



ORIC Activities Report

Fall-2022

Dated: 10th February, 2023

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



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ORIC Activities Report Fall-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 Fall-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 Fall-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. Twentieth (20th) ORIC Research Committee Meeting

The 20th ORIC Research Committee Meeting chaired by Dean Research & Innovation was held on 06th December, 2022. The meeting was held on agenda points including “HEC Academic-Industry-Government Linkages Portal”, “CUST Incubation Center Cohort Launch-II”, “Annual Research Database Update-2022” and “CUST Selling Points Presentation”.



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ii. Meeting with NESCOM Officials on Funded R&D Projects

A meeting with NESCOM Officials on Funded R&D Projects was held in last week of October, 2022. The officials presented/offered their list of R&D Projects to Dean Research & Innovation for MS students of EE Department of CUST.

iii. Meeting with Dean FHLS on Tissue Culture Project

A collaborative meeting of ORIC with Dean Faculty of Health & Life Sciences (FHLS) was held to discuss the prospective outcomes and future endeavor of the startup. A specific working plan was also discussed.

iv. Collaborative Meeting with CEO of SLOSH AI Solutions, Islamabad

A collaborative meeting with CEO of SLOSH AI Solutions was held on 17th November, 2022 in ORIC Office. SLOSH works in cancer screening and has a dedicated team of engineers and doctors. SLOSH is working on Artificial Intelligence (AI) based processes/business in medicine to meet millennium AI challenges for Pakistan.

B. Research Proposals Advertisement, Documentation and Facilitation

i. Advertisement for Call for Proposal- Technology Development Fund (TDF)

The advertisement of Call for Proposals of Technology Development Fund (TDF) was done by ORIC. The advertisement/associate procedures/requirements were shared with faculty members. The full guidance was provided to faculty members in this regard.

ii. HEC Innovator Seed Fund (ISF) Advertisement

HEC has launched the Higher Education Development in Pakistan (HEDP) project to help in accelerating the economic engines of the country. Innovator Seed Fund (ISF) is an initiative under HEDP that aims at engaging entrepreneurs and upcoming aspirants who want to convert their business ideas into action. The Call for Proposals of Innovator Seed Fund (ISF) was projected by ORIC across all the departments and relevant support/guidance was provided.

iii. PM National Innovation Award Advertisement

PM National Innovation Award is an initiative of Prime Minister's Youth Program to turn your idea into business; take the challenge and propose your innovative idea. The Seed money of the program was PKR 2-million each project, and technical support with incubation options. ORIC advertised the PM Innovation Award details with students and faculty members across all the departments, and facilitated them.

iv. Advertisement of NESCOM R&D Funded Projects

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



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v. Advertisement of RAPID Technology Transfer Grant (RTTG)

The RAPID Technology Transfer Grant (RTTG) is the key element of the Higher Education Development in Pakistan (HEDP) Project supported by the World Bank and implemented by the Higher Education Commission (HEC). The RTTG is a fast-track funding mechanism dealing with themes, topics, and issues of severe urgency for quick-response research on Flood response, Climate Change and Environment. The Call for Proposals of RTTG was projected by ORIC across all the departments employing various advertisement channels.

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 Fall-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 is to promote/acknowledge research work of students and faculty. The posters are displayed in university to highlight research output of departments.

iii. Impact Factor Verification of Faculty Research Honorariums

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

iv. 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.

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.

vi. Faculty Research Profiles/Publication Update

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



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vii. CASPR Research Group Poster Designing

The Control and Signals Processing Research Group (CASPR) of CUST has accomplished 32 PhDs in the discipline of Control Engineering and allied fields. To celebrate/project the research achievement of CASPR, a unique poster was designed, printed and displayed by ORIC in university.

viii. CUST International Conferences Database

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

D. DOIs of Jinnah Business Review (JBR) Journal

ORIC has responsibility to regularly issue DOIs to CUST Jinnah Business Review (JBR) Journal. Recently, the DOIs of Volume No. 10 and Issue No. 2 were allotted.

E. Filing/Documentation for CUST Research Excellence Awards-2022

i. Publication Verification Report for Research Excellence Awards

To recognize and celebrate the intellectual & valuable contributions of its faculty at National and International level, CUST announced the Research Excellence Awards (REA)-2022. On the basis of detailed evaluation of research impact and achievement of cumulative impact factor above 100, the six Professors were shortlisted for REA-2022, as per defined policy. ORIC has done scrutiny/verification of the potential faculty members data and generated Publication Verification Report.

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. Experiential Training Session on Latex for PhD Researchers

Office of Research, Innovation and Commercialization (ORIC) organized “Two-Days Workshop on Latex” on 05th-06th December, 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. Omaid Ghayyur, Lecturer (CS, Department), CUST. 16 participants including PhD students from various departments attended the workshop.



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ii. QEC Office Management Workshop (03 Module)

The Assistant Director (Research Management), Mr. M. Raheel Anjum took part in “Office Management Workshop” held by Quality Enhancement Cell (QEC), CUST. The training consisted of 03 modules held on three different days in recent semester. On concluding session, a comprehensive Evaluation/Feedback Report was also submitted to QEC.

iii. Crash Course on Amazon Trading (FBA Wholesale)

Office of Research Innovation and commercialization (ORIC) in collaboration with Sparknetics conducted one-week Hands-on Workshop on Amazon Trading. The workshop was conducted from 01st to 04th November, 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 15 students participated in the workshop.

iv. Hands-on workshop on SPSS for FHLS students

Office of Research, Innovation and Commercialization (ORIC) in collaboration with Dean Faculty of Health & Life Sciences (FHLS) organized “Two-Days Hands-on Workshop on SPSS” on 29th December, 2022 and 05th January, 2023 in Instructions Lab-6, M-Block. The workshop was conducted by Dr. Sohail Rizwan from Fatima Jinnah Women University (FJWU), Rawalpindi. A total of 15 participants including students from Biosciences/Bioinformatics/Microbiology Departments attended the workshop.

v. Series of CASPR IEEE CSS Seminars

ORIC under Control and Signals Processing Research Group (CASPR) has organized numerous Seminars/Interactive Sessions. This is a regular weekly based activity managed by ORIC. A total of 10 seminars were conducted and reported on IEEE CSS Website. The general audience of these sessions included CUST Research Scholars, Faculty Members and CASPR Alumni.

B. Innovation Endeavors

i. Patent of “Design and Development of Elbow Exoskeleton System”

ORIC has prepared patent of Elbow Exoskeleton System. The project is a joint venture of ORIC and ME department. The development of a passive type portable elbow exoskeleton allow for the delivery of two phases if rehabilitation in a single structure without impairing range of motion or safety aspect. Two steps comprise the recovery training. The first stage controls joint movement actuated by an external motor. The second stage focuses on assisting motions using assistive force by using extension spring.

ii. 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.



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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. 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 07 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.

D. ORIC FYPs/Startups/Projects Funding

i. Funding of GIKI Design, Build and Flying Competition Projects

American Institute of Aeronautics and Astronautics Society (AIAA) under the Department of Student Affairs organized an All-Pakistan event on 25th, 26th, 27th November, 2022 named as Design Build Fly Competition-16 (DBFC-16) at GIK Institute. There were 100 participants belonging to 20 teams from diverse backgrounds. Two teams from ME Department, sponsored by ORIC represented CUST at the event.

ii. IGNITE Funding Advertisement (NGIRI-2022)

The National Grassroots ICT Research Initiative (NGIRI) aims to assist final year undergraduate students of ICT related disciplines studying in the Institutions by providing them financial assistance for developing prototypes/working models of their Final Year Projects (FYP) in order to increase creativity, innovation and hands on engineering and development skills. ORIC has advertised NGIRI-2022 to faculty and students and displayed the program on notice boards. ORIC is also the official coordinator of Ignite funding.



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iii. IGNITE Funding Reimbursement (NGIRI-2021)

IGNITE has shortlisted Thirteen Undergraduate Final Year Projects (FYPs) of CUST students for seed funding under NGIRI-2021. 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 has been disbursed among the award-winning students of various departments.

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 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 Islamabad Diagnostic Center

Islamabad Diagnostic Centre, brain child of Dr. Rizwan Uppal is the first diagnostic facility providing entire spectrum of imaging & lab services under one roof. Since inception, IDC has built a successful track record and is known for its latest imaging technologies, broad range of laboratory tests and quick turn-around times, with over 2500 staff members, and one of Pakistan's largest pool of qualified Radiologists and Pathologists on its team. ORIC has approached IDC for liaison in the areas of mutual collaboration. The working MOU in this regard is in final phase.

ii. 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.

iii. Memorandum of Understanding (MOU) with Marhaba Pakistan Pvt Ltd

Marhaba Laboratories (Pvt) Ltd. is a household name not only in Pakistan but all over the world where Asian and other people conversant with the efficacy of oriental medicines live. The company produces oriental medicines and natural dietary supplements in a modern and scientific manner so that the age-old prescriptions and remedies, reach the customer in a ready to use form, without in any way affecting their efficacy and natural qualities. Marhaba approached ORIC and Pharmacy Department to bring strong liaison in the areas of mutual interest. The agreement of mutual interest is in final phase.



