable businesses. By adhering to the selection criteria and following the outlined steps in the application process, the program aims to identify and support promising ventures. The availability of a monthly stipend, office space, and mentorship further enhances the prospects for the selected cohort members to succeed in their entrepreneurial journey.

### Expenditure Report NGIRI 2022-23

**Institution:** Capital University of Science and Technology

**Campus:** Main

**Focal Person:** Dr. Imtiaz Ahmad Taj

Particulars						Actual Expense(PKR)		
#	FYP Code	FYP Title	Department	Semester	Supervisor Name	Equipment Amount	Misc. Amount	Total Amount
1	NGIRI-2023-16850	'Design and Development of Polythene Bag Recycling Setup to Overcome Environmental Pollution '	Mechanical Engineering	7	Doctor Salman Sagheer Warsi	112,000	0	112,000
2	NGIRI-2023-16887	'Designing and prototype of cross flow turbine for low/zero head turbine '	Mechanical Engineering	8	Dr Ghulam Asghar	72,000	10,561	82,561
3	NGIRI-2023-16980	'Shell Eco Marathon Urban Concept Chassis Optimization'	Mechanical Engineering	8	Dr Javed Haider	85,395	0	85,395
4	NGIRI-2023-17056	'DESIGN AND DEVELOPMENT OF CONTINUOUS PASSIVE MOTION MACHINE FOR POST KNEE SURGERY REHABILITATION'	Mechanical Engineering	8	Shummaila Rasheed	132,860	20,000	152,860
5	NGIRI-2023-17439	'Design of an Automatic Seed Injecting and Plant Watering System'	Electrical Engineering	7	Engr.M.Waleed Farooq	104,180	0	104,180

**TOTAL 617,996**

Particulars						Actual Expense(PKR)		
FYP #	FYP Code	FYP Title	Department	Semester	Supervisor Name	Equipment Amount	Misc. Amount	Total Amount
6	NGIRI-2023-18292	'iot based multi purpose advertisement for digital bill boards'	Computer Science	8	Mr Bilal Ahmad	81,000	0	81,000
<b>TOTAL</b>							<b>617,996</b>	

Please tick mark the items attached according to below check list:

**It is certified that:**



Funds claimed under the Program "NGIRI 2022-23" have been utilized as per its "Terms & Conditions" & applicants of above mentioned FYPs have not availed NGIRI funding before.



Dates of all claimed Receipts, Invoices and Bills are within 1-Jul-2022 to 30-Jun-2023.



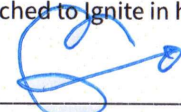
All equipment is in the custody of institute.

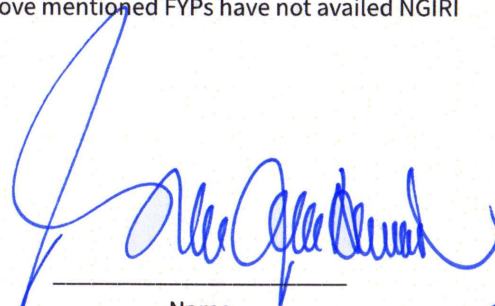


1 Verified copy of expenditure report is uploaded on the portal and dispatched to Ignite in hardform.

**Signed and Verified by:**

  
 Name  
**Focal Person**  
**Prof. Dr. Imtiaz Ahmad Taj**  
 Dean  
 Faculty of Engineering  
 Capital University of Science & Technology  
 Islamabad

  
 Name  
**CFO/Financial Controller/Director Finance**  
**Wasim Nasir**  
**Treasurer**  
**Capital University of Science and Technology, Islamabad**

  
 Name  
**Head of Institution**  
**Dr. Muhammad Mansoor**  
**Vice Chancellor**  
**Capital University of Science and Technology, Islamabad**  
 17/8/23



Ministry of Information Technology & Telecom  
Government of Pakistan

**Ignite**  
NATIONAL TECHNOLOGY FUND

Ignite/NGIRI/2022-23/16

Date: 25<sup>th</sup> July, 2023

Chancellor/Vice Chancellor/Rector/President  
Capital University of Science and Technology  
Kahuta Road Zone-V Sihala,  
Islamabad

