



ORIC Activities Report

Spring-2022

Dated: 10th October, 2022

Prepared by:

Office of Research, Innovation and Commercialization (ORIC)

Capital University of Science & Technology, (CUST)

Islamabad

Abstract

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-2022 showcases progress of ORIC in Spring-2022. The report presents accomplishments and contributions of ORIC in accordance with its defined domains.



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No./CUST/ORIC/2022

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ORIC Activities Report Spring-2022

To make research a top priority for a sustainable economic growth and future knowledge economy at Higher Education Institutions (HEIs), HEC aimed to establish pivotal centers at universities. These centers are known as Offices of Research, Innovation and Commercialization (ORIC). At Capital University of Science and Technology (CUST), Office of Research, Innovation and Commercialization started its working in September 2017 under the patronage of Prof. Dr. Muhammad Mansoor Ahmed, Vice Chancellor, CUST.

Mission statement for ORIC at CUST as approved from BASR is entitled as ***“To motivate and facilitate the university researchers to innovate and collaborate with the stake-holders leading to resource generation through commercialization”***. Based on this mission ORIC operations have been divided into three major domains including:

- a) Research Operations (RO)
- b) Technology Incubation and Innovation (TII)
- c) Industrial Liaison (IL)

Brief Overview-Major Activities of ORIC in Spring-2022

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. The brief overview of activities performed by ORIC in Spring-2022 is given below.

Research Operations

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 research grants from various funding agencies.

A. Meetings and Interactive Sessions

i. Nineteenth (19th) ORIC Research Committee Meeting

The 19th ORIC Research Committee Meeting chaired by Dean Research & Innovation was held on 10th March, 2022. The meeting was held on single point agenda “ORIC FYPs Funding”. The brief Presentations of initially scrutinized FYPs were taken for Funding. The students presented their project ideas and business plans before ORIC Research Committee. The committee evaluated the presentations according to a devised criterion based upon the practical feasibility, business plan and marketability of each project.



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B. R&D and Design Projects Funding

i. Research Funding Grants Won by CUST Faculty

National Research Program for Universities (NRPU) and Local challenge Fund (LCF) are competitive research grants of HEC for high-level and promising scientific projects that demonstrate strategic relevance and impact to local industry and society. The faculty researchers of CUST have submitted numerous proposals on diverse and innovative research projects/ideas in NRPU and LCF. CUST faculty has recently won two projects worth 24.165 PKR million under, one each in NRPU and LCF programs.

ii. IGNITE Funding

IGNITE has shortlisted Thirteen Undergraduate Final Year Projects (FYPs) of CUST students for seed funding. The projects were funded based upon their innovation and commercialization aspects. ORIC has done the advertisement, coordination and documentation of projects in collaboration with IGNITE. An amount worth 1,040,000 would be disbursed to the award-winning students of various departments.

C. Research Database and Repository

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

The Research Database was updated including updating university Journal and Conference Publications, MOUs signed and Research & Development Projects accomplished by CUST faculty in Spring-2022. The Research Groups 5Ps data was also updated which included information about number of Publications, PhDs produced, Prototypes developed, Patents filed and R&D Projects won/completed by CUST faculty.

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 behind the activity is to promote and acknowledge the research work done by the students and faculty. The posters are displayed in the university to highlight research output of each department.

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. ORIC Dashboards Update

Office of Research, Innovation and Commercialization (ORIC) designed Proposals, Workshops, Innovations and Incubation Dashboards to present/document ORIC Progress Report in respective domains. The mentioned dashboards are updated on continual basis.



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v. 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.

D. CUST Research Excellence Awards-2021

To recognize and celebrate the intellectual & valuable contributions of its faculty at National and International level, CUST hosted the Research Excellence Awards (REA)-2021. On the basis of detailed evaluation of research impact and achievement of cumulative impact factor above 100, the six Professors were honored with the REA-2021. The honorable Vice Chancellor, Dean Research & Innovation, Professors and Associate Professors were amongst the participants of the REA-2021. The winners of the REA were given a souvenir, certificate and letter of appreciation, and special Cash Prize. The Vice Chancellor congratulated all the awardees and appreciated their valuable contributions in the field of research.

Technology Incubation and Innovation

ORIC not only accomplishes research and development operations but also ensures continual activities in terms of technology innovation and incubation. In this regard numerous technical trainings, workshops, short courses and seminars are conducted on regular basis to provide students, faculty members and professionals with the contemporary technical tools and skills in accordance with industry and corporate world. ORIC is running an active CUST Incubation Center (CIC) and is also animatedly working on various commercialization endeavors including students/faculty startups and projects.

A. Capacity Building Events

i. “React JS Front End JavaScript Library” for Web Developers

Office of Research, Innovation and Commercialization (ORIC) conducted Twenty (20) Hours Hands-on Course on “React-JS” starting from 01st June, 2022. The course consisted of two modules spanning Ten (10 hours) each. The objective of the course was to provide participants with advanced hands-on knowledge about React JS and its application in web development. The course contents included the key topics like: ESC Refresher, React Hooks, NPM Packages, Routing, Formik, Consuming APIs, Postman//GitHub, Firebase & Heroku Development etc. with two real time projects. The concluding ceremony held on 17th June, 2022 was graced by HoD CS, Prof. Nayer Masood.

ii. Hands-On Workshop on “Docker Tools”

Considering the significance of Docker Tools for software developers/freelancers, Office of Research, Innovation and Commercialization (ORIC) organized three days Online Workshop on “Docker Tools” from 25th to 27th April, 2022. The objective of the workshop was to provide students with essential Docker Tools that can potentially help them in upscaling their job chances, and train them for self-employment and freelancing projects. The workshop participants included IT professionals from NUST, Mobilink Microfinance Bank, MUET, and CUST students.



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iii. Hands-On Crash Course on “Cyber-Security and Ethical Hacking”

Office of Research, Innovation and Commercialization (ORIC) organized twenty (20) hours Crash Course entitled “Ethical Hacking and Cyber-Security” starting from 13th June 2022. The course encompassed advanced understanding of cyber-security, cyber threats, modern approaches to protect against cyber-attacks and virtuous hacking. The concluding ceremony was graced by HoD CS, Prof. Nayyer Masood. A total of 20 participants attended the course including the faculty members from IBA Sukkur and FAST NU, Faisalabad. The Resource Person for the course was Mr. Amer Zaheer (faculty member, CS Department, CUST).

iv. Interactive Seminar on “NERC (Robotics Competition)”

To enlighten/motivate CUST students about NERC, Office of Research, Innovation and Commercialization (ORIC) in collaboration with Electrical Engineering (EE) Department, CUST invited a focal team from EME College, NUST for a special session about robotics on 09th June 2022. The team consisted of Mr. Usman Asad and Ms. Arshia Arif (faculty members from Mechatronics Engineering Department, NUST). The session ended with acknowledgement and presentation of university memento by Dr. Umer Amir Khan (Asst. Professor, EE Department) as a token of appreciation to the Resource Persons.

v. Practice Oriented Workshop on “Terraform and Ansible”

Considering the significance of DEVOPS Tools for software developers, Office of Research, Innovation and Commercialization (ORIC) organized Four Days Hands-on workshop on “DEVOPS Tools (Terraform and Ansible)” from 15th to 20th March, 2022. The objective of the workshop was to provide students with essential DEVOPS skills that can potentially help them in upscaling their job chances, and train them for self-employment. A total of fourteen (14) participants attended the workshop including students from CS, SE and EE Departments.

vi. Industry Relevant Hands-On Workshop on “WordPress”

Office of Research, Innovation and Commercialization (ORIC) in collaboration with Tech Flickers (First SECP Registered Incubation company of CUST) organized Four Days Hands-on Workshop on “WordPress” from 28th March to 2nd April, 2022. The workshop was aimed to equip students with application-based knowledge of WordPress with practical illustrations. The workshop included students from CS, SE, EE and MS departments. A total of seventeen (17) students successfully completed the workshop.

vii. Experiential Training Session on Latex

Office of Research, Innovation and Commercialization (ORIC) organized “One-Day Workshop on Latex” on 28th April, 2022. The purpose of the workshop was to equip participants with the most updated knowledge about Latex with practical illustrations. The workshop was conducted by Mr. Muhammad Farhan, Assistant Director (Innovation & Commercialization), CUST. The session lasted for two hours including Q/A session. Around 20 participants including PhD students from various departments attended the workshop.



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viii. Crash Course on “Amazon Web Services (AWS)”

Office of Research, Innovation and Commercialization (ORIC) has started the series of short courses on AWS. The two-week hands-on course on “Amazon Web Services (AWS)” was held from 29th August, 2022 to 09th September, 2022 online on MS Teams. The objective of the course was to provide participants with essential AWS skills to upscale their job chances both in national and international market, help in preparation of fundamental AWS Certification and enable them to work as freelancer. The students from various departments attended the training.

ix. Workshop on “Measure of Software Similarity (MOSS)”

Keeping in view the significance of MOSS in context of faculty development, Office of Research, Innovation and Commercialization (ORIC) in collaboration with Computer Science (CS) Department organized “Two Hours Hands-On Session on MOSS” on 15th August, 2022. The workshop was held specifically for the faculty members of Computer Science (CS), Software Engineering (SE) and Electrical Engineering (EE) Departments. The session was conducted by Mr. Omaid Ghayyur, Lecturer, CS Department, CUST.

x. Hands-On Workshop on “Flutter Software”

Office of Research, Innovation and Commercialization (ORIC) organized One-Week Hands-on Workshop on Flutter starting from 05th September, 2022. The objective of the workshop was to provide the participants with practical and industry-oriented insights about flutter, get a better job/promotion and enhance their job chances in both national and international markets. A total of 21 participants attended the course including the computing students from CUST and UET Taxila. The participants were also provided certificates upon successful completion of the workshop.

xi. Series of Hands-On Short Courses on “Amazon Trading”

Office of Research Innovation and commercialization (ORIC) in collaboration with Sparknetics conducted series of Crash Courses on Amazon Trading. The courses were conducted from 31st May to 03rd June, 2022 and 16th -19th August, 2022 respectively by the resource persons from Sparknetics. The participants of the training were provided hands-on practice on product hunting for wholesale, product sourcing, order management, buy box war strategies and client hunting. More than 40 students were trained on the most advanced market-oriented expertise about Amazon Business.

B. Innovation Endeavors

i. Amazon Web Services (AWS)-Hostel4U

Hostels4U provides a platform to hostel administrators/students to connect online in a highly convenient way. With a number of hostel listings, and hundreds of students likely to be its visitors, Hostels4U is the option that best suits students and hostel administrators. Hostels4U gives students the best hostel options with secure and conducive environment, and up to the mark services. The Project was an initiative of ORIC in collaboration with CS Department.



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ii. Patent of Robot Vacuum Cleaner

Office of Research, Innovation and Commercialization (ORIC) has filed patent of Robot Vacuum Cleaner. The project is a joint venture of ORIC, Mr. Syed Abu Turab Naqvi (Electrical Engineering (EE) Department, CUST) and EE students. The Robot Vacuum Cleaner is an autonomous mechanized floor cleaning system that works by automatically judging the floor and performing its operation accordingly through mapping and navigation algorithm using VSLAM Technique. The benefits of vacuum robot include enhanced productivity, time saving, efficient work, reduced human labor and low maintenance etc.

iii. ORIC Innovations Dashboard

Innovation is the introduction of a good or service that is new or has significantly improved characteristics or intended uses. Office of Research, Innovation and Commercialization (ORIC) plays a central role in facilitating university's research outcomes and Technology Incubation & Innovation activities. ORIC has worked to establish a culture of innovation and commercialization through entrepreneurship within the departments. The ORIC Innovation Dashboard displays/depicts the innovation endeavors of ORIC with various departments.