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iv. Memorandum of Understanding (MOU) with Pink Ribbon Pakistan Pvt Ltd

Pink Ribbon Pakistan is a non-funded, self-sustained and the only organization in the country which is dedicatedly working on the issue of breast cancer with nationwide outreach since 2004. Pink Ribbon strive to significantly reduce breast cancer mortality in the country by creating widespread awareness through community engagement on prevention, early detection and increased access to treatment. The specific MOU of mutual interest with Pink Ribbon Pvt Ltd is in pipeline.

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 President of Islamabad Industrial Association (IIA)

The president of Islamabad Industrial Association (IIA) visited ORIC on October, 25, 2022. The meetup focused on Industry Academia linkages and prospective strategies to bring liaison with local Industry. The president ensured his full support to bring together local industries with CUST.

iii. Visit of ICCI Top Officials at CUST

A team of 07 top officials led by Engr. M. Azhar-Ul-Islam Zafar, Vice President, ICCI Islamabad Chamber of Commerce & Industry (ICCI) visited Capital University of Science and Technology (CUST) on December 19th, 2022. The agenda of the meeting was to promote joint academic and R&D activities of mutual interest in accordance with their respective needs and objectives as well as to promote academia-industry linkages.

C. 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.

Miscellaneous Tasks

A. ORIC Newsletters and Semester Activities Books/Reports

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

The seventh and eighth volumes of ORIC Newsletters (Fall-2021 and Fall-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 Fall-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 Spring-2022

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.



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iii. DSE Annual Report Designing/Formatting-2022

The Directorate of Sustainability and Environment (DSE) has developed their Activities Report for 2022. The VC Office directed ORIC to graphically design/format the report. ORIC designed and submitted the report to VC Office as per instructions. The Report was also used for International Sustainability/Green Metric Ranking.

B. Scrutiny/Verification/Updation of R&D Data for QEC YPR-2022

QEC requested ORIC to provide the data related to Research Publications, R&D Projects and Research/Intellectual Rights Policies. ORIC Scrutinized/Verified and provide the updated data. The R&D data was required for QEC YPR and International Ranking Application.

C. CUST Selling Points/ /ORIC Progress Presentation for BOG

ORIC designed CUST Selling/Departmental Progress Presentation for BOG meeting, as per directions of VC Office. The progress report was presented in Annual BOG meeting. This is a regular annual activity performed by ORIC. The CUST Selling Points presentation was depicted to the visiting Marketing Team from Head Office.

D. Filing/Documentation/Submission of HEC Civil Awards Cases

The HEC Civil Awards are conferred upon the teachers and administration of Universities / Degree Awarding Institutions in recognition of their achievements and services rendered for the development of the institution and society. The Government of Pakistan invites nominations every year for different categories of Civil Awards to be announced by the President, of the Islamic Republic of Pakistan on 14th August, while the investiture for these awards takes place on Pakistan Day i.e., 23rd March every year. The Civil Awards Cases of Prof. Aamer Iqbal Bhatti and Prof. Majid Ali were prepared/documented/submitted in HEC.

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Industrial Liaison

A. MOUS and Mutual Agreements with Industry/Corporate Sector

- i. Memorandum of Understanding (MOU) with Islamabad Diagnostic Center -----40
- ii. Memorandum of Understanding (MOU) with Bio-Labs (Pvt.) Ltd.-----46
- iii. Memorandum of Understanding (MOU) with Marhaba Pakistan Pvt Ltd-----54
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B. Industrial and Societal Outreach

- i. Visits of Pharmaceutical Industries for Academia – Industries Linkages-----66
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- A. Filing/Documentation/Submission of HEC Civil Awards Cases-----70**



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20th ORIC Research Committee Meeting

Minutes of the Meeting held on December 06, 2022

- The 20th ORIC Research Committee meeting was held on Tuesday, the 06th December, 2022 at 02:00 PM in Conference Room, M-Block, CUST.
- Prof. Aamer Iqbal Bhatti, Dean Research & Innovation, presided the meeting.
- The following were present in the meeting:
 - Prof. Sahar Fazal Dean FHLS
 - Dr. Nadeem Anjum HoD SE
 - Engr. Prof. Majid Ali Professor CE
 - Dr. Abdul Rehman Kashif Associate Prof. Math
 - Dr. Mahboob Alam Associate Prof. Pharm
 - Dr. Khawar Naveed Assistant Prof. ME
 - Dr. Samiya Safdar Assistant Prof. MS
 - Mr. M. Raheel Anjum Assistant Director ORIC
 - Mr. Jehanzaib Sarwar Malik Assistant Director ORIC
- Dr. Umer Amir Khan, the respective ORIC Research Committee member from EE department could not attend the meeting due to his prior official commitment.
- Dean Research and Innovation, Prof. Aamer Iqbal Bhatti welcomed the committee members. Subsequently, the meeting progressed as per agenda item listed below: -

Item #1	<u>HEC Academic-Industry-Government Linkages Portal (RFI Portal)</u>	<u>Action By</u>
1.1	Dean Research & Innovation apprised Research Committee members about the newly launched HEC Academia-Industry-Government Linkages (RFI) Portal. The portal is launched by HEC to bridge down the gap between Industry and Academia, and bring about collaborations in the domains of Research/Innovation/Commercialization. He directed the members to create Login IDs on the mentioned portal and also motivate their respective faculty members to do so. The details of HEC Innovators Seed Fund (ISF) and Technology Development Fund (TDF) were also shared with the respective members. The members were asked to stimulate the respective departmental faculty to apply for the mentioned funding grants.	Research Committee Members



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- Item #2** **CUST Incubation Center (CIC) Cohort Launch-II**
- 2.1 Dean Research & Innovation presented the details of 2nd Cohort of CUST Incubation Center (CIC). The students with commercialize able Idea/Project/Startup can apply for the programme. ORIC will provide office environment/mentorship/marketing opportunities to the selected startups. ORIC will also help the startups to register themselves with SECP. The committee members were requested to advertise the porogramme to their respective departments. ORIC/Research Committee Members
- Item #3** **Annual Research Database Update-2022**
- 3.1 ORIC is updating the Research Database for the year 2022. In this regard, Publications/R&D Projects data is being collected/verified from the departments. The most recent list of updated publications is shared with respective Dean Offices. The members were directed to help in collection/verification of date from their respective departments. The finalized data would be shared with Vice Chancellor and Quality Enhancement Cell (QEC) for BOG meeting and HEC Yearly Progress Report (YPR) respectively. ORIC/Research Committee Members
- Item #4** **CUST Selling Points Presentation**
- 4.1 Dean Research & Innovation presented the CUST Selling Points presentation made by ORIC for CUST Head Office Team. The members were asked to provide their feedback and recommend the necessary modifications. The members presented their proposals/suggestions before Dean Research & Innovation. The Assistant Director ORIC was asked to note down the recommendations and do modification accordingly. ORIC

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



Visit our web at : <http://hec.gov.pk/site/TDF>

Call for Proposals Technology Development Fund (TDF)

*Financial Support up to
PKRs. 14 million will be
provided to successful proposal*



Contact us at

051-90401933

To strengthen academia-industry linkages in Pakistan for inclusion, adoption, and promotion of newly developed technologies and support viable commercial ideas announcing 4th Call for Proposals.

Joint proposals from Academia & Industry initiated by HEIs through ORIC/Directorate of Research must reach HEC no later than **23:59 hrs. December 20, 2022.**

HEC uplifted Made in Pakistan ambition through Technology Development Fund with over **150 Products** licensed to partner industries!

OBJECTIVE & OPPORTUNITY

Joint Tech. Venture proposals invited from match-made Academia & Industry, with the mission to solve a current industrial, economic, or technological problem having a socioeconomic impact, value creation, innovation, import-substitution & indigenization.

PROPOSAL SUBMISSION & ELIGIBILITY CRITERIA

- ✓ Faculty members of Public & Private Sector Higher Education Institutions with relevant commercialization partners from Industry/ investor/ private/ public sector R&D institutes/ Spin-offs / Start-ups at leading Incubation Centres or Accelerators.
- ✓ Preference will be given to the proposals having strong industrial collaboration with financial and technical commitment.