Sub: **NGIRI 2022-23: "Submission of Expenditure Reports against shortlisted Final Year Projects (FYPs) for Reimbursement"**

Dear Sir/Madam,

Thank you for participating in National Grassroots ICT Research Initiative (NGIRI) 2022-23. We are please to inform you that "6" FYP applications (Annex-I) of your institute have been shortlisted for consideration in this year program 2022-23. In order to proceed and comply with Ignite requirements to get these projects approved and get funded, following actions are requested to be completed at your end, latest by 21<sup>st</sup> August 2023", please:

1. Designated focal person must ensure complete details of each shortlisted FYPs in the expenditure report at NGIRI portal and upload scanned (signed) expenditure report (Annex-II) on NGIRI portal (<https://ignite.org.pk/ngiri/backend.php>).
2. The Expenditure Report(s) must be duly signed by the Focal Person, Head of Finance/Accounts and Head of the Institution. Dispatch the signed hardcopy of the expenditure report in original at Monitoring Department, Ignite-National Technology Fund, TF Complex, 7-Mauve Area G-9/4 Islamabad.
3. Please note that all expenditures of shortlisted FYPs must fall between 1-Jul-2022 to 30-Jun-2023, as communicated earlier. The focal person must ensure:
  - a. Compliance of terms & conditions regarding verification of aforesaid timeline on supporting documents (i.e., bills, invoices and receipts etc.) and equipment
  - b. All supporting documents must be kept in record as they will be monitored onsite and should be produced as and when required by Ignite

Please note that this is the provisional list of shortlisted FYPs of your institute and cannot be considered as approved. Approval of FYPs is subject to final rankings of FYPs and available budget as Ignite will only be funding top 1100 FYPs for this year based upon scrutiny and acceptance of the verified expenditure reports.

Ignite reserves the right to make partial payments, cancel or terminate the funding of approved FYP at any stage of the program without providing any reason. Detailed mandatory requirements regarding the submission of expenditure report are enclosed (Annex-III).

Looking forward for timely submission of expenditure reports.

Regards,

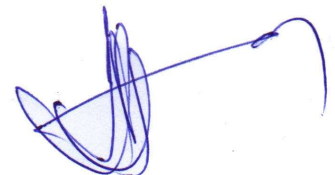
Abdullah Khan

Abdullah Khan  
Manager Monitoring Technical

Copy for information to:

1. Focal Person of Campus Concerned
2. GM Monitoring, Ignite

Copy to  
Dr Mahabul  
Dr Noor  
Dr Abdul Basit



National Grassroot ICT Research Initiative (NGIRI) 2022-23				
Provisional List of FYPs - Shortlisted for Funding				
(Note: All disbursements will be made only after verified expenditure reports submitted by focal persons)				
FYP Code	FYP Title	University	Campus	Department
NGIRI-2023-16850	'Design and Development of Polythene Bag Recycling Setup to Overcome Environmental Pollution '	Capital University of Science and Technology	Main	Mechanical Engineering
NGIRI-2023-16887	'Designing and prototype of cross flow turbine for low/zero head turbine '	Capital University of Science and Technology	Main	Mechanical Engineering
NGIRI-2023-16980	'Shell Eco Marathon Urban Concept Chassis Optimization'	Capital University of Science and Technology	Main	Mechanical Engineering
NGIRI-2023-17056	'DESIGN AND DEVELOPMENT OF CONTINUOUS PASSIVE MOTION MACHINE FOR POST KNEE SURGERY REHABILITATION'	Capital University of Science and Technology	Main	Mechanical Engineering
NGIRI-2023-17439	'Design of an Automatic Seed Injecting and Plant Watering System'	Capital University of Science and Technology	Main	Electrical Engineering
NGIRI-2023-18292	'Iot based multi purpose advertisement for digital bill boards'	Capital University of Science and Technology	Main	Computer Science

Total FYPs Shortlisted	6
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No.23/CUST/ORIC/2023

August 29, 2023

### Crash Course on Earthquake Resistant Design of Buildings

Office of Research, Innovation and Commercialization (ORIC) in collaboration with Engr. Prof. Dr. Majid Ali (Civil Engineering Department) organized “One Week Crash Course on Earthquake Resistant Design of Buildings” on 21<sup>st</sup> -25<sup>th</sup> August, 2023 in Instructions Lab-7, H-Block. The purpose of the workshop was to equip participants with the hands-on knowledge about design of earthquake resistant buildings with practical illustrations.