C. 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. Progress Report of Tech Flickers- CUST first SECP Registered Startup

Tech Flickers, the first SECP registered software company of CUST provides various quality services. Its services include WordPress Designing, Web Development, Digital Marketing, Graphic Designing, SEO Services etc. Tech Flickers is also selling digital products like software, tools and courses to clients all around the world. The company has an experienced team of 10 members. They are also working on modern technology stacks & techniques to deliver future oriented solutions. The company always upgrade itself to meet industry & international standards. As far as products are concerned, some of the Management Systems include Restaurant, School, Hospital, Ticket Booking, and CRM & Sale System.

iii. Walzona Pvt Ltd- Novel Startup of Tech Flickers

Walzona Ltd is a registered limited company of Tech Flickers in UK which sells furniture and apparel products in UK and US markets. Walzona have products from UK-registered retailers and whole sellers, and deliver custom-designed apparel products from print-on-demand companies. It has joined hands with sellers and retailers to sell their products through registered channel. Until now the company has sold products worth 700 pound.



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iv. Students' Internship at CUST Incubation Center (CIC)

Capital University of Science and Technology (CUST) in this fast-changing world stands ready to meet the challenges of training professionals regarding modern tools and technical set of skills required for the industry and improving economic and social well-being of the country. Establishment of CUST Incubation Center (CIC) showcases the efforts of CUST towards commercialization and Innovation. A total of 44 students have completed internships at CIC in various domains including: Graphic Designing, Web Development, Django Template language, Kubernetes, Machine Learning, DevOps, Terraform, Ansible, Jenkins, WordPress, HTML CSS and AWS.

v. Orientation Session at CIC

ORIC launched its 1st Cohort Competition 2021. A two-step scrutiny process was adopted to dig out potential startups based on practicality of the ideas presented, and qualification of the teams. An orientation session was conducted for the newly inducted startups to make them familiar with the CIC environment. The session conducted by Mr. Salman Khattak, lecturer FMSS focused on how to productively complete the six months' incubation time at CIC while successfully achieving the pre-defined milestones. The participants included team of Tech Flickers, Aquaponics and Remote Advertisement Management System. The participants were also provided an insight to Project Business Case and Project Benefits Management Plan so that the teams scan focus on their invention/innovations.

D. ORIC FYPs Business Plan Funding

Office of Research, Innovation and Commercialization has continued its initiative of Final Year Projects funding for undergraduate students. The purpose of the activity is financial encouragement of students whose project ideas have particular business and marketing prospective. The event was advertised in the start of November, 2021 and the proposals for funding were received till 31st December 2022. The evaluation of the applications was done by ORIC Research Committee based upon the practical feasibility, business plan and marketability of each project. After a systematic assessment, the top six projects were shortlisted for a total funding encompassing 180,000 PKR.

E. ORIC Innovation Committee Meetings

CUST Innovation Committee was constituted with the aim to commercialize the developed products/prototypes and achieve on ground success. The committee has active participation from each department. In Spring-2022, two meet ups of the committee were held to discuss and proceed towards commercialization of products/prototypes. The committee consists of at least one member from each department with innovation/entrepreneurship background.

Industrial Liaison

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. ORIC is working in collaboration with various departments to promote



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Academia-Industry Linkage. The industrial visits for either side are being arranged on continual basis to promote academic collaborations and explore the areas of mutual interest and employment propensities for CUST students.

A. MOUS and Mutual Agreements with Industry/Corporate Sector

i. Memorandum of Understanding (MOU) with Sparknetics Pvt Ltd

CUST partnered with Sparknetics on 21st April, 2022 to conduct training and provide mentorship to students for easy earnings. Sparknetics has been indulged in consulting business and are offering a wide range of profitable business opportunities, and has also established online assets in the field of E-commerce. Both the parties agreed to conduct trainings at CUST on “Sell on Amazon”. Mr. Ammar Yasir Co-Founder of Sparknetics and Prof. Aamer Iqbal Bhatti, Dean Research & Innovation, CUST signed MoU on behalf of their respective organizations.

ii. Memorandum of Understanding (MOU) with Focus and Rulz Pharma (Pvt.) Ltd.

On 12th September, 2022, Dean Faculty of Pharmacy, Dean Faculty of Health and Life Sciences and Assistant Director ORIC visited Focus & Rulz Pharmaceuticals (Pvt.) Ltd. and signed an MoU with their MD & CEO, Mr. Fazli Hanan. Both parties agreed to facilitate each other in R&D Projects, Labs and Testing Facilities, Training/Special Courses, input in Curriculum Design, participation in Industrial Advisory Board meetings, Hiring and Internships of students, and discover the opportunities for the Commercialization of Technology. Both parties shown their gratitude to the valuable agreement and desired to continue the collaboration in the areas of mutual interest.

iii. Memorandum of Understanding (MOU) with Bio-Labs (Pvt.) Ltd.

To formalize collaboration between CUST and Bio-Labs (Pvt.) Ltd. and to make it sustainable, Dean Pharmacy and Assistant Director ORIC visited Bio-Labs on 25th August, 2022 to have a productive discussion on industry academia linkages with Director Technical Operations Mr. Zia Ud Din. On 21st September 2022, General Manager Bio – Labs, Mr. Kashif Yaseen signed an MoU with CUST. Both parties agreed to facilitate each other in R&D Projects, Labs and Testing Facilities, Training/Special Courses, Curriculum Design, Industrial Advisory Board Meetings, Placement and Internships for students.

B. Industrial and Societal Outreach

i. Visits of Pharmaceutical Industries for Academia – Industries Linkages

More than 30 Pharmaceutical Industries were contacted to sign MoUs with CUST for Academia – Industries linkages. In this regard, Dean Pharmacy, Dean Biosciences and ORIC visited various pharma companies for potential Industry-Academia collaboration.

ii. Meeting with Industry Experts on CUST Open House-2022

On 8th September, 2022 CUST organized Industrial Open House for engineering students. More than 30 employers and industrial experts visited Final Year Projects of undergraduate students. Some employers also conducted interviews of the selected students.



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iii. Visit of ORIC Team to Safe Solutions Consultancy Pvt Ltd

In pursuit of Industry-Academia Linkage, Safe Solutions Pvt. Ltd. invited ORIC for collaboration in the areas of Building Information Modelling. Safe Solutions specializes in Architectural, Structural and MEP Modeling including 3D-4D Modeling, BIM Implementation and BIM Modeling Services. After a comprehensive discussion both parties agreed on various domains of mutual interest including students' internships and job opportunities, BIM based Courses for undergraduate/postgraduate levels and capacity building of CUST students/faculty through training, workshops and short courses.

C. Capacity Building Endeavors with Industry and Corporate World

i. Participation of ORIC at NEPRA for Debate on Academia Industry Liaison

Capital University of Science and Technology participated in a session on Industry-Academia Liaison held at NEPRA under the leadership of the Chairman NEPRA, Mr. Tauseef H. Farooqi. The objective of the session was to help creating a nexus between industries and academia, figure out how Industry and academia join hands to address upcoming challenges and contribute towards national growth by aligning academic programs to meet cross-sectoral needs. The workshop was attended by large number of top professionals from the power sector and members of the academia besides NEPRA's Professionals.

ii. Industry Oriented Seminar on “Printed Circuit Board (PCB) Design”

Office of Research, Innovation and Commercialization (ORIC) in collaboration with Electrical Engineering (EE) Department organized Interactive Seminar on “PCB Design” on 06th July, 2022 at 02:00 PM. The seminar encompassed industry-based understanding of concepts like Library Management, Schematic Capturing, PCB Layout/Routing, Gerber Files, Production files etc. A total of 27 Electrical Engineering students attended the session which lasted till 03:45 PM including the Q/A session. The seminar resource person was Mr. Raese Naqvi, CEO, Electronic Interconnect Engineering (EIE), Islamabad.

iii. ORIC Certification Courses-Spring-2022 for Industry Professionals

Continuing Education help an individual to showcase his competency, commitment for the profession and build expertise in his professional area. Office of Research, Innovation and Commercialization held semester long Certificate Courses in Spring-2022 for professionals/practitioners, who intend to develop on job skills and professional growth. The professionals from numerous corporate/defense organizations successfully completed the courses.

iv. Tech Expo at Rawalpindi Chamber of Commerce and Industry (RCCI)

Students of CUST participated in Tech-Expo organized by Rawalpindi Chamber of Commerce & Industry (RCCI). The expo was held in Pearl Continental Hotel, Rawalpindi on 03rd and 04th June, 2022. Various other universities and firms also participated in the event including NUST, IST, NUTECH, Sun Consulting (Pvt.), Wolfiz Technologies, Blue Arc Design & Developments etc. H.E. Dean of Diplomatic Corps and the Ambassador of China were the chief guests of the event. The students from the various departments participated in this event and exhibited their projects under the guidance of concerned departments.



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v. Training of AITECH, National Center for Physics (NCP) Professionals on Amazon Web Services (AWS) and DEVOPS Tools

Artificial Intelligence Technology Center (AITeC), National Center of Physics (NCP), Islamabad approached ORIC to provide two weeks course on “Amazon Web Services (AWS)”. Based on mutual agreement the course was conducted at AITeC, NCP from 10th to 27th May, 2022 by the resource persons of ORIC. The course ended on a high note and proved to be a great source of knowledge to professionals from AITECH.

D. CUST PhD Alumni Database

Capital University of Science & Technology is one of the few institutes in the country having a mature PhD program characterized by well-established calendar of advanced postgraduate courses and crystal-clear academic processes. We own a diverse family of more than 230 PhD graduates. This has only become possible through retention of seasoned faculty in its PhD programs who not only excel in research but are also actively linked with the national industry. ORIC is maintaining CUST PhD Alumni database which contains contact numbers/emails, official addresses and designations of prestigious PhD graduates. A specific WhatsApp Group entitled “CUST PhD Alumni” was also created by ORIC with currently 166 members to create an effective outreach with respective academic and industry.

Miscellaneous Tasks

A. ORIC Newsletters, Activities Books and Annual Reports

i. Drafting and Graphic Designing of ORIC Newsletters (Fall-2021 and Spring-2022)

The seventh and eighth volumes of ORIC Newsletters (Fall-2021 and Spring-2022) has been drafted, graphically designed and are ready for printing. The Newsletters briefly showcase the progress report of ORIC in terms of its stated domains i.e., Research Operations, Technology Incubation & Innovation and Industrial Liaison. It also highlights workshops, seminars and other similar events accomplished by ORIC in Fall-2021 and Spring-2022. The Newsletters would be shared with all university academic and administrative offices upon its publication.

ii. Drafting, Editing and Publication of ORIC Activity Report Fall-2021

The ORIC Activities Book for Fall-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.