Scan for more info



Technology Development Fund
Higher Education Commission
Sector H-9, Islamabad

r&d@hec.gov.pk
<http://hec.gov.pk/site/TDF>





Higher Education Commission, Pakistan



Call for Applications

Turn Your Entrepreneurial Idea into a Successful Enterprise

Innovator Seed Fund (ISF) - 2022

The Higher Education Commission (HEC) invites innovative startups owned by students, alumni, and/or faculty members/researchers (from Public & Private Sector Universities/Degree Awarding Institutions) to apply for Innovator Seed Fund (ISF) Grant.

KEY FEATURES

ISF, envisioned for development of innovation and startup ecosystem in Pakistan, is a flagship initiative of HEC under the Higher Education Development in Pakistan Project (HEDP). ISF is anticipated to support development of fledgling startups having innovative ideas through provision of seed funding grants, to transform them into successful and sustainable enterprises. The grant package includes up to USD 35,000 in seed funding, stretched over startups proposed budgetary requirements for activities including but not limiting to entrepreneurial training, legal / financial / marketing training and support, among other services.

APPLICANT ELIGIBILITY

The lead applicant must:

- Either be a student, alumni and/or faculty member / researcher of the Higher Education Institutions (public and private).
- Have endorsement from one of the HEC Established 35 Business Incubation Centers across Pakistan.
- Have an SECP-registered business concern, ensuring legal status and promising potential of the startup.

PRIORITY THEMES

The priority sectors for ISF support include:

- 1 Agriculture, Food Resources and Agri Tech
- 2 Housing, Construction and Manufacturing
- 3 Banking, Microfinance and FinTech
- 4 Health Care and Health Tech
- 5 Transportation and Logistics
- 6 Education and EdTech
- 7 E-commerce and Smart Retail
- 8 Sustainable Development, Climate and Energy
- 9 Emerging Technologies
- 10 Creative, Digital Media, Arts and Culture
- 11 Other sectors that have potential for growth and impact

Innovative Ideas / Concept Notes on prescribed application template must be submitted via HEC online portal.

<https://www.rfi.hec.gov.pk>

Deadline for Application Submission is January 6, 2023 - 11:59pm

For further information and application submission requirements please visit HEC website:

<http://www.hec.gov.pk/site/isf>

For queries, email at:

isf@hec.gov.pk

PID (I) 3522-D/22



Prime Minister's
Youth Programme

TURN YOUR IDEA INTO BUSINESS



Prime Minister's National Innovation Award

An initiative of Prime Minister's
Youth Programme

Take the Challenge – Propose Your Innovative Idea
Win the Grant Package of up to PKR 2 Million
Financial and technical support with incubation options

Eligibility: All Pakistani Youth Aged Between 15 to 30 Years

DEADLINE: NOVEMBER 15, 2022

Thematic Areas for Innovative Ideas:

- Food Security
- Water Management and Sustainability
- Sustainable Energy
- Urban Planning
- Climate Change and Environment
- Information Technology and Telecom
- Innovative Governance and Reforms
- Sociology and Philosophy
- Medical and Health Sciences
- Others

SUBMISSION

Submit your Startup Innovative Ideas/ Concept Notes on prescribed application via:

www.pmyp.gov.pk



Call for Research Proposals

RAPID Technology Transfer Grant (RTTG)

The Higher Education Commission (HEC), Pakistan invites faculty members of public and private sector universities/degree awarding institutions (DAIs) to submit research proposals focused on the transfer of university developed technologies and products to the industry and commercial sector under RAPID Technology Transfer Grant (RTTG).

Key Features

The RTTG is a key element of the Higher Education Development in Pakistan (HEDP) project supported by the World Bank and implemented by HEC.

The RTTG is a fast-track funding mechanism dealing with themes, topics, and issues of severe urgency for quick-response research on Flood response, Climate Change and Environment. The grant is anticipated to support proposals in applied research, product innovation, and commercialization of developed technological research and solutions. The RTTG will provide funds to selected institutions based on a competitive, peer-reviewed evaluation of proposals. The amount of funding for RTTG awards may range between PKR 10 – 20 million with a maximum project duration of 6 months.

Applicant Eligibility

Lead Principal Investigators (PIs) must:

- Be a regular faculty member of higher education institutions (public and private) or hold a contract equivalent to the length of the project duration

Priority Themes

The priority sectors for RTTG support include Flood Response, Climate Change and Environment, including but not limited to:

- Climate mitigation, adaptation, policy dialogue interventions and disaster management (focusing on climate modelling and disaster surveillance, environment monitoring, and geological monitoring)
- Metro-scale pollution reduction technologies
- Protection of available trees through artificial intelligence system controls
- Use of membrane systems for gaseous and water industrial waste treatment
- Design and development of hybrid membranes and classical system per the requirement of site and location
- Identification and development of hospital waste treatment processes
- Removal of arsenic/other toxic metal elements from industrial effluents and water underground aquifers
- Climate-smart agriculture: Adapting agriculture production to climate change by developing climate resilient crop varieties with regard to heat, drought, and flooding (especially of wheat and cotton)
- Any other area related to Flood Response, Climate Change and Environment

Proposal Submission Procedure

Project Proposals on the prescribed application template must be submitted via HEC online portal.

The deadline for project proposal submission is:

Tuesday, February 7, 2023 (11:59 PM)

For further information and application submission requirements,
please visit: <http://www.hec.gov.pk/site/RTTG> | Email: info-r&d@hec.gov.pk



Higher Education Commission, Pakistan

www.hec.gov.pk

ORIC Workshops Dashboard (2022)

Column1	Status	Column2	Status3	Column3	Status4	Column4	Status5	Column5
Short Courses		Workshops		Seminars		Certificate Courses		Business Plan Competitions
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						
Short Course on Amazon Trading		Workshop on REVIT Structure Fundamentals						
		Workshop on Latex						

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ORIC Revenue Generation Record-Capacity Building

Sr.No.	Workshop Title	Date	Revenue (PKR)
1	Certificate Courses Spring-2022	Spring-2022	76,270
2	Certificate Courses Fall-2021	Fall-2021	104,760
3	Certificate Courses Spring-2021	Spring-2021	1,021,904
4	Certificate Courses Fall-2020	Fall-2020	108,000
5	Certificate Courses Spring-2020	Spring-2020	451,440
6	Short Course on Amazon Trading	01st -04th November, 2022	9,200
7	Short Course on Amazon Web Services	29th Aug, 2022 to 09th Sep, 2022	2,134
8	Workshop on Flutter Software	05th to 09th September, 2022	16,280
9	workshop on REVIT Structure Fundamentals	16th to 17th August, 2022	4,163
10	Short Course on "Amazon Web Services (AWS)" (For NESCOM)	May 10-27, 2022	5,940
11	Crash Course on Ethical Hacking	June 13th-17th, 2022	21,020
12	Hands-On Course on React-JS	June 01st-13th, 2022	6,730
13	Workshop on "Docker Tools (Online)"	May 25-27, 2022	4,000
14	One-Day Workshop on Latex	28-Apr-22	Free
15	Hands-On Workshop on "WordPress"	March 28 to April 02, 2022	13,600
16	Workshop on "DEVOPS Tools (Terraform and Ansible)"	March 15-20, 2022	2,720
17	Short Course on Ethical Hacking for Beginners	January 17-28, 2022	10,200
18	Short Course on "Amazon Web Services (AWS)"	December 20-31, 2021	8,680
19	Short Course on "React JS"	November 01 2021 to January 28, 2022	17,720
20	Hands on Training on Amazon Trading	25-Nov-21	15,800
21	Short Course on "Ubuntu and Python"	Nov 22-29, 2021	4,000

22	Short Course on “Amazon Web Services (AWS)”	Oct 11-20, 2021	1,180
23	Short Course on “Information Security and Forensics”	Sep 20-30, 2021	7,721
24	Short Course on “DEVOPS Tools”	Sep 20-24, 2021	1,322
25	One-Month Short Course on “Amazon Web Services (AWS)”	Aug 09-31, 2021	5,030
26	Workshop on Latex for Students for CUST Staff	Aug 16, 17, 25 and Sept 08, 2021	Free
27	Two-Days Training Workshop on “Amazon Trading”	August 23-24, 2021	1,590
28	Workshop on Latex for Psychology Department	5-Aug-21	Free
29	Short Course on “Information Security and Forensics”	Jun 18 – Jul 05, 2021	0
30	Workshop on Latex for Students	27-May-21	Free
31	One-Day Workshop on Endnote	26-Jan-21	Free
32	One-Day Workshop on LaTeX	16-Dec-20	Free
33	One-Day Workshop on LaTeX	21-Oct-20	Free
34	Online Seminar on SARS COVID-19	17-Jun-20	Free
35	Training Session on Recent Approaches in Literature Review	9-Jun-20	Free
36	Three Days Autodesk REVIT Electrical Workshop	January 02-04, 2020	0
37	Workshop on Revit Architecture Fundamental	Oct 25-26, 2019	18,000
38	Workshop on Research Methodology	Aug 19-20, 2019	Free
39	Workshop on Latex	17-Jul-19	Free
40	Short course on Model Predictive Control	April 04-06, 2019	54,680
41	Workshop on REVIT Architecture Fundamentals	Mar 30-31, 2019	8,280
42	Workshop on REVIT Structure Fundamentals	Feb 22-23, 2019	15,762
43	Autodesk Inventor Short Course	Feb 06-08, 2019	29,500
44	Workshop on REVIT Architecture Fundamentals	Jan 11-12,2019	13,398