Earthquake resistant design consists of fabrication of a building or structure that is able to withstand the sudden ground shaking, thereby minimizing structural damage and human/building loss at a particular site in order to provide a structural system that will not collapse, and will limit human/economic loss during an earthquake. The course encompassed twenty sessions and utilized some of the current software like ETABs and SAFE. The course mainly focused: “Design Philosophy of Buildings, Hands-on Training on Software and Construction Challenges” in detail.



The workshop was conducted by Engr. Prof. Dr. Majid Ali (CE, Department, CUST). The resource person has around 20 years of rich teaching, research and professional industry experience. The participants included Civil Engineering students and professionals from renowned construction industries of Rawalpindi/Islamabad, Abbottabad, Multan and Jhelum. In concluding ceremony certificates were distributed among successful candidates. The response of participants was quite promising and the course proved to be a great source of explicit knowledge to the participants.

**Prepared by:**

Muhammad Raheel Anjum  
Manager (RM, ORIC)

**Endorsed by:**

Dr. M. Kamran Naqi Khan  
Director ORIC



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No.23/CUST/ORIC/2023

July 17, 2023

### Two Days Hand-on Workshop on Latex

Office of Research, Innovation and Commercialization (ORIC) organized “Two-Days Workshop on Latex” on 16<sup>th</sup> July, 2023 in Instructions Lab-2, M-Block. The purpose of the workshop was to equip participants with the most updated knowledge about creation of technical documents using Latex with practical illustrations.

Latex is a typesetting system suitable for producing scientific and mathematical documents which enable authors to typeset and print their work at the highest typographical quality. It is most often used for medium-to-large technical or scientific documents and can be used for almost any form of publishing. Some of the key topics covered in the workshop were:

1. Latex Overview and Installation
2. Document Write-up
3. Mathematics Operations
4. Figures and Tables
5. Table of Contents
6. Bibliography
7. Beamers (Presentations) etc.



The workshop was conducted by Dr. Sohail Rizwan from Fatima Jinnah Women University (FJWU), Rawalpindi. A total of 20 participants including students from Biosciences/Bioinformatics/Microbiology Departments attended the workshop. The response of participants was quite promising and workshop proved to be a great source of hands-on knowledge to the participants

**Prepared by:**

Muhammad Raheel Anjum  
Assistant Director ORIC

**Approved by:**

Prof. Aamer Iqbal Bhatti  
Dean Research & Innovation



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No.23/CUST/ORIC/2023

June 08, 2023

### **3 Days Professional Training on SAP Modules**

CUST-ORIC in collaboration with TMC - TallyMarks Consulting Private Limited has arranged 03 days professional training on following SAP Modules:

1. Material Management, Sales and Distribution
2. Financial Accounting
3. Human Capital Management.

TMC Pvt. Ltd. (Formerly known as TallyMarks Consulting Private Limited) has been one of the pioneers of Business Intelligence in Pakistan and has become one of the largest System Integrator companies in the region. The company offers a comprehensive range of digital transformation solutions to help organizations leverage the power of data and technology to drive growth and competitiveness. TMC build its strategic partnerships with global technology leaders SAP and Qlik.

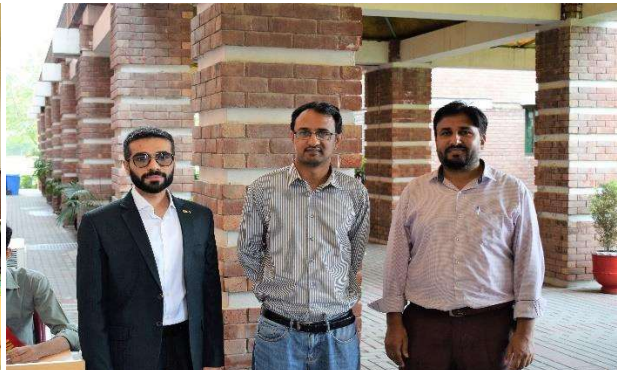


The training was conducted from May 30 -June 01, 2023 at Auditorium A1, B Block, CUST. A total of 165 participants attended the SAP training in which 155 participants were from corporate sector. Six resource persons from TMC delivered the hands-on training on three major SAP modules.