B. 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.

Prepared by:

Muhammad Raheel Anjum
Assistant Director ORIC

Approved by:

Prof. Aamer Iqbal Bhatti
Dean Research & Innovation



Capital University of Science and Technology

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List of Annexures/Selected Documentary Proofs/Reports

Research Operations

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19th ORIC Research Committee Meeting

Minutes of the Meeting held on March 10, 2022

- The 19th ORIC Research Committee meeting was held on Thursday, the 10th March 2022 at 02:30 PM in Conference Room, M-Block, CUST.
- Prof. Aamer Iqbal Bhatti, Dean Research & Innovation, presided the meeting.
- The following were present in the meeting:

– Dr. Sahar Fazal	HoD/Professor BS
– Dr. Abdul Rehman Kashif	Associate Prof. Math
– Dr. Mahboob Alam	Associate Prof. Pharm
– Dr. Umer Amir Khan	Assistant Prof. EE
– Dr. Khawar Naveed	Assistant Prof. ME
– Dr. Samiya Safdar	Assistant Prof. MS
– Mr. Muhammad Farhan	Assistant Director ORIC
– Mr. M. Raheel Anjum	Assistant Director ORIC
- Dr. Nadeem Anjum and Engr. Prof. Majid Ali, the respective ORIC Research Committee members from CS and CE departments could not attend the meeting due to their prior official commitments.
- Dean Research and Innovation, Prof. Aamer Iqbal Bhatti welcomed the committee members. Subsequently, the meeting progressed as per agenda item listed below: -

Item #1

Final Year Projects (FYPs) Funding Presentations

Action By

- 1.1 The meeting started with a brief overview about regular ORIC initiative of Final Year Projects (FYPs) funding presented by Dean Research & Innovation, Prof. Aamer Iqbal Bhatti. The prime objective of mentioned activity is financial encouragement of students whose project ideas have particular business and marketing prospective.
- 1.2 Dean Research & Innovation apprised the members about the initial screening done for assessment/evaluation of application forms to dig out the potential projects. A total of 50 application forms were received from various departments including 07 each from EE and CS Departments, 09 from ME Department and 27 from MS Department respectively. The initial scrutiny was based on the practical possibility of the presented ideas and their productization potential. A total of



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09 projects were shortlisted in accordance with the set criteria. The shortlisted projects were called to present their ideas before ORIC Research Committee.

1.3 The students were required to present following topics in their presentations.

- Current Status/Progress of Project
- Previous Projects/Expertise
- Productization (Whether End Product is marketable or not)

The students presented their project ideas and business plans before ORIC Research committee. The committee evaluated the presentations according to above mentioned criteria. The main focus was on practical feasibility, business plan and marketability of particular idea. A total of 5 marks were allocated to each criterion aspect with a maximum achievable 25 marks. The final projects standing as evaluated by ORIC Research Committee is attached at **Annexure A**.

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

Prepared by:

Muhammad Raheel Anjum
Assistant Director ORIC

Approved by:

Prof. Aamer Iqbal Bhatti
Dean Research & Innovation

Distribution

- Vice Chancellor
- Registrar
- ORIC Research Committee
- File



HIGHER EDUCATION COMMISSION

Research and Development Division

3

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



HIGHER EDUCATION COMMISSION, ISLAMABAD

RESEARCH & INNOVATION DIVISION

Ref No. 20-LCF-415/RGM/R&ID/HEC/2021

Dated: 19th May 2022

Vice Chancellor,
Capital University of Science and Technology, Islamabad

Dr. Arshia Butt
Assistant Professor
Capital University of Science and Technology, Islamabad

SUBJECT: Provisional Award under Local Challenge Fund – (LCF –HEDP)

Reference research project No LCF-415 entitled “Development of consortium for enhanced recovery of residual petroleum: Step towards sustainable energy exploration and exploitation” having total cost of Rs. 18,156,750/- and project duration of 24 months, submitted for funding by Dr. Arshia Butt, Capital University of Science and Technology, Islamabad (**the Principal Investigator**). Detailed breakup of budget & year wise funds disbursement plan attached at **Appendix- A** to this award notice.

The Higher Education Commission (HEC) hereby awards Rs. 18,156,750/- (eighteen million one hundred fifty six thousand seven hundred and fifty) to the Capital University of Science and Technology, Islamabad (the Grantee) for the above mentioned project subject to the ***Terms and Conditions of the Grant outlined in the specimen Grant Agreement*** & provision of following documents:

1. Final revised proposal after incorporating reviewer's comments in letter & spirit, duly signed/endorsed by HoD, Director ORIC, Head of Institution (Vice Chancellor/Rector)
2. A certificate duly signed by HoD and PI stating that reviewer's comments have been incorporated in the revised proposal (specimen attached)
3. 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 7 days of the issuance of this award notice along with details of separate joint account. The award shall stand cancelled upon failure on your part to submit the agreement within the stipulated period of time.

Sincerely

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

Copy for Information to:

- a) The Director Finance, Capital University of Science and Technology, Islamabad
- b) The Director ORIC, Capital University of Science and Technology, Islamabad

Budget Breakup

Budget Element	Amount in Rs.
Dr. Arshia Butt, Assistant Professor	300,000
Dr Safia Ahmad	200,000
Dr Raees Khan	150,000
Dr Salman Sagheer	150,000
PhD Student (2)	3,840,000
Ms/Mphil Student (2)	1,920,000
Total Equipment Cost	3,570,000
Total Consumable Supplies	600,000
Access to scientific equipment	3,000,000
Management Cost for organizing national level conferences, workshops, or seminars (training cost)	200,000
Local Travel Cost	320,000
Direct Cost	14,250,000
Project Overhead cost	
Basic Overhead (5% Overheads)	712,500
Additional overheads (10% Overheads) for support staff, campus expenses, utility costs, cost of access to digital resources, maintenance of scientific equipment, and/or access to laboratories.	1,425,000
ORIC Overhead cost	
Performance Overhead (15% Overheads) relates to performance of the ORIC	
Total Overhead cost -B	2,137,500
Total Budget	16,387,500
Institutional Collaboration/Subawards	
NARC	1,769,250
Total Subaward Cost -D	1,769,250
Total Project Cost	18,156,750

Funds Disbursement plan

Item	%	Amount in Rs.	Remarks
1st Instalment	60%	10,894,050	Upfront payment
2nd Instalment	30%	5,447,025	will be released subject to the satisfactory review of 1st Annual Report
final Payment	10%	1,815,675	Will be released after successful completion of the project
Total Approved Cost		18,156,750	

Expenditure Report NGIRI 2021-22

Institution: Capital University of Science and Technology

Campus: Main

Focal Person: Dr. Imtiaz Ahmad Taj

Actual Expense(PKR)

Particulars

#	FYP Code	FYP Title	Department	Semester	Supervisor Name	Actual Expense(PKR)		
						Equipment Amount	Misc. Amount	Total Amount
1	NGIRI-2022-10908	'Design and development of Solar Thermal Air Heater'	Mechanical Engineering	7	Engr. Saifullah	95,725	0	95,725
2	NGIRI-2022-11114	'Solar Water Desalination System'	Mechanical Engineering	8	Sir Saifullah Awan	111,465	0	111,465
3	NGIRI-2022-11669	'World Aquifer Forecasting Engine and Research '	Computer Science	7	Nayyer Masood	17,553	0	17,553
4	NGIRI-2022-12221	'Design And Prototyping of Passive Exoskeleton For Lower Limb To Assist Walking '	Mechanical Engineering	7	Miss Shumaila Rasheed	70,000	0	70,000
5	NGIRI-2022-12225	'Design and Fabrication of Automatic Wheel-chair Convertible into Bed , Sitting and Standing mode'	Mechanical Engineering	7	Manzar Masud	109,100	0	109,100

FYP			Particulars			Actual Expense(PKR)		
#	Code	FYP Title	Department	Semester	Supervisor Name	Equipment Amount	Misc. Amount	Total Amount
6	NGIRI-2022-12228	'Design and development of solar dehydrator for fruits and vegetables'	Mechanical Engineering	8	Dr Muhammad Javed Hyder	63,700	10,000	73,700
7	NGIRI-2022-12241	'Multiple Object Detection and Lane Following for Autonomous Vehicle'	Electrical Engineering	8	M Moin Qasim	69,339	9,900	79,239
8	NGIRI-2022-12636	'AI Based Sign Language Interpreter For Disabled Persons'	Electrical Engineering	7	Dr Muhammad Tahir Awan	0	0	0
9	NGIRI-2022-12697	'HazelBot Smart Medical Assistant'	Electrical Engineering	8	Dr Muhammad Tahir	78,350	0	78,350
10	NGIRI-2022-12731	'FEASIBILITY OF RENEWABLE ENERGY GENERATION USING MACHINE LEARNING BASED PREDICTION MODEL OF WIND VERSUS SOLAR POWER GENERATION'	Electrical/Electronics Engineering	7	Imtiaz Ahmad Taj	0	0	0
11	NGIRI-2022-13074	'IoT Based Home Power Monitoring and Control'	Electrical Engineering	8	Dr Muhammad Tahir Awan	0	0	0
12	NGIRI-2022-13546	'Identification of Damage Assessment Tweets using Textual Features'	Software Engineering	7	Dr Muhammad Shahid Iqbal Malik	0	0	0

Particulars

Actual Expense(PKR)

#	FYP Code	FYP Title	Department	Semester	Supervisor			Actual Expense(PKR)		
					Name	Amount	Misc. Amount	Equipment Amount	Misc. Amount	Total Amount
13	NGIRI-2022-15041	'IoT Based Smart Helmet for Bike Riders'	Computer Science	7	Faheem Shahzad	66,250	0	66,250	0	66,250

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

☒ It is certified that:


☒ Funds claimed under the Program "NGIRI 2021-22" 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-2021 to 30-Jun-2022.

☒ 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 Ahmed

Vice Chancellor
Capital University of Science
and Technology, Islamabad

ORIC Proposals Dashboard (2021)

Department	Status	Department2	Status3	Department3	Status4	Department4	Status5	Department5	Status6	Department6	Status7	Department7	Status8
BS Dept		ME Dept		EE Dept		CS Dept		Pharm Dept		MS Dept		CE Dept	
Arimisinin; a Potent Drug candidate against covid-19, targeting ACE2 gene and pro-inflammatory cytokines	Submitted	Plastic Recycling: Tile Production Machine for reduction of 5% plastic waste	Approved	A Multi-Biometric Access Control System (MBACS) for Highly Secured Environment	Submitted	Anticipation of abnormal activities in complex urban environments using multi-camera information fusion	Submitted	Screening of benzimidazole derivatives as potential agents for diabetic neuropathy and associated pathological mediators	Approved	Towards the Application of Artificial Intelligence for Sustainable Livestock Management - A Pilot Project to uplift Socio-economic Conditions of Rural Women	Submitted	Analysis of surface water availability, supply and demand under changing climate in Chenab River Basin	Submitted
Genetic Diagnosis of Pre-symptomatic Coronary Artery Diseases based of APO-E genotyping	Submitted			An indigenous Battery System Design for a shared Electric Mobility System	Submitted	GynUstaad: Design and Development of Smart AI-Enabled System for Fitness Coaching	Submitted			eHealth supported intervention for improving care for young people with substance use disorder in Pakistan	Approved	Development Of Building Products From Recycle-Plastic For Housing	Approved
Development of Consortium for enhanced Recovery of Residual Petroleum: Step towards sustainable Energy Exploration and Exploitation	Approved												
Exploration and formal Modeling of Gut Microbiome Responsible for Insecticide Resistance in Mosquito (Aedes egyp)	Submitted											Framework Development for Environmental Management of Construction Demolition Waste	Submitted
Bioremediation and Toxicity Reduction of Effluents by Indigenous Microbial Strains as well as Optimization of Bioreactor for Sustainable Production of Third Generation Bioethanol													

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Submitted

Approved

ORIC Workshops Dashboard (2022)

Column1	Status	Column2	Status3	Column3	Status4	Column4	Status5	Column5
Short Courses		Workshops		Seminars		Certificate Courses		Business Plan Competetions
Short Course on Docker Tools		Workshop on WordPress		NERC- Robotics Competition		Electrical Engineering		ORIC FYPs Funding Competitionj Fall-2021
Short Course on Ethical Hacking & Cyber-Security		Workshop on Terraform and Ansible		Interactive Session on MOSS				
Short Course on Amazon Trading		Workshop on Latex						
Short Course on Ethical Hacking		Workshop on React-JS (Module 01)						
Short Course on AWS for AITECH (NESCOM) Professionals		Workshop on React-JS (Module 02)						
Short Course on Amazon Trading		Workshop on PCB Design						
Short course on Amazon Web Services (AWS)		Workshop on Flutter						
		Workshop on REVIT Structure Fundamentals						

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No.45/CUST/ORIC/2022

July 05, 2022

Research Excellence Award-2021



The research of international standards is the hallmark of modern day academics. Capital University of Science & Technology (CUST) heavily invests in providing state of the art facilities to the faculty members and researchers to promote research, innovation and commercialization. CUST faculty members play an ample role in creating new vistas of productive knowledge by publishing their research work/productivity in internationally reputed impact factor journals

To recognize and celebrate the intellectual & valuable contributions of its Faculty at National and International level, CUST hosted the **Research Excellence Award (REA)-2021**. On the basis of detailed evaluation of research impact and achievement of cumulative impact factor above 100, the following Professors were honored with the REA-2021.