45	Autodesk REVIT Electrical Workshop	Dec 01-03, 2018	29,204
46	Workshop on Poster Writing	10-Oct-18	Free
47	REVIT Essential Short Course	July 2-4, 2018	Free
48	Workshop on Latex	13-Mar-18	Free
Total Revenue Generated (PKR)			2,090,228

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ORIC Proposals Dashboard (2021)

Department	Status	Department2	Status3	Department3	Status4	Department4	Status5	Pharm Deptt	Status6	Department6	Status7	Department7	Status8
BS Deptt		ME Deptt		EE Deptt		CS Deptt				MS Deptt		CE Deptt	
Artemisinin; a Potent Drug candidate against covid-19, targeting ACE2 gene and pro-inflammatory cytokines	Submitted	Plastic Recycling: Tite 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	GymUstaad: Design and Development of Smart AI-Enabled System for Fitness Coaching	Submitted			Health supported intervention for improving care for young people with substance use disorder in Pakistan	Approved	Development Of Building Products From Recycled-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 (<i>Aedes aegypti</i>)	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



01: Dr. Sohaib Iqbal (2011)
Robust Smooth Model-Free Control Methodologies for Industrial Applications



09: Dr. Rafique Mufti (2013)
Higher Order Sliding Mode Control of Switched Reluctance Motor



17: Dr. Imran Khan (2016)
Performance Parameterization of Smooth Sliding Mode Control



25: Dr. Abdul Rehman Yasin (2019)
Fixed Frequency Based Sliding Mode Control for DC Micro-grid



02: Dr. Hameed Qaiser (2011)
HOSM based Parameter Estimation and Control of a Reactor



10: Dr. Saqder Hussain (2014)
Higher Order Sliding Mode Parameter Estimation and Control of PWR



18: Dr. Ali Arshad (2016)
Modling and Control of Thar Underground Coal Gasification



26: Dr. Attiya Kanwal (2019)
A Framework for Bio-network Association



03: Dr. Qadeer Ahmed (2011)
Fault Diagnostics of Engine Air Intake Path System



11: Dr. Syed Ijaz Kazmi (2014)
Higher Order Sliding Mode based Parameter Estimation of a PEM Fuel Cell



19: Dr. Sayed Ussama Ali (2016)
Application of Sliding Mode Theory to Guidance & Control of Unmanned Aerial Vehicle



27: Dr. Raheel Anjum (2020)
Detection and Mitigation of Load Imbalance in SI Engines



04: Dr. Irfan Ahmed (2011)
Digital Signal Processing of Optical Systems



12: Dr. Yasir Awais Butt (2015)
Sub-Riemannian problem on Lie Group of Motions of Pseudo-Euclidean Plane



20: Dr. Ghulam Murtaza (2017)
Hybrid Vehicle Engine Design



28: Dr. Rizwan Azam (2020)
Control based Drug Design for P53 Revival



05: Dr. Muhammad Iqbal (2011)
HOSM based Fault Diagnostic Schemes



13: Dr. Mahmood Pervaiz (2015)
Robust Control System Design for a Class of Uncertain Nonlinear Systems



21: Dr. Ahmed Yar (2017)
First principle Based Engine Modeling for Control and Fault Diagnostics



29: Dr. Shoaib Mansoor (2020)
Attitude Estimation from Low Cost Sensors



06: Dr. Mudassar Abbas Rizvi (2011)
Hybrid Mode based Misfire Detection



14: Dr. Muhammad Zamurad Shah (2015)
Guidance of Aerospace Vehicles: A Sliding Mode Approach



22: Dr. Athar Hanif (2018)
Electric Machine Control Design for Hybrid Electric Vehicles



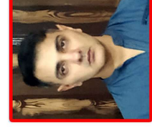
30: Dr. S. Bilal Javed (2021)
Cavity Prediction & Multi-variable Control of Underground Coal Gasification



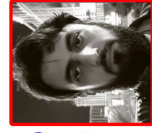
07: Dr. Qudrat Khan (2012)
Theory of Dynamic Integral Sliding Mode and its applications



15: Dr. Muhammad Amin Akram (2016)
Mode Identification Based Fault Diagnosis of Hybrid System



23: Dr. Ghulam Murtaza Kiani (2018)
Fault Diagnosis of EGR Based Diesel Engine



31: Dr. Hassam Muazzam (2022)
Design of Robust Control Strategy for Interior Permanent Magnet Synchronous Motor Based Electric Vehicles



08: Dr. Qarab Raza (2013)
HOSM based Automotive Engine Parameter Estimation



16: Dr. Muhammad Asghar (2016)
Smooth Sliding Mode Control and its application to the Phase Locked Loops



24: Dr. Muhammad Asghar (2019)
Hybrid Power Management of a Three Wheeler Vehicle



Contact

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CUST Conferences

1. Department of Biosciences

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

2. Department of Civil Engineering

S. No.	Conference Title	Date
1.	1 st Conference on Sustainability in Civil Engineering (CSCE'19)	August 01, 2019
2.	2 nd Conference on Sustainability in Civil Engineering (CSCE'20)	August 12, 2020
3.	3 rd Conference on Sustainability in Civil Engineering (CSCE'21)	August 11, 2021
4.	4 th Conference on Sustainability in Civil Engineering (CSCE'22)	August 31, 2022



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3. Department of Electrical Engineering & Department of Computer Science

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

4. Department of Management Sciences

S. No.	Conference Title	Date
1.	1 st Intern. Conf. on Emerging Trends in Management	August 10, 2012
2.	2 nd Intern. Conf. on Emerging Trends in Management	June 06, 2013
3.	3 rd Intern. Conf. on Emerging Trends in Management	October 16, 2014
4.	4 th Intern. Conf. on Emerging Trends in Management	November 05, 2015
5.	5 th CUST International Business Research Conference (CIBRC-16)	November 10, 2016
6.	6 th CUST International Business Research Conference (CIBRC-17)	October 19-20, 2017
7.	7 th CUST International Business Research Conference (CIBRC-18)	December 20, 2018
8.	8 th CUST International Business Research Conference (CIBRC-19)	December 19, 2019
9.	9 th CUST International Business Research Conference (CIBRC-21)	December 30, 2021
10.	PEP National Policy Conference on “Fiscal Policy Response to COVID-19: Case of Pakistan”	March 28, 2022



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5. Department of Mechanical Engineering

S. No.	Conference Title	Date
1.	1 st International Conference on Advances in Mechanical Engineering 2021 (ICAME-21)	August 25, 2021
2.	2 nd International Conference on Advances in Mechanical Engineering 2022 (ICAME-22)	August 25, 2022



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No.23/CUST/ORIC/2022

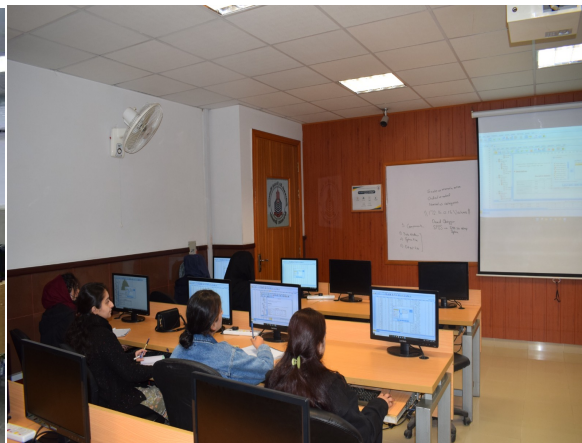
December 13, 2022

Two Days Hand-on Workshop on Latex

Office of Research, Innovation and Commercialization (ORIC) organized “Two-Days Workshop on Latex” on Monday-Tuesday, 05th-06th December, 2022 in Instructions Lab-6, M-Block. The purpose of the workshop was to equip participants with the most updated knowledge about creation of technical documents using Latex with practical illustrations.