All three training sessions were filled with valuable insights and learning that will help corporate users in their professional journey to keep on excellent and put newly acquired knowledge to use. The training provided comprehensive understanding of the functionalities and capabilities of the SAP software suite.

The event has provided fair amount of opportunity to CUST-ORIC to discuss and develop corporate linkages with the participants. TMC expressed gratitude to Capital University of Science & Technology, Islamabad for their support and hospitality. All the participants will be provided Professional Training certificate on SAP from TMC.





**CUST Conferences**

**1. Department of Biosciences**

<b>S. No.</b>	<b>Conference Title</b>	<b>Date</b>
1.	1 <sup>st</sup> Conference on Biological and Computational Sciences (C-BICS 2013)	May 25, 2013
2.	2 <sup>nd</sup> Conference on Biological and Computational Sciences (C-BICS 2014)	June 07, 2014
3.	3 <sup>rd</sup> Conference on Biological and Computational Sciences (C-BICS 2015)	October 3, 2015
4.	4 <sup>th</sup> Conference on Biological and Computational Sciences (C-BICS 2016)	December 17, 2016
5.	5 <sup>th</sup> Conference on Biological and Computational Sciences (C-BICS 2017)	December 14, 2017
6.	6 <sup>th</sup> Conference on Biological and Computational Sciences (C-BICS 2018)	December 13, 2018
7.	7 <sup>th</sup> Conference on Biological and Computational Sciences (C-BICS 2019)	November 28, 2019
8.	8 <sup>th</sup> Conference on Biological and Computational Sciences (C-BICS 2020)	November 28, 2020
9.	9 <sup>th</sup> Conference on Biological and Computational Sciences (C-BICS 2021)	November 25, 2021
10.	10 <sup>th</sup> Conference on Biological and Computational Sciences (C-BICS 2022)	November 12, 2022
11.	11 <sup>th</sup> Conference on Biological and Computational Sciences (C-BICS 2023)	October 28, 2023

**2. Department of Civil Engineering**

<b>S. No.</b>	<b>Conference Title</b>	<b>Date</b>
1.	1 <sup>st</sup> Conference on Sustainability in Civil Engineering (CSCE'19)	August 01, 2019
2.	2 <sup>nd</sup> Conference on Sustainability in Civil Engineering (CSCE'20)	August 12, 2020
3.	3 <sup>rd</sup> Conference on Sustainability in Civil Engineering (CSCE'21)	August 11, 2021



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4.	4 <sup>th</sup> Conference on Sustainability in Civil Engineering (CSCE'22)	August 31, 2022
5.	05 <sup>th</sup> Conference on Sustainability in Civil Engineering (CSCE-23)	August 03, 2023

### 3. Department of Electrical Engineering & Department of Computer Science

S. No.	Conference Title	Date
1.	2006 IEEE International Multitopic Conference (INMIC 06)	December 23-24, 2006
2.	2009 IEEE International Multitopic Conference (INMIC 09)	December 14-15, 2009
3.	IEEE International Conference on Emerging Technologies (ICET-12)	October 08-09, 2012
4.	IEEE International Conference on Emerging Technologies (ICET-13)	December 09-10, 2013
5.	IEEE International Conference on Emerging Technologies (ICET-17)	December 27-28, 2017
6.	IEEE International Conference on Emerging Technologies (ICET-21)	December 22-23, 2021

### 4. Department of Management Sciences

S. No.	Conference Title	Date
1.	1 <sup>st</sup> Intern. Conf. on Emerging Trends in Management	August 10, 2012
2.	2 <sup>nd</sup> Intern. Conf. on Emerging Trends in Management	June 06, 2013
3.	3 <sup>rd</sup> Intern. Conf. on Emerging Trends in Management	October 16, 2014
4.	4 <sup>th</sup> Intern. Conf. on Emerging Trends in Management	November 05, 2015
5.	5 <sup>th</sup> CUST International Business Research Conference (CIBRC-16)	November 10, 2016
6.	6 <sup>th</sup> CUST International Business Research Conference (CIBRC-17)	October 19-20, 2017
7.	7 <sup>th</sup> CUST International Business Research Conference (CIBRC-18)	December 20, 2018