- | | |
|---------------------------------|--------------------------------------|
| 1. Prof. Dr. Shafqat Hussain | Department of Mathematics |
| 2. Prof. Dr. Aamer Iqbal Bhatti | Department of Electrical Engineering |
| 3. Prof. Dr. Majid Ali | Department of Civil Engineering |
| 4. Prof. Dr. Noor M. Khan | Department of Electrical Engineering |
| 5. Prof. Dr. M. Mansoor Ahmed | Department of Electrical Engineering |
| 6. Prof. Dr. Muhammad Sagheer | Department of Mathematics |



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Mr. Adeer Khan a student of BS Civil Engineering, based on his excellent research achievement at such a young age, was designated as the chairman of the event. The honorable Vice Chancellor, Dean Research & Innovation, Professors and Associate Professors were amongst the participants of the REA-2021.

The winners of the REA were given a souvenir, certificate & letter of appreciation, and Cash Prize of PKR 200,000/-. The Vice Chancellor congratulated all the awardees and appreciated their valuable contributions in the field of research. He further added that the mission of accomplishing excellence in the area of research would be continued with the same spirit and zeal in future as well.

MABhatti

Prof. Aamer Iqbal Bhatti
Dean Research & Innovation



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No.23/CUST/ORIC/2022

June 21, 2022

Hands-On Short Course on “React-JS”

React-JS can be used for creating large web applications for organizations in an agile manner. Through React, data can dynamically get updated in web pages without requiring them to be reloaded at each update trigger. As a perfect web development tool, it is among the top-recommended JS library. The prominent web products like Facebook and Instagram are built on its basis, and there are over 10,274,456 live websites that use React.

Office of Research, Innovation and Commercialization (ORIC) conducted Twenty (20) Hours Hands-on Course on “React-JS” starting from 01st June 2022. The course consisted of two modules spanning Ten (10 hours) each. The objective of the course was to provide participants with advanced hands-on knowledge about React JS and its application in web development. The course contents included the key topics like: ESC Refresher, React Hooks, NPM Packages, Routing, Formik, Consuming APIs, Postman//GitHub, Firebase & Heroku Development etc. with two real time projects.



The participants included students from CS and SE Departments. The concluding ceremony held on 17th June 2022 was graced by HoD CS, Prof. Nayyer Masood. After a welcome note by Assistant Director ORIC, the chief guest was requested to distribute certificates among successful candidates. Following this, the chief guest congratulated the participants for successful completion of course. He also appreciated ORIC for effectual conduction of event. The course ended on a high note and proved to be a great source of knowledge to participants.

Prepared by:

Muhammad Raheel Anjum
Assistant Director ORIC

Approved by:

Prof. Aamer Iqbal Bhatti
Dean Research & Innovation



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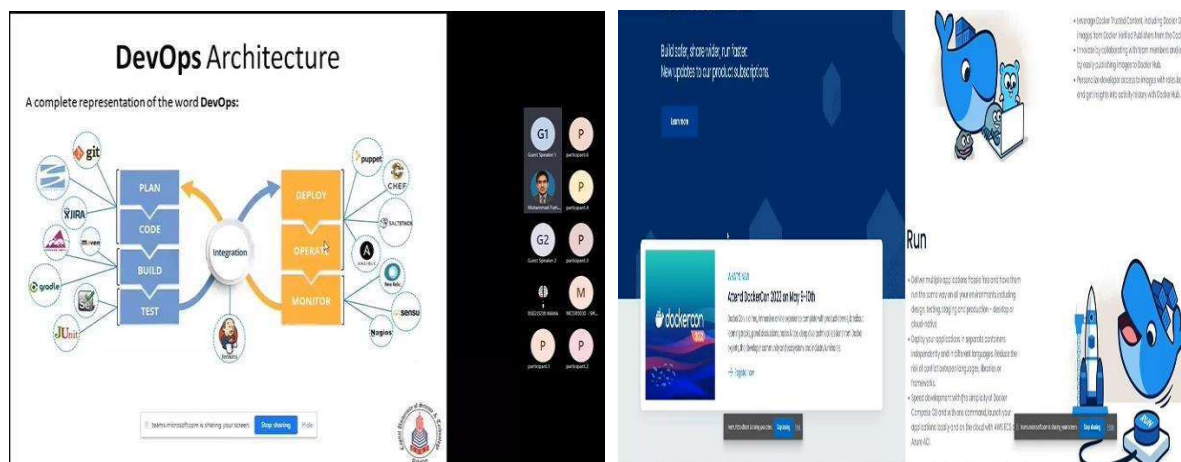
No.23/CUST/ORIC/2022

May 10, 2022

Workshop on “Docker Tools (Online)”

Docker is a tool designed to make it easier for developers to develop, ship, and run applications by using containers. Containers allow to package an application with all of its requirements and configurations/libraries and deploy it as a single package. Some of the major benefits of Docker include: Return on Investment and Cost Savings, Standardization and Productivity, Compatibility and Maintainability, Simplicity and Faster Configurations, Rapid Deployment, Continuous Deployment, Multi-Cloud Platforms, and Security.

Considering the significance of Docker Tools for software developers/freelancers, Office of Research, Innovation and Commercialization (ORIC) organized three days Online Workshop on “Docker Tools” from 25th to 27th April, 2022. The objective of the workshop was to provide students with essential Docker Tools that can potentially help them in upscaling their job chances, and train them for self-employment and freelancing projects.



The course contents included the key topics like: Virtualization and Containerization, Docker Installation, Docker File/Compose and role of containerization in DEVOPs tools. The workshop participants included IT professionals from NUST, Mobilink Microfinance Bank, MUET, and CUST students. The session ended on a high note and proved to be a great source of hands-on experience of Dockers Tools for 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/2022

June 21, 2022

Hands-On Crash Course on “Ethical Hacking & Cyber-Security”

Information Security is a process of preventing unauthorized access, counter threats, confidentiality, disruption and modification of business information, and protecting companies’ data which is secured in the system from the malicious purpose. A breach in digital security can cause serious problems and countless damage to the organization’s image and exposure of secrets. Having important information leaked or stolen can result in serious financial problems and can even lead to bankruptcy of an organization/institution.

Considering the importance of Information/Cyber-Security in today’s digital world, Office of Research, Innovation and Commercialization (ORIC) organized twenty (20) hours Crash Course entitled “Ethical Hacking and Cyber-Security” starting from 13th June 2022. The course encompassed advanced understanding of cyber-security, cyber threats, modern approaches to protect against cyber-attacks and virtuous hacking.



The concluding ceremony of the course was graced by HoD CS, Prof. Nayyer Masood. After a welcome note by Assistant Director, ORIC, Prof. Nayyer Masood was requested to distribute certificates among successful candidates. A total of 20 participants attended the course including the faculty members from IBA Sukkur and FAST NU, Faisalabad. The Resource Person for the course was Mr. Amer Zaheer (faculty member, CS Department, CUST). The ceremony concluded with acknowledging remarks and significance of Information Security for organizations and protection against cyber-attacks in present world, presented by the chief guest. He also congratulated the successful attendees and endorsed the efforts of ORIC for conducting a successful event.

Prepared by:

Muhammad Raheel Anjum
Assistant Director ORIC

Approved by:

Prof. Aamer Iqbal Bhatti
Dean Research & Innovation



Capital University of Science and Technology

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No.23/CUST/ORIC/2022

June 15, 2022

Interactive Seminar on “NERC (Robotics Competition)”

The National Engineering Robotics Contest (NERC) is a joint project of the National University of Sciences and Technology (NUST) and STEM Careers Programme HEC to promote research in robotics and its allied fields in Pakistan. The competition provides a common platform for the integration and evaluation of various electromechanical designs, control and path planning algorithms, and agent architectures. This year, the 18th National Engineering Robotics Contest (NERC 2022) is scheduled in 03rd Week of July 2022.

To enlighten/motivate CUST students about NERC, Office of Research, Innovation and Commercialization (ORIC) in collaboration with Electrical Engineering (EE) Department, CUST invited a focal team from EME College, NUST for a special session about robotics on Thursday, 09th June, 2022 at 05 PM. The team consisted of Mr. Usman Asad and Ms. Arshia Arif (Faculty Members from Mechatronics Engineering Department, NUST).



After a brief introduction about EME College, the guest speakers started the formal presentation with history of Robotics and NERC competitions at NUST. Following this, the speaker in detail discussed NERC-2022 competition. The presentation covered the key topics like NERC-2022 Categories, Contest Structure/Theme, Robot Operation, Event Rules and Evaluation Criteria. The seminar lasted for an hour including the Q/A session. The session ended with acknowledgement and presentation of university memento by Dr. Umer Amir Khan (Assistant Professor, EE Department) as a token of appreciation to the Resource Persons.

Prepared by:

Muhammad Raheel Anjum
Assistant Director ORIC

Approved by:

Prof. Aamer Iqbal Bhatti
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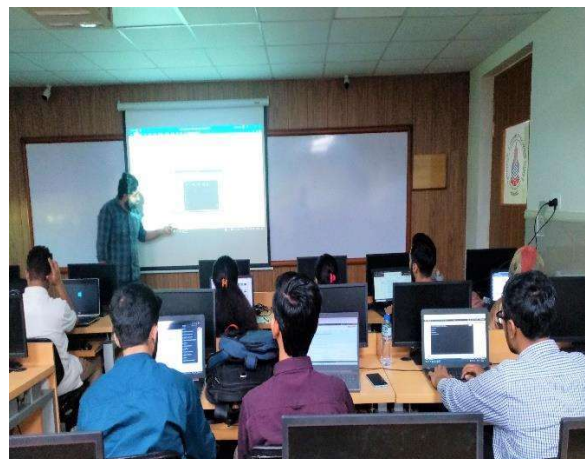
No.23/CUST/ORIC/2022

April 06, 2022

Workshop on “DEVOPS Tools (Terraform and Ansible)”

DEVOPS consists of set of practices that provide efficient cooperation and communication between the development and IT operations teams at all stages of product creation. It is aimed at streamlining, speeding up, and adding predictability, scalability, and flexibility to the processes of software development, testing, deployment, management and maintenance.

Considering the significance of DEVOPS Tools for software developers, Office of Research, Innovation and Commercialization (ORIC) organized Four Days Hands-on workshop on “DEVOPS Tools (Terraform and Ansible)” from 15th to 20th March, 2022. The objective of the workshop was to provide students with essential DEVOPS skills that can potentially help them in upscaling their job chances, and train them for self-employment and freelancing projects.