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

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



The workshop was conducted by Mr. Omaid Ghayyur, Lecturer (CS, Department), CUST. A total of 16 participants including BS, MS and PhD students from various departments, and Academic Officers attended the workshop. The response of participants was quite promising and workshop proved to be a great source of hands-on knowledge to the participants.

Prepared by:

Muhammad Raheel Anjum
Assistant Director ORIC

Approved by:

Prof. Aamer Iqbal Bhatti
Dean Research & Innovation



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No.23/CUST/ORIC/2022

Nov 15, 2022

Hands-On Workshop 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 Pvt Ltd to conduct training, provide mentorship, and equip students with the art of earning easy income through E-commerce. Sparknetics has been indulged in consulting business for more than 12 years. They offer a wide range of profitable business opportunities and has also established online assets in the field of E-commerce.

Office of Research Innovation & commercialization (ORIC) in collaboration with Sparknetics conducted one-week Hands-on Workshop on Amazon Trading. The workshop was conducted from 01st to 04th November, 2022 by resource persons from Sparknetics. The objective of the event was to provide students with insights to propel forward, get a better job/promotion, and increase income through valuable Online Amazon Services.



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 15 students participated in the workshop. The feedback of participants was quite amazing and they proposed to continue the present series of Amazon Trading/E-commerce relevant courses.

Prepared by:

Muhammad Raheel Anjum
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No.23/CUST/ORIC/2023

January 10, 2023

Two Days Hand-on Workshop on SPSS

Office of Research, Innovation and Commercialization (ORIC) in collaboration with Dean Faculty of Health & Life Sciences (FHLS) organized “Two-Days Hands-on Workshop on SPSS” on 29th December, 2022 and 05th January, 2023 in Instructions Lab-6, M-Block. The purpose of the workshop was to equip participants with the most updated knowledge about statistical/quantitative analysis using SPSS with practical illustrations.

SPSS is one of the most widely available/powerful statistical software packages that covers a broad range of statistical procedures and allow researcher to summarize data (compute means and standard deviations), determine significant differences between groups (t-tests, analysis of variance), examine relationships among variables (correlation, multiple regression), and graphical presentation of data. Some of the key topics covered in the workshop were:

1. Data Entry: Manually and from Excel
2. Editing and Organizing Datasets
3. Data Transformations
4. Descriptive Statistics
5. Graphical Displays
6. Procedures for Exploring Relationships
7. Simple & Multiple linear Regression Analyses
8. Mediation and Moderation Analyses



The workshop was conducted by Dr. Sohail Rizwan from Fatima Jinnah Women University (FJWU), Rawalpindi. A total of 15 participants including students from Biosciences/Bioinformatics/Microbiology Departments attended the workshop. The response of participants was quite promising and workshop proved to be a great source of hands-on knowledge to the participants.

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List of CASPR IEEE CSS Seminars (Fall-2022)

S. No.	Seminar Title	Speaker	Date
1.	Environment Aware Resilient and Adaptive Multi Agent System	Mr. Faheem Gulzar	14/9/2022
2.	WordPress and Shopify	Mr. Shoaib Ali	21/09/2022
3.	Optimal trajectory of Gliding Vehicle	Mr. Ahmad Mahmood	6/10/2022
4.	Introduction to Sequential Quadratic Programming	Mr. Ahmad Mahmood	13/10/2022
5.	Interior-point methods	Mr. Zohaib Latif	20/10/2022
6.	Basics of Optimization Techniques	Prof. Aamer Iqbal Bhatti	27/10/2022
7.	Basics of Optimization Techniques (Session-II)	Prof. Aamer Iqbal Bhatti	17/11/2022
8.	Eco-Driving Control of Electric Vehicle with Realistic Constraints	Hafiz M. Yasir Naeem	22/12/2023
9.	Multi-Agent Systems: Application and Challenges in Control Domain	Dr. Raheel Anjum	05/01/2023
10.	Non-Linear System Identifications of Underground Coal Gasification (UCG) Process	Mr. Afaq Ahmed	12/01/2023
11.	Eco-Driving Control of Electric Vehicle with Realistic Constraints	Hafiz M. Yasir Naeem	19/01/2023

Design and Development of an Elbow Exoskeleton Mechanism

Abstract

According to the Pakistani stroke association around one million stroke victims are diagnosed each year, and the ratio of therapists is quite low. Numerous technologies have been created, however rehabilitation is often limited to a single kind of exercise. Some are software-controlled, necessitating the gathering of sensory input and a complicated control architecture.

To address this gap, a mechanical device is employed to give stroke therapy. The knowledge about the biological term mode of motion and muscle movements of the elbow joint has been collected via study and literature evaluation, as well as which variables trigger stroke. Thereafter, stroke rehabilitation method that a therapist must follow in order to recover a patient's elbow was implemented using the exoskeleton to assist therapy, also the design of exoskeleton is very user-friendly, after one to three trial a patient can easily able to perform exercises by using this device.

The development of a passive type portable elbow exoskeleton allows for the delivery of two phases of rehabilitation in a single structure without impairing range of motion or safety aspects. Two steps comprise the recovery training. The first stage controls joint movement actuated by an external motor. The second stage focuses on assisting motions using assistive force by using extension spring. Using a motor and springs, a technique has been designed to rehabilitate the stroke condition.

Field of the Invention

Passive exoskeletons are those in which mechanical instruments such as springs, lead screws, gears, and motors are used to move body parts. This is a two-stage elbow exoskeleton. This system is separated into two distinct components. One is a forearm bar, while the other is an upper limb supporting bar that comes into touch with the biceps and triceps. A universal joint connects these two bars. Additionally, a supporting link is employed to facilitate attachment.

Background of Invention

Around 80 million individuals worldwide are affected by stroke. The word "stroke" refers to a person who is unable to do everyday tasks. Rehabilitation mostly include physical therapy. The purpose of physical therapy is to reintroduce basic motor movements such as walking, sitting, standing, and laying down to the stroke patient, as well as the process of transitioning from one kind of movement to another.

The majority of stroke survivors are left with a deficient upper extremity under the present standard of care, which forces them to depend on others for everyday activities for an extended period of time. Recovery of arm function after a stroke is a key goal for stroke patients and rehabilitation specialists. Most of the people who have severe hemiparesis after a stroke continue to have permanently diminished arm or hand skills. Hemiparesis of the upper extremities makes it harder to do basic tasks and less independent in terms of taking care of oneself. In fact, more than a quarter of survivors of traumatic events become dependent on everyday life activities. For those who have hemiparesis, daily tasks involving bilateral arm or hand use, such as buttoning, zipping clothing, and opening containers, might be extremely difficult. Extremely weak patients struggle to raise their injured arm against gravity and struggle to do simple tasks like eating or cooking.

In local market of Pakistan, stroke rehab instruments for upper limb are rarely available, especially no exoskeleton structure is available in the market. Customers are bound to get the imported instruments which are very high in price. The online available products are also not as efficient as this model is because this structure covers full arm motion for upper limb.

Mostly imported devices provides hand exercises with gloves to wear on. Their specification includes costly electronic sensors and electronic equipment like arm robot, motion sensors, electrical stimulation, including the AvivaStim XP, Stiwell Med 4, MicroStim and the Intellistim. PABLO is one of the devices from the TYROSOLUTION which is a motion sensor and biofeedback device that enables relearning of the upper body, arm, hand and finger movements including grasping, reaching, pinching, and lifting. PABLO allows you to carry out full body exercise and provides motivating and increasingly challenging games to enhance rehabilitation outcomes.

In latest developments in upper-limb exoskeleton technology for rehabilitation some of them have been commercialized, while others are research prototypes. The Harmony exoskeleton consists of an active five-DOF (degrees of freedom) shoulder mechanism. The Alex 2 exoskeleton was developed based on a similar concept, but, unlike the Harmony exoskeleton, it uses series elastic tendon transmission, which guarantees intrinsic mechanical compliance. NEUROExos is an elbow-powered exoskeleton designed for post-stroke rehabilitation of the arm, ensuring comfort for the patient. Misalignment problems have been addressed by mounting the active rotational joint on a moveable translational passive mechanism, which decouples the robot joint rotations from axis translations. Undesired forces resulting from a rigid connection between the limb and the system are avoided, while assistive forces can be performed.

As mentioned before, to date, very little consideration has been given to affordability arguments, and the vast majority of existing devices are cost prohibitive. High costs are associated with compact high-torque actuation (which often includes expensive harmonic drive reduction stages), cable-driven systems (which require high-precision manufacturing), commercial force sensors and high-performance RTOS solutions (which usually require high computational resources to execute hard real-time processes at suitable control frequencies). For reference, the average cost for a complete upper-limb exoskeleton is USD 130,000. This price hinders the availability of exoskeletons in small therapeutic centers or in domestic settings.