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8.	8 <sup>th</sup> CUST International Business Research Conference (CIBRC-19)	December 19, 2019
9.	9 <sup>th</sup> CUST International Business Research Conference (CIBRC-21)	December 30, 2021
10.	PEP National Policy Conference on “Fiscal Policy Response to COVID-19: Case of Pakistan”	March 28, 2022
11.	10 <sup>th</sup> CUST International Business Research Conference (CIBRC-2023)	March 09, 2023

### 5. Department of Mechanical Engineering

S. No.	Conference Title	Date
1.	1 <sup>st</sup> International Conference on Advances in Mechanical Engineering 2021 (ICAME-21)	August 25, 2021
2.	2 <sup>nd</sup> International Conference on Advances in Mechanical Engineering 2022 (ICAME-22)	August 25, 2022
3.	3 <sup>rd</sup> International Conference on Advances in Mechanical Engineering 2023 (ICAME-23)	August 24, 2023

### 6. Department of Mathematics

S. No.	Conference Title	Date
7.	2 <sup>nd</sup> CUST Conference on Mathematics (CCoM-23)	January 14, 2023

### 7. Department of Pharmacy

S. No.	Conference Title	Date
1.	International Conference on Emerging Trends in Pharmaceutical Sciences	March 11, 2023



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No.23/CUST/ORIC/2023

June 05, 2023

### Visit Report of Secours Islamique France (SIF) to CUST

A delegation from Secours Islamique France (SIF) led by Dr. Altaf Abro (Head of Mission SIF), visited Capital University of Science & Technology, Islamabad on Friday, 26<sup>th</sup> May, 2023 at 09:00 AM. The meeting team from CUST included the following members.

Dr. Sahar Fazal	Dean FHLS
Dr. M. Kamran Naqi Khan	Director ORIC
Dr. Amir Qayyum	Director ELIC
Dr. Sabahat Haqqani	HoD Psychology
Mr. Jahanzeb Sarwar	Manager (I&C), ORIC
Mr. M. Raheel Anjum	Manager (RM), ORIC

Secours Islamique France (SIF) is a non-governmental organization (NGO) of international solidarity with a social and humanitarian vocation acting in the fields of humanitarian assistance and development aid, in France and around the world.



The meeting started with the brief introduction of CUST and its faculty team about their educational profiles and research expertise presented by Director ELIC, Prof. Amir Qayyum. This was followed by the corresponding introduction by Dr. Altaf Abro about SIF. He apprised CUST team about SIF major working domains like Water, Hygiene and Sanitation; Education and Child Protection, Orphan Sponsorship; Shelter and Rehabilitation; Food Security; Sustainable Reintegration; Advocacy actions with Decision-makers/Institutions etc.





After the brief introduction, the forum was opened for formal discussion. A number of key points/potential working areas were conversed in detail like:

1. Students Sponsorships/Internships
2. Psychology Students Placements
3. Human Resource Development
4. MS/PhD Projects

Both parties took keen interest to collaborate in the areas of mutual interest as highlighted above. The SIF Officials invited CUST faculty members and ORIC Team to visit SIF and present their research expertise, success stories and areas of mutual interest to explore collaboration prospects. The session lasted till 10:00 AM. The guests in the end were acknowledged for their valuable time and interactive session.



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### Participation of ORIC in Dialogue on RCCI SDGs

Rawalpindi Chamber of Commerce & Industry (RCCI) in collaboration with United Nations Country Team (UNCT) organized Sustainable Development Goals (SDGs) Dialogue on 31<sup>st</sup> August, 2023 with the aim to engage and empower Pakistani local leaders in meaningful discussions on the Sustainable Development Goals, fostering a collective effort towards achieving a more sustainable and equitable future. The event was attended by Commissioner Liaquat Ali Chatha, RCCI President Saqib Rafiq, Senior Vice President Hamza Saroosh, Vice President Faisal Shahzad, former President Zahid Latif Khan, and members of the Chamber and people from civil society and others. A team from CUST led by Mr. Jahanzeb Sarwar Malik, Manager (I&C) ORIC also actively participated in the event.