The course contents included the key topics like: Terraform Script Basics, Modules & Resources, Scales, Ansible Configuration Management Tools, Scripts, Architecture and Modules. A total of fourteen (14) participants attended the workshop including students from CS, SE and EE Departments. The session ended on a high note and proved to be a great source of hands-on experience of DEVOPS Tools for the participants.

Prepared by:

Muhammad Raheel Anjum
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No.23/CUST/ORIC/2022

April 06, 2022

Hands-On Workshop on “WordPress”

WordPress is a powerful yet free content management system (CMS) platform that offers an extensive range of features for creating impressive business websites, and has now emerged as a reliable web development solution for professional websites and E-Commerce stores. WordPress powers nearly one-third of the world’s websites and its unique features make it the most popular content management system for small personal blogs to the complex sites of major corporations such as Sony, Time Inc., The New York Post, NBC etc.

Considering the significance of WordPress in context of web development, Office of Research, Innovation and Commercialization (ORIC) in collaboration with Tech Flickers (First SECP Registered Incubation company of CUST) organized Four Days Hands-on Workshop on “WordPress” from 28th March to 2nd April, 2022. The workshop was aimed to equip students with application-based knowledge of WordPress with practical illustrations.



The key topics encompassed in the workshop included; WordPress Configuration Basics, Responsive Business/Blog Website, Live Websites, SEO Plugins Elementor, WpBakery, Speed Optimization Plugins, Divi Page Builder, Theme & Plugin usage etc. The workshop included students from CS, SE, EE and MS departments. A total of seventeen (17) students successfully completed the workshop.

Prepared by:

Muhammad Raheel Anjum
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Approved by:

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No.23/CUST/ORIC/2022

May 10, 2022

Workshop on Latex

Office of Research, Innovation and Commercialization (ORIC) organized “One-Day Workshop on Latex” on Thursday, 28th April 2022 in Instructions Lab-6, M-Block at 08:30 AM. 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. The workshop covered following topics in brief:

1. Latex Overview and Installation
2. Document Write-up
3. Mathematics Operations
4. Figures and Tables
5. Table of Contents
6. Bibliography



The workshop was conducted by Mr. Muhammad Farhan, Assistant Director (Innovation & commercialization), ORIC, CUST. The session lasted for two hours including Q/A session. Around 20 participants including BS, MS and PhD students from various departments attended the workshop. Overall, it was an interactive session and proved to be a great source of hands-on knowledge to the participants.

Prepared by:

Muhammad Raheel Anjum
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Approved by:

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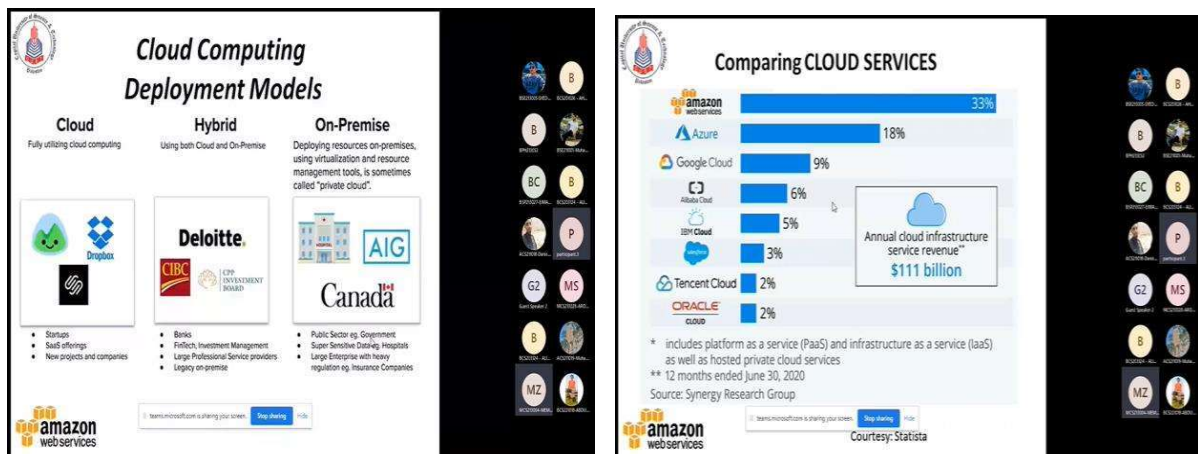
No.23/CUST/ORIC/2022

14 September, 2022

Crash Course on “Amazon Web Services (AWS)”

Amazon Web Services (AWS) offers a broad set of global cloud-based products including Compute, Storage, Databases, Analytics, Networking, Mobile, Developer Tools, Management Tools, IoT, Security, and Enterprise applications. From Data Warehousing to Deployment Tools, Directories to Content Delivery, over 175 AWS services are available.

Considering the significance of Amazon computing services in today’s digital world, Office of Research, Innovation and Commercialization (ORIC) has started the series of short courses on AWS. The two-week hands-on course on “Amazon Web Services (AWS)” was held from 29th August, 2022 to 09th September, 2022 online on MS Teams. The objective of the course was to provide participants with essential AWS skills to upscale their job chances both in national and international market, help in preparation of fundamental AWS Certification and enable them to work as freelancer.



The students from various departments attended the training. The course contents included the key topics like: Database Dynamodb, Autoscaling, VPC, EC2, IAM, SNS, SQS, Sagemaker and Full Architecture Implementation. The session ended on a high note and proved to be a great source of knowledge to participants.

Prepared by:

Muhammad Raheel Anjum
Assistant Director ORIC

Approved by:

Prof. Aamer Iqbal Bhatti
Dean Research & Innovation

Copy for Information To:

- Vice Chancellor



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No.23/CUST/ORIC/2022

August 24, 2022

Workshop on “Measure of Software Similarity (MOSS)”

MOSS (Measure of Software Similarity) is an automatic system for determining the similarity of programs. The main application of MOSS is detection of plagiarism in programming classes. The algorithm behind MOSS is a significant improvement over other cheating detection algorithm. In response to a query, the Moss server produces HTML pages listing pairs of programs with similar code. MOSS also highlights individual passages in programs that appear the same, making it easy to quickly compare the files.

Keeping in view the significance of MOSS in context of faculty development, Office of Research, Innovation and Commercialization (ORIC) in collaboration with Computer Science (CS), Department organized “Two Hours Hands-On Session on MOSS” on Monday, 15th August, 2022 at 11:00 AM in Instructions Lab-III, M-Block. The workshop was held specifically for the faculty members of Computer Science (CS), Software Engineering (SE) and Electrical Engineering (EE) Departments.



The faculty members from various departments attended the session. The event lasted till 01:00 PM including the Q/A session. The workshop covered practical aspects and application-based knowledge about MOSS. The session was conducted by Mr. Omaid Ghayyur, Lecturer, CS Department, CUST. The session ended on a high note and proved to be a great source of knowledge for the participants.

Prepared by:

Muhammad Raheel Anjum
Assistant Director ORIC

Approved by:

Prof. Aamer Iqbal Bhatti
Dean Research & Innovation

Copy for Information To:

- Vice Chancellor
- HoD, Computer Science



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No.23/CUST/ORIC/2022

14th September, 2022

Hands-On Workshop on “Flutter Software”

Flutter is an open-source and powerful mobile app development framework used to develop cross platform applications for Android, iOS, Linux, macOS, Windows, Google Fuchsia, and the web from a single codebase. Flutter app development allows you to design robust, high performing, and scalable mobile apps for all operating systems. It gives you the best icons, typography, and scrolling too. The renowned eCommerce platforms like Alibaba Group, Groupon, and eBay use Flutter to offer a seamless user experience to their customers.

Office of Research, Innovation and Commercialization (ORIC) organized One-Week Hands-on Workshop on Flutter starting from Monday, 05th September, 2022 in Instructions Lab-3, M-Block, CUST. The objective of the workshop was to provide the participants with practical/industry-oriented insights about flutter, get a better job/promotion and enhance their job chances in both national and international markets.



A total of 21 participants attended the course including the computing students from CUST and UET Taxila. The Resource Person for the workshop was Mr. Umaid Ghayyur (faculty member, CS Department, CUST). The course included the key topics like Flutter Application, Organizing Flutter Project, Widget Tree, Stateless and Stateful Widgets, Application Essential Widgets, Input Validation, Navigation, Animation and Database Connectivity. The participants were also provided certificates upon successful completion of the workshop.

Prepared by:

Muhammad Raheel Anjum
Assistant Director ORIC

Approved by:

Prof. Aamer Iqbal Bhatti
Dean Research & Innovation

Copy for Information To:

- Vice Chancellor



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No.23/CUST/ORIC/2022

June 06, 2022

Hands-On Crash Course on “Amazon Trading”

E-commerce has increasingly become a vital component of business strategy and recent hype in E-commerce has made the world realize the concrete and actual scope of online markets. Considering the importance of online business, Capital University of Science and Technology (CUST) partnered with Sparknetics to conduct training and provide mentorship and to equip students with the art of earning easy income through E-commerce.

Office of Research Innovation & commercialization (ORIC) in collaboration with Sparknetics conducted one-week workshop on Amazon Trading. The workshop was conducted from 31st May to 03rd June, 2022 by resource persons from Sparknetics. The participants of the workshop were provided hands-on practice on product hunting for wholesale, product sourcing, order management, buy box war strategies and client hunting. A total of 28 students participated in the workshop.



Dean Research & Innovation and Dr. Muhammad Tahir Awan, Assistant Professor, Electrical Engineering Department graced the closing ceremony of the course in which the participants were awarded course completion certificates. Dean Research & Innovation concluded the session by word of thanks to the audience and the resource persons.

Prepared by:

Muhammad Raheel Anjum
Assistant Director ORIC

Approved by:

Prof. Aamer Iqbal Bhatti
Dean Research & Innovation

Form P-1A

Fee:

Patents Ordinance, 2000

Application for patent when the true and first
inventor is NOT a party to the application
(Section 13(1) (Rule 8(1)))

(To be accompanied in duplicate by a Complete Specification on Form P-3A)

Insert (in full) the name,
address, and nationality of
the applicant or
applicants.

**We, Capital University of Science and Technology
Kahuta Road, Zone V, Sihala, Islamabad, Pakistani, Pakistan**

hereby declare that: -

(i) We are in possession of an invention for

Robot Vacuum Cleaner

that we **Capital University of Science and Technology** claim to be the assign
of

Insert title of the invention.

Insert name.

Insert (in full) name, address,
and nationality of inventor.

(1) Dr. Aamer Iqbal Bhatti

Address: House No. 282, Street 11, Sector 1 AECHS, Chaklala Rawalpindi, Pakistani

(2) Muhammad Abu Turab Naqvi

Address: House No. 584, Street 21, Margalla Town, Islamabad, Pakistani

who claim and are believed to be the true and first inventors thereof;

(ii) that the invention is not in use in Pakistan by any other person;

(iii) that the Complete specification filed with this application is, and any amended
specification which may hereafter be filed in this behalf will be, true of the invention
to which this application relates;

(iv) that the facts and matters stated herein are true to the best of my (or
our) knowledge, information and belief.

State here whether the
specification accompanying this
form is form is "provisional" or
"complete".

(v) that following are particulars of my application, -

Insert number of sheets of the
Description, Claim(s),
Abstract, and Drawing(s).

Description:	05
Claims:	03
Abstract:	01
Drawings:	04

Insert address for
service in Pakistan.