In the majority of rehabilitation equipment, the robot should follow a reference trajectory, which is a route and accompanying velocity profile. Understanding that controllers use a collection of joint trajectory data as their reference, rather than a model of joint coordination, is crucial. Either end-effector movement in the task pace results in intermediate joint movement, or it is restricted to specialized trajectories that are synchronized with the joint speed. The coordination problem is not fully addressed by these techniques, even if they provide quick and limited solutions. Simply controlling every joint in an exoskeleton does not solve the problem of inter-joint coordination.

In Pakistan, Patients used to go to private clinics and rehabilitation centers of physicians to get stroke therapy where they use imported upper limb machines and gloves for treatment.

The specifications of invented model have two modes. First mode is for highly effected stroke patient which is even unable to move his arm. Second mode is for mild stroke patient. For elbow joint, the universal joint which provide flexion and extension movement as well as lateral movement (± 5 degree). The hollow connecting steel rods are used to provide structure stability. In first stage, assistive

force is provided by using motor so that patient can move his arm from 0 to 130 degrees. The motor transfers its motion to lead screw. Lead screw will move nut slide backward and forward. Due to this, connecting link attached to the nut slider help to move the arm. One side of connecting link is connected to nut slider and other is connected to the forearm supporting bar. This motor function provides flexion motion of arm. The lead of the lead screw is $8 \times 10^{-3} \text{m}$ which provides smooth assistive force to perform exercise.

In second stage, the patient can move his arm by using supportive force by extension spring. This stage is known as mild stage in which we assume the patient regain some muscle movements by performing 1st stage. This model will give patients benefit to use it at home at low cost. This model is very cost efficient if it is commercialized, it may only cost around 50,000 PKR approximately.

Brief Description of Drawings

Figure 1 shows the model of elbow exoskeleton

Figure 2 illustrates Forearm Supporting Link and Nut Slider

Figure 3 illustrates Initial Assembled Design

Figure 4 illustrates Final Assembled Design

Figure 5 illustrates Implementation Procedure

Figure 6 is the Physical Model Invent with Labeled Apparatus

Detail Description of the Embodiment of the Invention

Design parameters and specifications of the elbow exoskeleton were identified. Developed the mathematical modeling of screw calculation, stiffness of springs at different angles which provide limitations in elbow motion. Torque calculation to find how much torque required to move the forarm up to different angles.

According to the design specifications model was made by using the CREO software. On the basis of design in CREO the physical model was designed. The physical model includes spring, plates, sliders and rods. Plates are made by using the CNC machine.

Model Specifications:

Plates thickness	0.5 in
Forarm	14 in
Lead screw	1 mm
Bearings dia	1.9 mm
Connecting link	7 in
Plates width	6.5 in
Plates depth	4 in
Rod dia	1mm

Arduino uno for its coding Arduino 1.8.19 software version was used. Basically, Arduino Uno was used for motor controlling that control forarm at different ranges of motion. From this software we accomplished our goals which is design and development of an exoskeleton without affecting the range of motion.

There are specific holes in the forearm supporting link to accommodate various arm lengths. The forearm features a passive translational joint with a compression spring

whose length is adjustable to match the user's forearm length in order to preserve the alignment of the center of rotation between the exoskeleton and user.

The fabricated model fulfills its objective of giving therapy to stroke patient without effecting the range of motion and safety feature. It is better because patient can use it whenever he wants and wherever he wants to use.

The joint stiffness and Elbow joint angle are inversely related to each other. Decrease in elbow joint angle cause increase in joint stiffness, and the joint torque and joint angle are Inversely proportional to each other. So, the increase in elbow joint angle causes the decrease in the joint torque.

In order to fine-tune the device to the needs of the user, multi-level stroke therapy is accomplished at the mechanical level in this design. The power supply is only used during motor operation since only the spring force is utilized during assist and resistance modes without activating the active actuator. During motor control mode, the switching mechanism safeguards the user by restricting the feasible joint angle to the anatomical limit. As a result of the motor's rotation, the limit switch is activated, the nut slider reaches the end of the first rehabilitation region, and the motor begins to rotate in the other direction.

To test an effected person who has difficulty in moving the arm, there are sensors such as goniometer, pressure sensor etc. the result of these sensors gives the data according to this design.

We Claim

1. Our model is Passive in nature. Our model has mainly two modes. First mode is for highly effected stroke patient which is even unable to move his arm. Second mode is for mild stroke patient.
2. The development of a passive type portable elbow exoskeleton allows for the delivery of two phases of rehabilitation in a single structure without impairing range of motion or safety aspects.
3. The exoskeleton system provides variable active and reactive force without the need for sophisticated control algorithms.
4. The joint is controlled by an electric motor in 1st mode, but in the 2nd mode, the rigidity of the spring supports joint movement by providing an active or reactive force.
5. It is an energy-efficient method because there is no need for a brake or clutch because the switching mechanism is based on pinching tension.
6. By transferring joint control from the motor to the user when the elbow joint exceeds the permissible limit, the "Switching mechanism" contributes to user safety mechanically.
7. The Elbow Exoskeleton is designed such as Elbow joint provide flexion and extension movement as well as lateral movement (± 5 degree).
8. Our model includes spring, plates, sliders and rods. Plates are made by using the CNC machine. Spring of specified stiffness is used and steel rods are used.
9. The forearm features a passive translational joint with a Extension spring whose length is adjustable to match the user's forearm length in order to preserve the alignment of the center of rotation between the exoskeleton and user.

10. Our rehabilitation motion of arm is from 0° to 130° .

11. During motor control mode, the switching mechanism safeguards the user by restricting the feasible joint angle to the anatomical limit.

12. As a result of the motor's rotation, the limit switch is activated, the nut slider reaches the end of the first rehabilitation region, and the motor begins to rotate in the other direction.