Speaking on a session on promoting sustainable development, the commissioner said that global dialogue helps facilitate the exchange of ideas and experiences among stakeholders and RCCI is playing its role for the goals of sustainable development. These include support in policy making, capacity building and networking. “Pakistan is a developing country which is currently facing many challenges. Among these challenges are eradication of poverty, equal rights, elimination of diseases and equal opportunities of public education for which every person must strive according to his potential”.



On this occasion, the United Nations Coordinator in Pakistan, Julien Harness while speaking on the Sustainable Development Goals 2030, said that the number of global goals is 17, which aims to help bring peace and prosperity to the people of the world. It also aims to develop strategies that improve health and education, reduce inequality and promote economic growth.



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### **ORIC Activities Summary (Sep 2017- June 2023)**

#### **SCOPE AND PURPOSE**

The Office of Research, Innovation and Commercialization (ORIC) 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 mission of ORIC at CUST is to motivate university researchers to innovate and collaborate with the stake-holders leading to resource generation through commercialization. Based on this objective ORIC started its operations in three major domains including:

- A. Research Operations
- B. Technology Incubation and Innovation
- C. Industrial Liaisons

This document provides progress summary of ORIC showcasing its achievement and highlighting the areas which needs developments

#### **Research Operations**

ORIC has always endeavored to establish research culture at the university and to acme the achievements of CUST faculty and researchers. 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.



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### Industrial Liaisons

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 started a culture of proposal writing at the university, and in a very short time large numbers of proposals have already been submitted and won at various funding organization. ORIC plays a central role in facilitating university's research outcomes and Technology Incubation & Innovation activities.

### Working Domains of ORIC

S.#	Working Domain	Description	KPI fulfilled
<b>Research Operations</b>			
1.	Signing and Maintaining MoU Details	A total of <b>40</b> MoUs have been signed with academic and Industrial Organization. ORIC also maintains list of all R&D MoUs signed by the university.	<ul style="list-style-type: none"> <li>i. Agreements signed for collaboration with industry, government</li> <li>ii. Research links established with other universities, industry, government, or NGOs</li> </ul>
2.	Maintaining and updating CUST R&D Project Details	Total number of projects by CUST faculty = <b>39</b>	<ul style="list-style-type: none"> <li>i. Joint research projects submitted, approved, and completed</li> <li>ii. Contract research awarded by industry or government organizations</li> <li>iii. Annual research revenue generated</li> </ul>
3.	Maintaining and Updating CUST Journal and Conference Publications (Bi-monthly)	<ul style="list-style-type: none"> <li>i. CUST Journal Publications Total= <b>1313</b></li> <li>ii. CUST Journal Publications 2022-Till Date =<b>210</b></li> <li>iii. CUST Conference Publications Total = <b>556</b></li> <li>iv. CUST Conference Publications 2022-Till Date =<b>23</b></li> </ul>	Centralized Research Database for Research Management & Operations



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4.	Preparing CUST Research Group Posters	Total Number of research group posters compiled and displayed = <b>19</b>	Centralized Research Database for Research Management & Operations
5.	ORIC Research Meetings Every 01 or 02 Months	Total Number of ORIC Research Meetings held = <b>20</b>	Miscellaneous
6.	ORIC Newsletter	Newsletter for <b>Spring-19, Fall-19, Spring-20, Fall-20, Spring-21, Fall-21, Spring-22</b>	Community Awareness/ ORIC Projection
7.	CUST Annual Research Book and Annual Report Once a Year	<ul style="list-style-type: none"> <li>i. CUST Annual Research Book 2017</li> <li>ii. CUST Annual Report 2018-19</li> <li>iii. CUST Annual Report 2019-20</li> <li>iv. ORIC Activities Book Fall 2018</li> <li>v. ORIC Activities Book Spring 2019</li> <li>vi. ORIC Activities Book Fall 2019</li> <li>vii. ORIC Activities Book Spring 2020</li> <li>viii. ORIC Activities Book Fall 2020</li> <li>ix. ORIC Activities Book Spring 2021</li> <li>x. ORIC Activities Book Fall 2021</li> <li>xi. ORIC Activities Book Spring 2022</li> <li>xii. ORIC Activities Book Fall 2022</li> </ul>	Community Awareness/ ORIC Projection/ORIC Score Card
8.	FYP Awards	Funding Awarded <b>23</b> FYPs after systematic scrutiny	Science/Art Products/Exhibition/Business Plan Competition