Address for service in Pakistan:

**Muhammad Farhan, Assistant Director ORIC
Capital University of Science and Technology,
Kahuta Road, Zone V, Sihala, Islamabad, Pakistan**

I (or we) humbly pray that a patent may be granted to me (or us) for the said
invention.

Dated this 24th day of August, 2022

Signature:

Muhammad Farhan
Assistant Director ORIC
Capital University of Science and Technology, Islamabad.

Insert name,
designation and
address of the
signatory. In case of
Agent, also include
latest tele-
communication details.

To

Controller of Patents

The Patent Office
Karachi.

Website: www.ipo.gov.pk

Email: patent@ipo.gov.pk

Form P-1A Reverse

Fee: Rs.

Patents Ordinance, 2000

Application for patent when the true and first
inventor is NOT a party to the application
(Section 13(1) (Rule 8(1)))

ENDORSEMENT BY INVENTOR

Insert (in full) the
name, address, and
nationality of the
applicant or applicants.

I / we,

(1) Dr. Aamer Iqbal Bhatti

Address: House No. 282, Street 11, Sector 1 AECHS, Chaklala Rawalpindi, Pakistani

(2) Muhammad Abu Turab Naqvi

Address: House No. 584, Street 21, Margalla Town, Islamabad, Pakistani

referred to on the reverse of this document as claiming to be the true and
first inventor(s) agree that the said application shall be made without my
(or our) name(s) as (an)

Signature

M.A. Bhatti
Muhammad Aamer Iqbal Bhatti,
House No. 282, Street 11, Sector 1
AECHS, Chaklala Rawalpindi

Signature

Turab
Muhammad Abu Turab Naqvi,
House No. 584, Street 21,
Margalla Town, Islamabad

Insert name,
designation
and address
of the
signatory.

Sign

Muhammad Farhan

Muhammad Farhan, Assistant Director ORIC
Capital University of Science and Technology, & Technology, Islamabad.
Kahuta Road, Zone V, Sihala, Islamabad, Pakistan

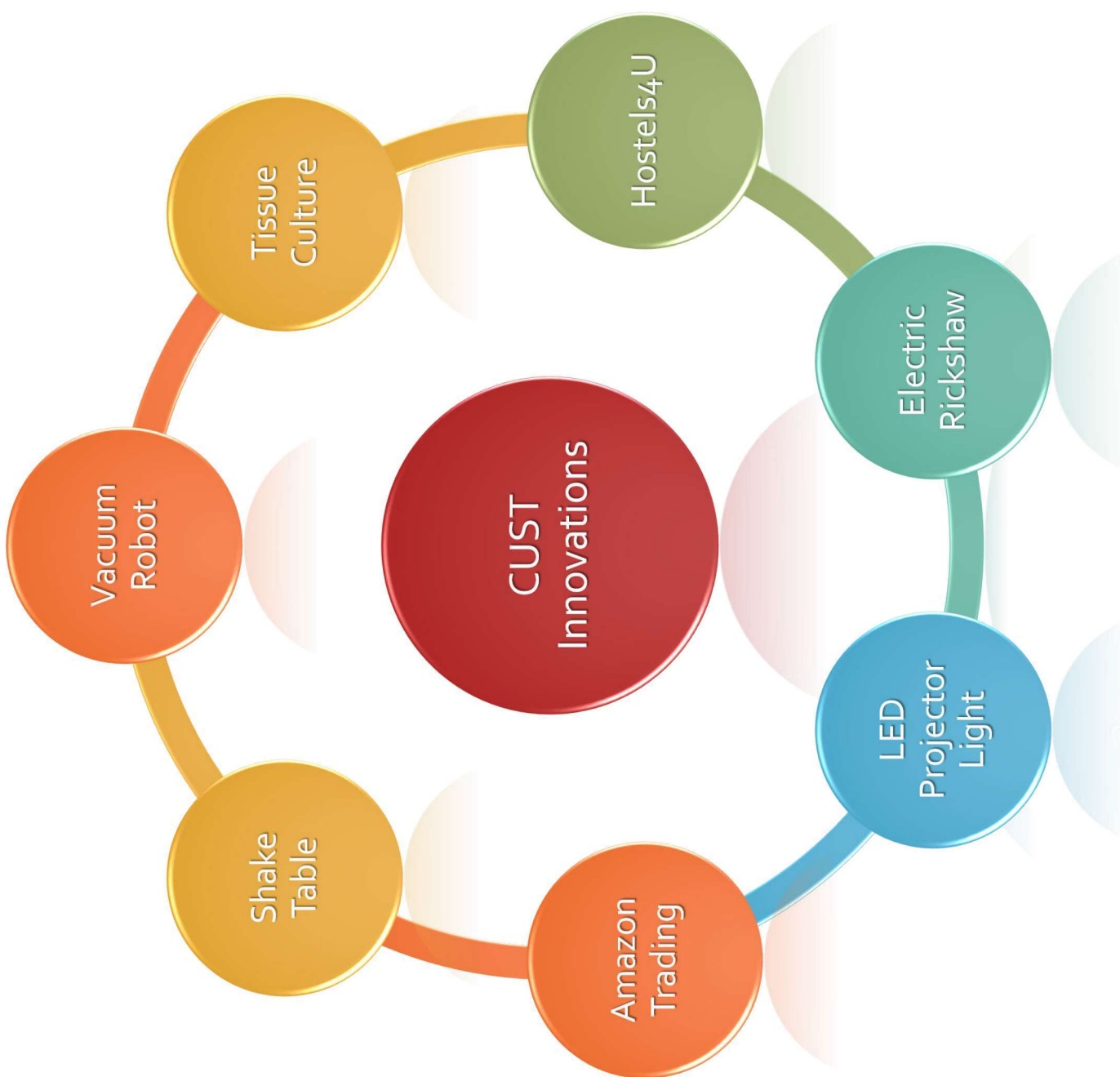
Name and Signature of two witnesses: -

1. Name: Muhammad Raheel Anjum
CNIC: 37402-78180591-1

[Signature]

2. Name: Tahaan Malik
CNIC: 37405 25710525

Tahaan



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





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No. 27/CUST/ORIC/2022

03 March, 2022

Orientation Session-CUST Incubation Center



Office of Research Innovation and Commercialization (ORIC) under the mentorship of Vice Chancellor launched the 1st Cohort Competition 2021. A two-step scrutiny process was adopted to dig out potential startups based on practicality of the ideas presented, and qualification and experience of the teams. A total of two startups were selected to be inducted at CUST Incubation Center (CIC).

An orientation session was conducted for the newly inducted startups to make them familiar with the CIC environment. The session conducted by Mr. Salman Khattak, lecturer FMSS focused on how to productively complete the six months' incubation time at CIC while successfully achieving the pre-defined milestones.

The participants included team of Techflickers, Aquaponics and Remote Advertisement Management System. The participants were also provided an insight to Project Business Case and Project Benefits Management Plan so that the teams should focus on their invention/innovations. The aim was to give them a chance to get more insight into their projects and be on the right path during their stay at the Incubation Center.

MABhatti

Prof. Aamer Iqbal Bhatt
Dean Research & Innovation



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No.39/CUST/ORIC/2022

March 16, 2022

Final Year Projects (FYPs) Funding-Report

Office of Research Innovation and Commercialization (ORIC) under the mentorship of Vice Chancellor launched the Final Year Project Funding for Fall 2021. The prime objective of the mentioned activity is financial encouragement of students whose project ideas have particular business and marketing prospective.

The specific criteria for the mentioned funding along with associated terms and conditions were advertised in first week of November 2021. The event flyer along with application form and cover letter were distributed to all the respective HoDs to inspire students for the mentioned funding. The flyers were advertised online and also on university notice boards.

The application forms were available online and also in ORIC office. The deadline for forms submission was 10th December 2021. A total of 50 application forms were received from various departments including 07 each from EE and CS Departments, 09 from ME Department and 27 from MS Departments respectively. After a systematic assessment a total of six Undergraduate projects have been selected to be funded an amount of 30,000 PKR each.

1. Eligibility Phase I (Initial Screening)

The initial screening was done by assessment/evaluation of application forms to dig out the potential projects. The initial scrutiny was based on the practical possibility of the presented ideas and their productization potential. A total of 11 projects were shortlisted in accordance with the set criteria.

2. Eligibility Phase II (Final Evaluation)

The shortlisted projects were called to present their ideas in 19th ORIC Research Committee meeting held on Thursday, 10th March 2022 in Conference Room, M-Block at 02:30 PM. The applicants presented their projects/ideas before Research Committee. The following members were present in final presentations evaluation:

1	Dr. Sahar Fazal	HoD/Professor BS
4	Dr. Abdul Rehman Kashif	Associate Prof. Math
5	Dr. Mahboob Alam	Associate Prof. Pharm
6	Dr. Umer Amir Khan	Assistant Prof. EE
7	Dr. Khawar Naveed	Assistant Prof. ME
8	Dr. Samiya Safdar	Assistant Prof. MS

The screening of FYPs and project ideas was done keeping in mind their business and commercialization aspects as per following criteria:

1. Practical Possibility
2. Innovation
3. Business Plan
4. Marketing Potential
5. Commercialization Aptitude



A total of 5 marks were allocated to each criterion aspect with a maximum achievable 25 marks. The following list shows the projects standing as evaluated by ORIC Research Committee.

Sr. No.	Project Title	Supervisor	Students' Names	Department	Final Score
1.	Rapunzel Hair Care	Mr. Hafiz M. Adnan	1. Akash Ahmed 2. Ayesha Karamdin 3. Ghosia Azeem	MS	18.5
2.	Finger Labyrinth: A Psychomotor Tool for Measuring sustained Attention among Children and Adolescents	Dr. Sabahat Haqqani	1. Eisha Shahid 2. Isha Fahad 3. Komal Farooq Khan 4. Momina Qadir 5. Nayab Kanwal 6. Sidra Durrani 7. Sumbal Saher 8. Ushna Asad	Psychology	18.16
3.	Design and Development of a Solar Water Desalination System	Mr. Saif Ullah	1. Fakhir Ibrar 2. Mehran Iqbal 3. Sher Khan	ME	17.33

4.	Design and Fabrication of automated wheel chair convertible to bed, sitting and standing mode	Mr. Manzar Masood	1. Syed Hassan Ahmed 2. Muhammad Uzair 3. Aleeza Tassaduq	ME	17.33
5.	Design and development of an elbow exoskeleton mechanism	Ms. Shummaila Rasheed	1. Mahad Amir 2. Aqiba Bashir Uppal 3. Waleed Usman	ME	12.33
6.	Electricity Bill Calculation with Smart Home Automation	Mr. M. Bilal	1. Zaid Bin Zaheer 2. Hifza Kashif 3. Hammad Hussain	SE	12.33
7.	Smart Vehicle Monitoring (SVM)	Mr. Salman Ahmed	1. M. Jasim 2. M. Naveed 3. Usama Ahmed	CS	11.16
8.	Design and Prototyping of Passive exoskeleton for lower limb to assist walking	Ms. Shummaila Rasheed	1. Syed Daniyal Mehdi 2. Zeeshan Nasir 3. Talha Zeb	ME	11.0
9.	Smart Meter for Water Quality Assessment	Mr. Waleed Farooq	1. Waleed Ur Rehman 2. Areeba Saeed 3. Abdul Rehman	EE	10.0

Prepared by:



Muhammad Raheel Anjum
Assistant Director ORIC

Approved by:



Prof. Aamer Iqbal Bhatti
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No.27/CUST/ORIC/2022

25th April, 2022

Memorandum of Understanding (MoU) with Sparknetics



E-Commerce refers to a digital platform and a business model where you can buy or sell products online. E-Commerce has increasingly become a vital component of business strategy and a solid catalyst for economic development. E-commerce has gained hype due to around-the-clock availability, the speed of access, the wide availability of goods and services for the consumer, easy accessibility and international reach. Considering the importance of online business, Capital University of Science and Technology (CUST) has partnered with Sparknetics on 21st April, 2022 to conduct training and provide mentorship to students for easy earnings.