Drawings

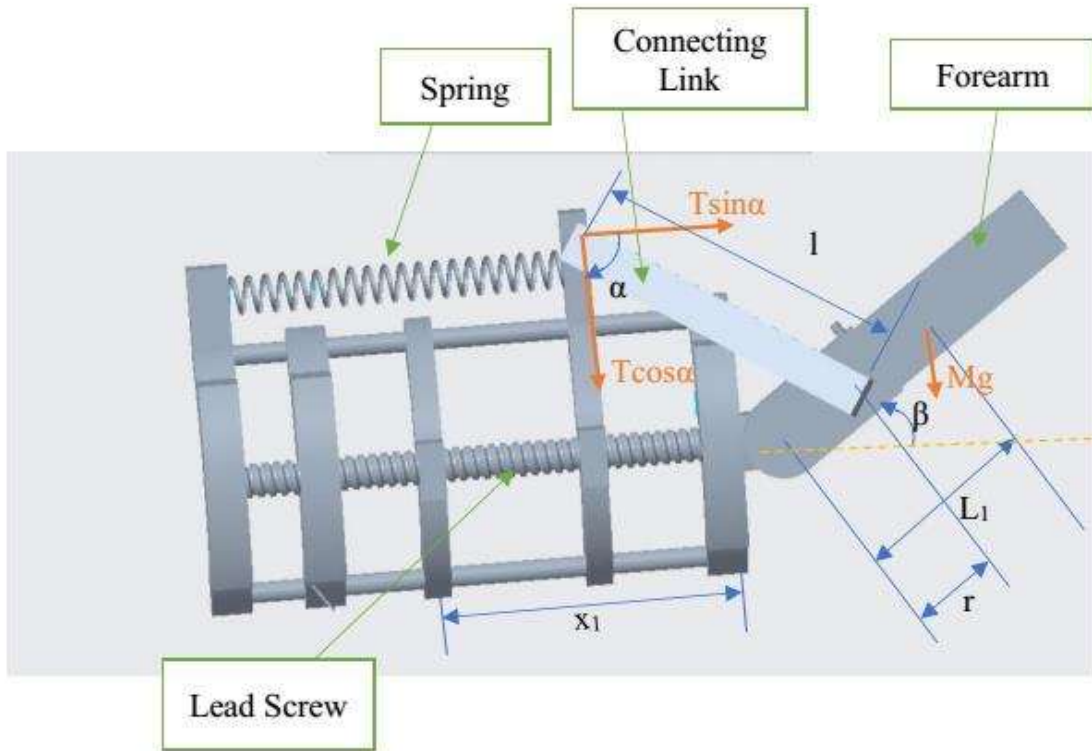


Figure 1 shows the model of elbow exoskeleton

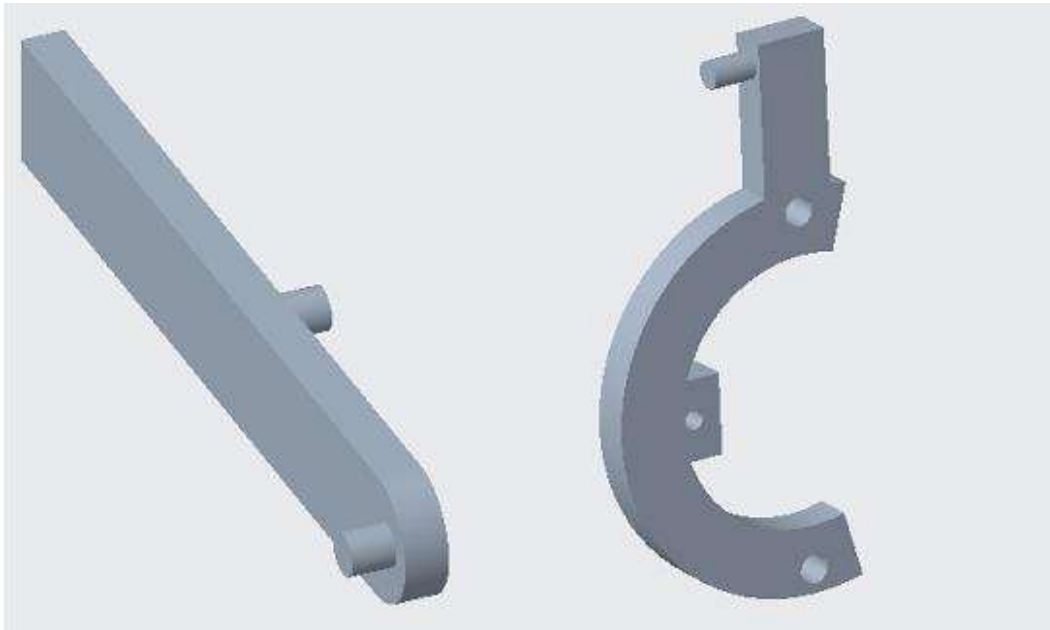


Figure 2 illustrates Forearm Supporting Link and Nut Slider

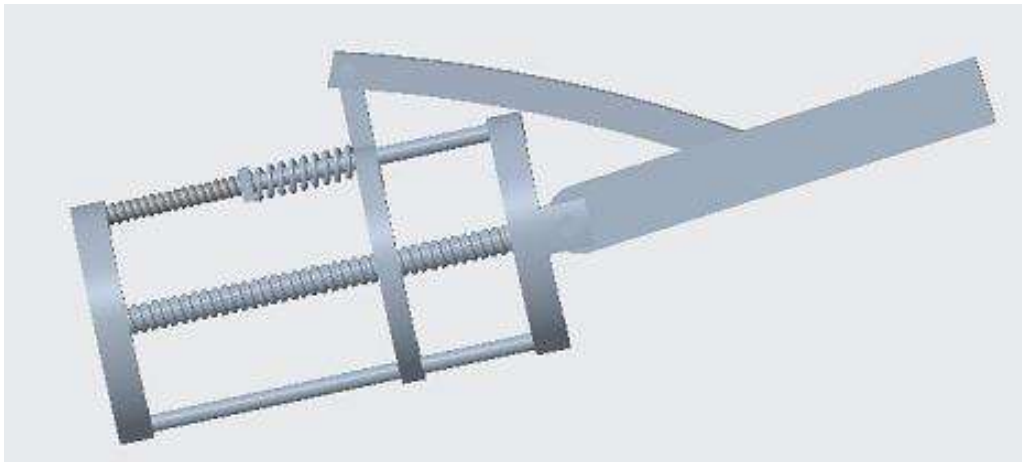


Figure 3 illustrates Initial Assembled Design

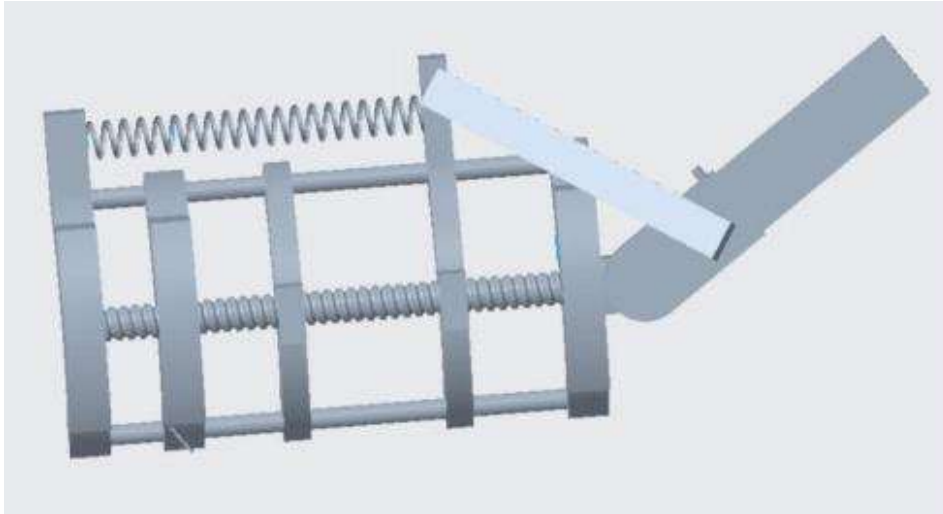


Figure 4 illustrates Final Assembled Design

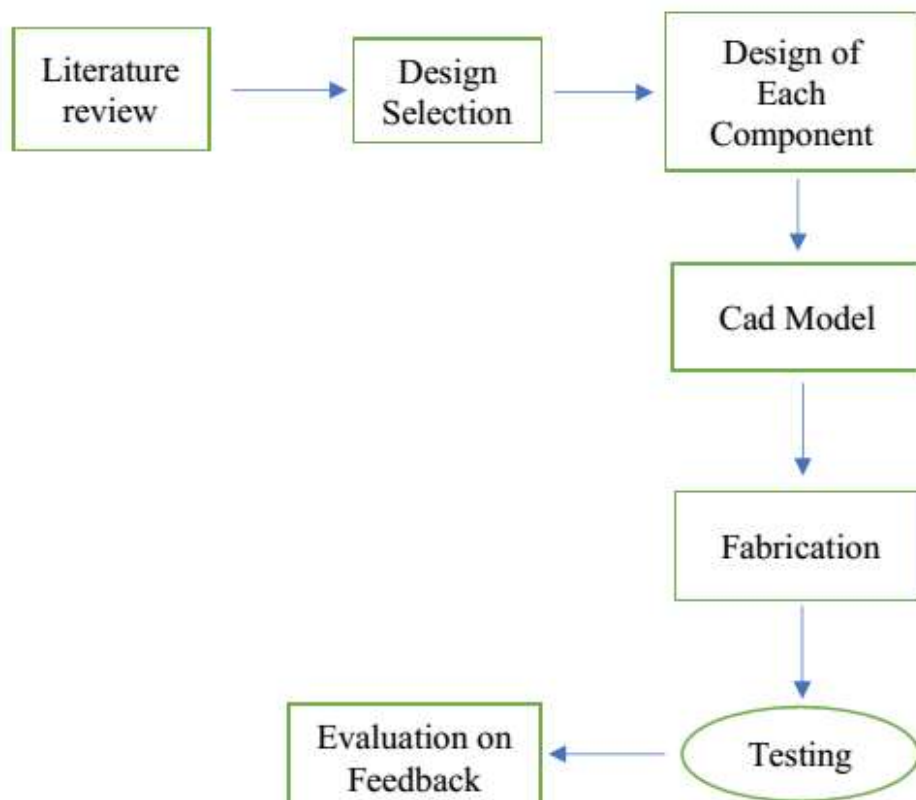


Figure 5 illustrates Implementation Procedure

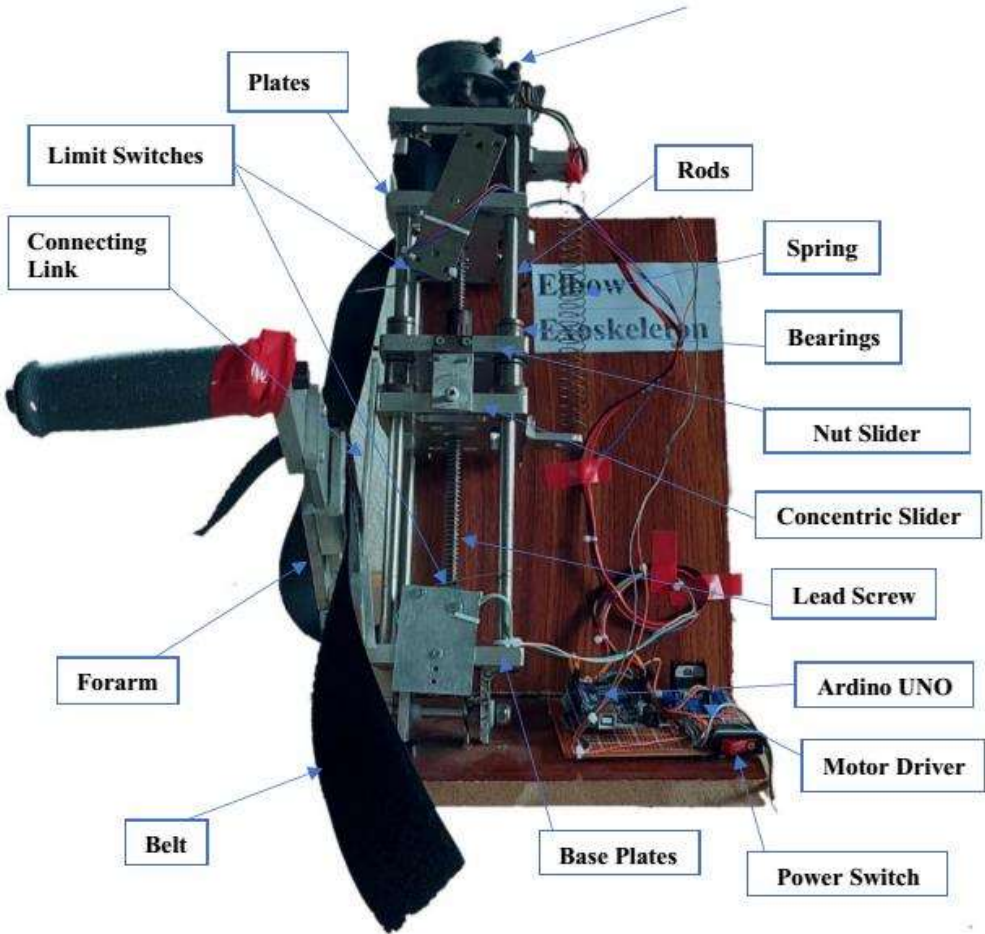
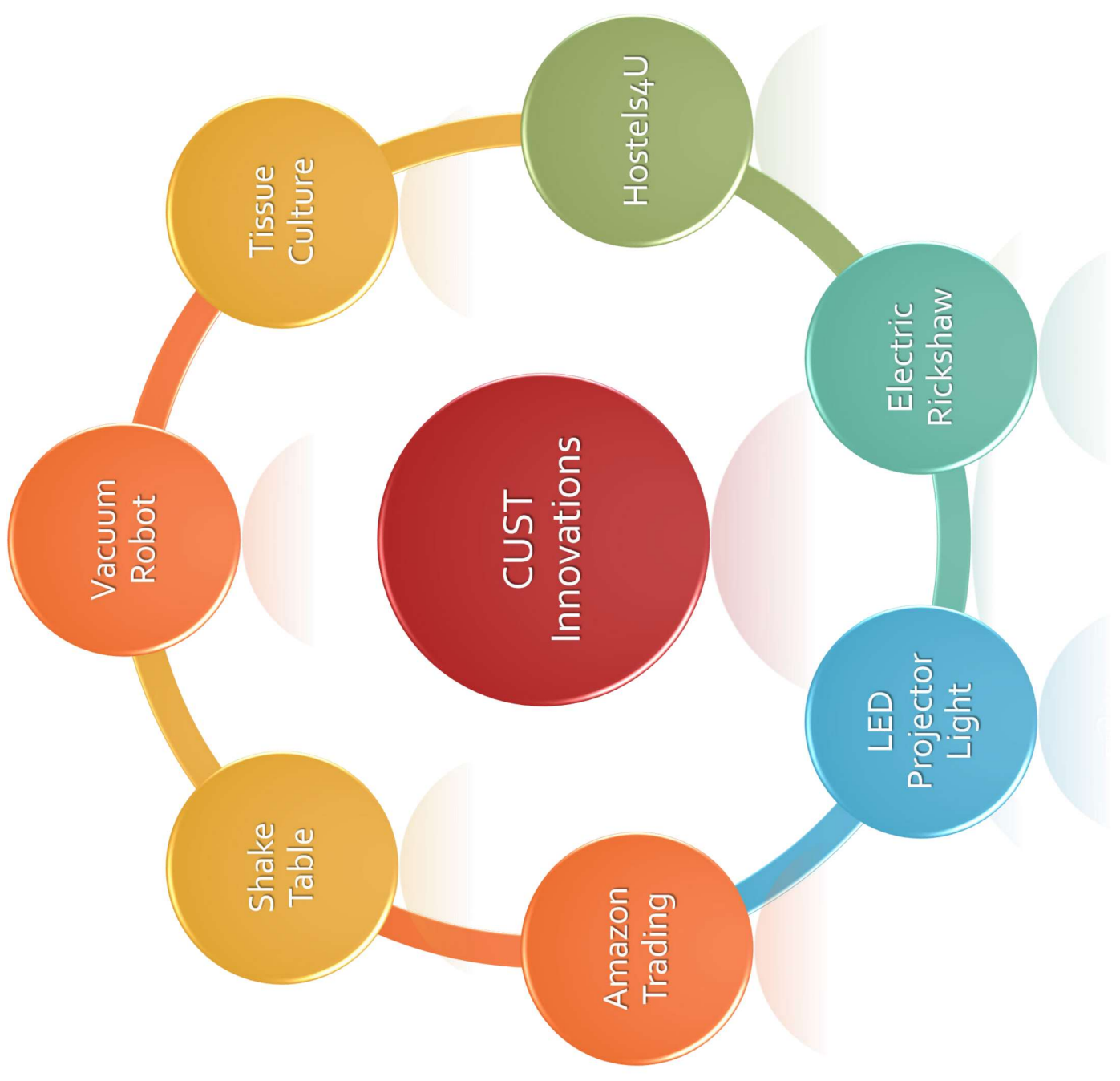


Figure 6 is the Physical Model Invent with Labeled Apparatus



Tech Flickers (pvt.) Ltd

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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



REPORT FOR DBFC



The Design, Build and Fly Competition (DBFC) is a part of the National Engineering Competitions of the STEM organized by AIAA (American Institute of Aeronautics and Astronautics). DBFC is held in Pakistan with the help of HEC and the venue for this event is the Ghulam Ishaq Khan Institute (GIK) Sawabi, Pakistan.

This was the first time that the **Capital University of Science and Technology (CUST)** took part in this competition and a total of 2 teams (Xynos and Nighthawk); 4 members per team were chosen. **Team Xynos** consisted of Ahmed Hassan Tariq, Abdul Rafay Bilal, Muhammad Taha Qureshi and Linta Nain Fazal. **Team Nighthawk** consisted of Shahab Ahmed Khan, Sameer Ahmed Khan, Abdullah Shujah and Ashhad Arif. Both the teams consisted of students from the **department of Mechanical engineering** elected from the 5th semester under the supervision of Manzar Masud (Lecturer Mechanical Engineering Department).

The teams faced several difficult tasks some of which were meeting report and construction deadline and budgeting of the entire project. Both the reports for the aircraft