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9.	PhD Posters	A total of <b>120</b> PhD posters have been reviewed and displayed at CUST	Centralized Research Database for Research Management & Operations
10.	ORIC Website Update	All activities of ORIC are reflected on ORIC Webpage	ORIC Website, social media presence
<b>Technology Innovation and Incubation</b>			
1.	Conducting Workshops at Regular Intervals	Number of Workshops Conducted = 47 Total Amount generated as CUST Share = <b>PKR 206,096,722</b> /-	i. Training/Workshops/Seminars/Conferences Arranged by ORIC on Research, Innovation & Commercialization ii. Yearly revenue earned
2.	Organizing Seminars on Technology and Research Related Topics	Number of Seminars Conducted = <b>24</b>	Trainings / Workshops / Seminars / Conferences Arranged by ORIC on Research, Innovation, & Commercialization
3.	Collaborative and Brainstorming Sessions with CUST Faculty and Academic Organizations	Number of Sessions Conducted = <b>19 Plus Regular Meetings on continual basis</b>	Exhibitions / Showcasing Events / Industry Linkages Fair / Seminars / Industry or IP & Licensing Stimulus Arranged by ORIC
4.	BIM Center of Excellence	Inaugurated BIM Center of Excellence in Collaboration with CE Dept Workshops Conducted at BIM Center = <b>11</b>	Trainings / Workshops / Seminars / Conferences Arranged by ORIC on Research, Innovation, & Commercialization
5.	Incubation of Companies	" <b>Texflicker</b> " is the first ever SECP registered company incubated by ORIC at CUST	Business Incubation Center



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6.	Commercialization	<ul style="list-style-type: none"> <li>i. “Flextracker” commercialization in progress, it is targeted to be implemented on CUST Buses</li> <li>ii. Establishment of In Vitro Cultures of Potato, banana and ornamental plants, Initiated in Tissue Culture Lab</li> <li>iii. CUST Incubation Lab</li> </ul>	Research products / process / prototype gone into prefeasibility / industrial scale testing or prototype development
<b>Industrial Liaisons</b>			
1.	Proposal Writing	<ul style="list-style-type: none"> <li>i. Confidence level of the faculty members heightened by ORIC for submission of proposal to various funding organizations</li> <li>ii. Total number of proposals submitted by CUST=41</li> </ul>	Research proposals submitted, approved, and completed
2.	Industrial Liaisons and Industrial Visits	<ul style="list-style-type: none"> <li>i. Conducted and Steered <b>53</b> Industrial Liaison Meetings and Visits</li> <li>ii. Initiated certificate courses for Industrialists and Professionals, Profit from these courses=<b>PKR 1.76 Million</b></li> </ul>	<ul style="list-style-type: none"> <li>i. Visits by representatives of industry or community members regarding potential research subjects</li> <li>ii. Yearly revenue earned from licensing, royalties, policy advocacy, or other academic activities</li> </ul>



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3.	Policies	<ul style="list-style-type: none"> <li>i. Policy for Consultancy and External Professional Work. The <b>Policy is Approved</b> from 14<sup>th</sup> Meeting of Executive Committee (SENATE) Ref: CUST-Reg(06)/EC-2019 dated Oct 16, 2019</li> <li>ii. First consultancy provided successfully by CE Department with an amount of <b>PKR 94,500</b> to M/S Jaspal Construction</li> <li>iii. ORIC Policy (Research, Training, Incubation)</li> <li>iv. ORIC Certificate Courses Policy</li> </ul>	<ul style="list-style-type: none"> <li>i. Research Policy of the HEI</li> <li>ii. Intellectual Property Rights Policy of the HEI</li> <li>iii. Research Ethics Policy / Technology Transfer Policy / Research Conflict of Interest Policy / etc.</li> <li>iv. Number of Policy Briefs</li> </ul>
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