Sparknetics has been indulged in consulting business and are offering a wide range of profitable business opportunities and has also established online assets in the field of E-commerce.

Both the parties agreed to conduct trainings and awareness sessions at CUST on “Sell on Amazon” based on understanding set out in Memorandum of Understand (MoU). Mr. Ammar Yasir Co-Founder Sparknetics and Prof. Aamer Iqbal Bhatti, Dean Research and Innovation, CUST signed the MoU on behalf of their respective organizations.

Prof. Aamer Iqbal Bhatti
Dean Research & Innovation

MEMORANDUM OF UNDERSTANDING

By and between



AND



For Industry Academia Collaboration

DATED – September 2022

Memorandum of Understanding (MoU)

THIS MEMORANDUM OF UNDERSTANDING (the “**MoU**”) is made on September, 2022 (the “**Execution Date**”) by and between:

Capital University of Science and Technology a federally Chartered University established through an **Act No XVI of 2015** of parliament, published by the Senate secretariat, Government of Pakistan vide **No. F.9 (19)/2015-Legis** dated 22-09-2015 through its authorized representative Dr. Muhammad Mansoor Ahmed (hereinafter referred to as “**CUST**” which term shall, unless repugnant to the context, include its successors in interest and permitted assigns and all persons claiming title through under or in trust for it) of the FIRST PART.

And:

Focus & Rulz Pharmaceuticals (Pvt.) Ltd. was founded in 2004 with the slogan “Health in Focus”. Within a short span of time it has established itself as one the most rapidly growing national pharmaceutical companies. It has resulted in the prescription of its products by leading health professionals.

The Company has not confined itself to the boundaries of Pakistan and is currently exporting its products to other countries markets.

(CUST and Trainer shall hereinafter collectively be referred to as the “**Parties**” and each individually as the “**Party**”).

Whereas:

The Parties agree to promote industry-academia collaboration through joint research and development activities of mutual interest in accordance with their respective needs and objective and shall, by joint agreement determine the area and subject of such collaboration, on the basis of the understanding set out in this Memorandum of Understanding (MoU)

NOW THEREFORE, in considerations of the mutual covenants and promises contained herein, the Parties hereby agree as follows:

1. DEFINITIONS

1.1 In this MoU:

- (a). “Effective Date” means the later of the two signatures dates of the authorized signatories set out at the end of this MoU.
- (b). “Project” means the research activity/ project approved by the Management Committee, hereinafter may be referred to as the “Projects” or “Project” for plural or singular respectively.
- (c). “Investigators” means an expert from industry or a faculty member of respective academic department of the CUST.
- (d). “CUST Academic Regulations” means regulations of the CUST, as may be amended from time to time.

2. AREAS OF COLLABORATION:

2.1 The Parties agree to collaborate in the following relevant areas:

- (a). The exchange of scientific, academic and technical information and appropriate academic materials and other information of mutual interest for which each party hold intellectual property rights;
- (b). The identification of opportunities for exchanges and cooperation and joint research and development in disciplines of mutual interest;
- (c). The identification of opportunities for the commercialization of technology;
- (d). The organization of and participation in joint academic and scientific activities such as seminars and conferences;
- (e). The establishment of academic research groups for working on projects approved by Management Committee;
- (f). Joint training of professional and technical personnel of Focus & Rulz Pharmaceuticals and CUST through specialized short courses, workshops or seminars.
- (g). Sponsorship of students by Focus & Rulz Pharmaceuticals in different projects to further human resource in project specific areas.
- (h). Other areas and activities that are mutually agreed upon by both the Parties;

3. **MANAGEMENT COMMITTEE**

- 3.1 Each of the Parties shall appoint one (1) representative to form a Management Committee to manage and oversee the collaborative activities contemplated under this MoU. The representatives of the Parties shall meet as and when necessary to review progress in the implementation of activities related to the areas of collaboration, identify and approve new projects, identify new areas and programs of collaboration as well as discuss matters related to this MoU.

Representative of the CUST

Representative of Focus & Rulz
Pharmaceuticals

Dr. Muzaffar Abbas

Dean, Faculty of Pharmacy

4. **RESEARCH AND DEVELOPMENT WORK**

- 4.1 The CUST will promptly establish academic research groups after the Effective Date.
- 4.2 Each academic research group of the CUST shall promptly nominate the Investigator and will intimate about their nominations to the Management Committee.
- 4.3 Both Parties would hold trainings and seminars required to extend and promote knowledge required for human resource development in areas of common interest.
- 4.4 The CUST will try to allocate projects to the students (undergraduate or postgraduate) inducted by the CUST based on their vested interests in the projects offered by Focus & Rulz Pharmaceuticals.

5. **KEY POINTS OF MoU**

- 5.1 CUST will facilitate Focus & Rulz Pharmaceuticals in Projects and Research.
- 5.2 CUST will give Special invitations to Focus & Rulz Pharmaceuticals in academic events like Open House, Convocation, Conferences etc.
- 5.3 CUST will invite Guest Speakers from Focus & Rulz Pharmaceuticals for Training/Special Courses, Seminars, and will also seek input in the Curriculum.
- 5.4 CUST will nominate experts from Focus & Rulz Pharmaceuticals in Industrial Advisory Board.
- 5.5 CUST will request Focus & Rulz Pharmaceuticals for Visiting Professor expertise if required.

- 5.6 Focus & Rulz Pharmaceuticals will facilitate students of CUST in Summer Internships.
- 5.7 Focus & Rulz Pharmaceuticals will facilitate students of CUST in Industrial Visits.
- 5.8 CUST and Focus & Rulz Pharmaceuticals will share its Labs and Testing Facilities in future, if required.
- 5.9 CUST and Focus & Rulz Pharmaceuticals will exchange scientific, academic and technical information and appropriate academic materials and other information of mutual interest.
- 5.10 CUST and Focus & Rulz Pharmaceuticals will identify the opportunities for exchanges and cooperation and joint research and development in disciplines of mutual interest;
- 5.11 CUST and Focus & Rulz Pharmaceuticals will identify the opportunities for the commercialization of technology;

6. INTELLECTUAL PROPERTY, INVENTIONS AND INNOVATIONS

- 6.1 The terms with respect to any title to and exploitation of intellectual property, inventions and innovations (including but not limited to trademarks and service marks, copyright, patents, know-how designs and confidential information on the subject of such intellectual property, inventions and innovations) will be negotiated on a project-by-project basis in the specific project agreements and programs of cooperation referred to in Clause 3 of this MoU. Save as aforesaid, nothing in this MoU shall be construed as a license or transfer or an obligation to enter into any further agreement with respect to any intellectual property, invention and innovation currently licensed to or belonging to either Party.
- 6.2 For sharing of the intellectual property both parties would join a non-disclosure agreement on project to project basis.

7. PUBLICATION OF ARTICLES

- 7.1 The University shall have the right to publish the results of the Research after providing the Sponsor with a thirty (30) days period in which to review each publication to identify patentable subject matter and to identify any inadvertent disclosure of the Sponsor's proprietary information. After review, the Sponsor may approve the publication or suggest the use of alternate language for the language employed in the publication; The University may incorporate the alternate language suggested by the Sponsor or recommend its own alternate language and send the reworded publication to the Sponsor for review. This process shall continue until the Parties reach a consensus, subject to a maximum period of thirty (30) days or such other period as may be agreed upon between the Parties.

8. REPRESENTATION TO THE PUBLIC AND CONFIDENTIALLY

- 8.1 Neither Party shall use the name or logo of the other Party for any purpose whether in relation to any advertisement or other form of publicity without obtaining the prior written consent of the other party.
- 8.2 Notwithstanding the generality of the above, the Parties may notify third parties of the fact that this MoU is in effect.
- 8.3 All information furnished in relation to this MoU by one Party to the other, which is clearly identified as proprietary or confidential at the time of disclosure, will be kept confidential by the receiving Party and will not be disclosed to any third party otherwise than to carry out the provisions of this MoU, subject to prior agreement in writing between the Parties.

9. AMENDMENTS

- 9.1 This MoU may be amended and supplemented in writing at any time by the mutual consent of the Parties in writing.

10. TERM OF MOU

- 10.1 This MoU shall commence on the Effective Date and shall remain in force for a period of five (05) years. Thereafter, it shall renew itself automatically for successive periods of five (05) years unless either Party notifies the other Party in writing of its desire to terminate this MoU at least six (6) months before the expiry of the initial or the relevant extended period.
- 10.2 The termination of this MoU shall not affect the implementation of the projects or programs established under it prior to such termination.

11. DISPUTE RESOLUTION

- 11.1 "All disputes arising between the parties in connection with this MoU and carrying out of the obligation covenanted hereunder, shall be initially settled amicably between the parties and in case no settlement of dispute(s) is resolved then it shall be referred and settled through head of the organization of respective parties arbitration, a arbitrator under the provision of the Arbitration Act, 1940 and the venue of arbitration Islamabad, Pakistan and the decision will be final".

12. GOVERNING LAW

- 12.1 This MoU shall be governed by, and its provisions be construed in accordance with the laws of Pakistan.

13. NON-BINDING NATURE OF THIS MOU

- 13.1 Despite the statements and obligations expressed herein, this MoU is a non-binding expression of the current intentions of the Parties and neither Party will incur nor be bound to any legal obligations or expense hereunder to the other Party until and unless definitive agreements have been negotiated approved by the necessary management levels of each Party and executed and delivered by authorized representatives of both Parties.

14. ENTIRE AGREEMENT

- 14.1 This MoU constitutes the entire agreement of the Parties relating to the subject matter addressed in this MoU and supersedes any previous representations and negotiations on the subject matter.

Signed for & on Behalf of the CUST

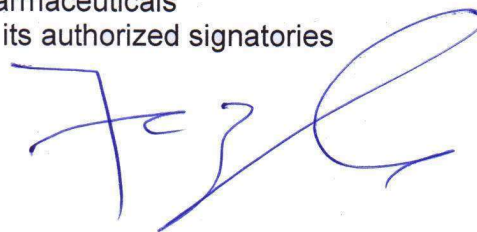
By its authorized signatories



Name: Dr. Muzaffar Abbas
Dean Faculty of Pharmacy
CUST, Islamabad

Signed for & on Behalf of Focus & Rulz
Pharmaceuticals

By its authorized signatories



Name: _____



Name: Dr. Sahar Fazal
Professor/Dean
Faculty of Health & Life Sciences
CUST, Islamabad



Name: _____

MEMORANDUM OF UNDERSTANDING

By and between



AND



For Industry Academia Collaboration

DATED – August 2022

Memorandum of Understanding (MoU)

THIS MEMORANDUM OF UNDERSTANDING (the “**MoU**”) is made on 25th day of August, 2022 (the “**Execution Date**”) by and between:

Capital University of Science and Technology a federally Chartered University established through an **Act No XVI of 2015** of parliament, published by the Senate secretariat, Government of Pakistan vide **No. F.9 (19)/2015-Legis** dated 22-09-2015 through its authorized representative Dr. Muhammad Mansoor Ahmed (hereinafter referred to as “**CUST**” which term shall, unless repugnant to the context, include its successors in interest and permitted assigns and all persons claiming title through under or in trust for it) of the FIRST PART.

And:

Bio-Labs, established in 1989, Bio-Labs had envisioned a self-dependent Pakistan producing superior quality medicines and vaccines to promote animal health across the country. Bio-Labs is being one of the leading animal vaccine and pharmaceutical manufacturers in Pakistan. In 2005, a state of the art manufacturing facility was set-up to manufacture and market pharmaceutical formulations for human therapeutic use. It included solid and liquid oral dosage forms (tablets, capsules, syrups, suspensions and dry powder), topical products (creams, ointments, lotions and oral gels), and injections (sterile liquid vials, sterile liquid ampoules, sterile dry powders and sterile lyophilized powders).

(CUST and Trainer shall hereinafter collectively be referred to as the “**Parties**” and each individually as the “**Party**”).

Whereas:

The Parties agree to promote industry-academia collaboration through joint research and development activities of mutual interest in accordance with their respective needs and objective and shall, by joint agreement determine the area and subject of such collaboration, on the basis of the understanding set out in this Memorandum of Understanding (MoU)

NOW THEREFORE, in considerations of the mutual covenants and promises contained herein, the Parties hereby agree as follows:

1. **DEFINITIONS**

1.1 In this MoU:

- (a). “Effective Date” means the later of the two signatures dates of the authorized signatories set out at the end of this MoU.
- (b). “Project” means the research activity/ project approved by the Management Committee, hereinafter may be referred to as the “Projects” or “Project” for plural or singular respectively.
- (c). “Investigators” means an expert from industry or a faculty member of respective academic department of the CUST.
- (d). “CUST Academic Regulations” means regulations of the CUST, as may be amended from time to time.

2. **AREAS OF COLLABORATION:**

2.1 The Parties agree to collaborate in the following relevant areas:

- (a). The exchange of scientific, academic and technical information and appropriate academic materials and other information of mutual interest for which each party hold intellectual property rights;
- (b). The identification of opportunities for exchanges and cooperation and joint research and development in disciplines of mutual interest;
- (c). The identification of opportunities for the commercialization of technology;
- (d). The organization of and participation in joint academic and scientific activities such as seminars and conferences;
- (e). The establishment of academic research groups for working on projects approved by Management Committee;
- (f). Joint training of professional and technical personnel of Bio-Labs and CUST through specialized short courses, workshops or seminars.
- (g). Sponsorship of students by Bio-Labs in different projects to further human resource in project specific areas.
- (h). Other areas and activities that are mutually agreed upon by both the Parties;

3. **MANAGEMENT COMMITTEE**

- 3.1 Each of the Parties shall appoint one (1) representative to form a Management Committee to manage and oversee the collaborative activities contemplated under this MoU. The representatives of the Parties shall meet as and when necessary to review progress in the implementation of activities related to the areas of collaboration, identify and approve new projects, identify new areas and programs of collaboration as well as discuss matters related to this MoU.

Representative of the CUST

Dr. Muzaffar Abbas

Dean, Faculty of Pharmacy

Representative of Bio-Labs

4. **RESEARCH AND DEVELOPMENT WORK**

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- 4.3 Both Parties would hold trainings and seminars required to extend and promote knowledge required for human resource development in areas of common interest.
- 4.4 The CUST will try to allocate projects to the students (undergraduate or postgraduate) inducted by the CUST based on their vested interests in the projects offered by Bio-Labs.

5. **KEY POINTS OF MoU**

- 5.1 CUST will facilitate Bio-Labs in Animal Study Projects and Research.
- 5.2 CUST will give Special invitations to Bio-Labs in academic events like Open House, Convocation, Conferences etc.
- 5.3 CUST will invite Guest Speakers from Bio-Labs for Training/Special Courses, Seminars, and will also seek input in the Curriculum.
- 5.4 CUST will nominate experts from Bio-Labs in Industrial Advisory Board.
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- 5.7 Bio-Labs will facilitate students of CUST in Industrial Visits.
- 5.8 CUST and Bio-Labs will share its Labs and Testing Facilities in future, if required.

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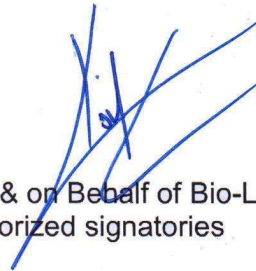
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Signed for & on Behalf of the CUST
By its authorized signatories

Name: Dr. Muzaffar Abbas
Dean Faculty of Pharmacy
CUST, Islamabad



Signed for & on Behalf of Bio-Labs
By its authorized signatories

Mr. Kashif Yaseen
GM HR & Admin
Bio-Labs (Pvt) Ltd.



Capital University of Science and Technology

Islamabad Expressway, Kahuta Road, Zone-V, Islamabad

Phone: +92 51 111 555 666, Fax: 92 51 4486705

Email: info@cust.edu.pk, Website: <http://www.cust.edu.pk>

Industrial Outreach

S.No	List of Pharmaceutical Industries	Letters Prepared	Initial Contact	Visit of Industry	MoU Document Finalization	MoU
1	Shaigan Pharmaceuticals	19 August	22 August	23 August	26 August	Sent for Signatures
2	Vision Pharmaceuticals	19 August	22 August	31 August		
3	Crystollite Pharmaceuticals	19 August	22 August	1 st Sep		
4	BioLab Pharmaceuticals	19 August	24 August	24 August	25 August	Done
5	Amson Pharma, Kahuta Road	19 August	24 August	31 August	26 August	In Process
6	Hygeia Pharma, Kahuta Road	19 August	24 August	31 August		
7	Rotex Pharma, Kahuta Road	19 August	24 August	31 August		
8	Danas Pharma	19 August	24 August	31 August		
9	Davis Pharma	19 August	26 August	31 August		
10	Innovotek Pharma	19 August	26 August	31 August		
11	Focus and Rulz Pharma	19 August	26 August	28 August	26 August	Done
12	Medizan Vaccine Pharma	19 August	26 August	31 August		
13	Glitz Pharma	27 August	27 August	31 August	27 August	In Process
14	Evolution Pharma	27 August	1 st Sep	1 st Sep		
15	Metro Pharma	27 August	1 st Sep	1 st Sep		
16	Grays Pharma	27 August	1 st Sep	1 st Sep		
17	Advanced Pharma	27 August	1 st Sep	1 st Sep		
18	Hawk Bio Pharma	27 August	1 st Sep	1 st Sep		
19	Linear Pharma	27 August	1 st Sep	1 st Sep		
20	Regal Pharma	27 August	1 st Sep	1 st Sep		
21	Greater Pharma	27 August	1 st Sep	1 st Sep		
22	Reliance Pharma	27 August	1 st Sep	1 st Sep		
23	Herbion Pharma	27 August	1 st Sep	1 st Sep		



Capital University of Science and Technology

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No.22/CUST/ORIC/2022

11th April, 2022

Visit to Safe Solutions Consultancy (Pvt) Ltd



The construction industry at global level is moving towards the digitization. At present, Building Information Modeling (BIM) innovations are the leaders in 3D virtual modeling with various potential benefits. In pursuit of Industry-Academia Linkage Safe Solutions Pvt. Ltd. invited Office of Research, Innovation & Commercialization (ORIC), Capital University of Science and Technology (CUST), Islamabad to collaborate in BIM. Safe Solutions specializes in Architectural, Structural and MEP Modeling including 3D Modeling, 4D Modeling, BIM Implementation and BIM Modeling Services.

A team from CUST visited Safe Solutions to discuss the possibility of collaboration and identify potential synergetic areas. The meeting participants included:

- | | |
|--------------------------------|-----------------------------------|
| 1. Mr. Muhammad Asad | COO PK Safe Solutions Consultant |
| 2. Mr. Danyial Firoz | COO USA Safe Solutions Consultant |
| 3. Mr. Abdul Sattar | Finance Lead Safe Solution |
| 4. Ms. Zille Huma | Project Manager Archiwiz |
| 5. Mr. Hassan Mustaf | Team Lead Archiwiz |
| 6. Mr. Irfan Qasim | Project Coordinator Archiwiz |
| 7. Mr. Muhammad Salman Khattak | Lecturer FMSS |
| 8. Mr. Muhammad Farhan | Assistant Director ORIC |
| 9. Mr. Umair Ahmed | Lab Eng. CE |

After comprehensive and deliberate discussions both parties agreed on:



Capital University of Science and Technology

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Email: info@cust.edu.pk, Website: <http://www.cust.edu.pk>

1. Safe Solutions to offer internships to CUST students for a period of minimum two months, maximum six months.
2. The potential students (if any) may be offered job by Safe Solutions after systematic process.
3. CUST to share the learning outcomes of the internship with Safe Solutions.
4. Safe Solutions team to be invited as resource persons for various BIM workshops scheduled at CUST.

Prof. Aamer Iqbal Bhatti
Dean Research & Innovation



Capital University of Science and Technology

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No.23/CUST/ORIC/2022

July 18, 2022

Interactive Seminar on “Printed Circuit Board (PCB) Design”

Printed Circuit Board (PCBs) are the foundation of electronic products as they are used in almost every electronic device. Using layout software, the PCB design process combines component placement and routing to define electrical connectivity on a manufactured circuit board. PCBs have a vital role in this modern day as technology is improving daily. They are used in Consumer Electronics, Industrial Applications, Medical Devices, Automotive Applications, etc. An effective PCB design can help in reducing the chances of errors and also the possibilities of short circuit.

Considering the importance of PCB Design for Electrical Engineering students, Office of Research, Innovation and Commercialization (ORIC) in collaboration with Electrical Engineering (EE) Department organized Interactive Seminar on “PCB Design” on Wednesday, 06th July, 2022 at 02:00 PM. The seminar encompassed industry-based understanding of concepts like Library Management, Schematic Capturing, PCB Layout/Routing, Gerber Files, Production files etc.



A total of 27 Electrical Engineering students attended the session which lasted till 03:45 PM including the Q/A session. The seminar resource person was Mr. Raees Naqvi, CEO, Electronic Interconnect Engineering (EIE), Islamabad. The guest speaker was thanked and acknowledged with university memento by Dean Research & Innovation, Prof. Aamer Iqbal Bhatti at the end of the session.

Prepared by:

Muhammad Raheel Anjum
Assistant Director ORIC

Approved by:

Prof. Aamer Iqbal Bhatti
Dean Research & Innovation



CAPITAL UNIVERSITY OF SCIENCE & TECHNOLOGY



Certificate Courses Spring-2022

Electrical and Electronics

- ✚ Analog Integrated Electronic Circuit
- ✚ Advanced Artificial Intelligence
- ✚ Advanced Digital Communication
- ✚ Nonlinear Control Systems
- ✚ Control Systems Design

Civil & Construction Engineering

- ✚ Fiber Reinforced Composites
- ✚ Advanced Open Channel Hydraulics
- ✚ Foundation Engineering

Mechanical & Engineering

- ✚ Fracture Mechanics
- ✚ Finite Element Methods

Engineering Management

- ✚ Operations Research
- ✚ Production Planning & Control

Registration Forms are available at **ORIC Office, CUST** and on CUST Website <https://cust.edu.pk/downloads>. Submit the Filled Application Forms in **ORIC Office, H-Block** not later than **Monday, 07th March, 2022**. Course Registration Fee: **27,000 PKR**. Class Timings: **06 PM-09 PM (Once in Week)**. Contact Person: **M. Raheel Anjum, Assistant Director, ORIC**

☎ 03315293054

✉ raheel.anjum@cust.edu.pk