models and the actual building of the aircrafts along with their testing had to be done within a month side by side preparing for the midterms as the competition was to be held on 26th of November, 2022.

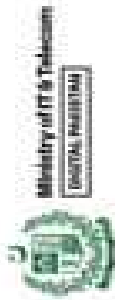
After several minor hiccups and rigorous test flights, students managed to finalize their aircrafts by 25th of November 2022. Students of the Team Xynos and team nighthawks were the only mechanical engineers participating in DBFC 16 competing against multiple aeronautical engineers not only managed to airborne one of their aircraft after a fatal accident but also managed to complete several missions successfully. Including take off 2 vertical rings and successful landing. Teams performed exceptionally throughout the entire event starting from viva and then adjusting the plane continuously. They made a successful load dropping mechanism within an hour. In the end the teams weren't able to score any positions but the experience and the recognition received at the event was a prize of its own well received by all the participants from CUST. Students proudly represented their university and made a positive impact on the spectators.



Figure 1 Team Xynos



Figure 2 Team Nighthawk



IGNITING UNIVERSITY INNOVATION

through

NATIONAL GRASSROOTS ICT RESEARCH INITIATIVE NGIRI

2022-23

Ignite provides financial assistance to selected final year project (FYP) of undergraduate students (7th & 8th semester 2022-23 students only) studying in HEC recognized institutes of ICT related disciplines for developing prototypes / working models of their FYPs in order to increase creativity, innovation and hands on engineering and development skills through this program.

Students are encouraged to develop their FYPs preferably based on 4th industrial Revolution Technologies i.e., Artificial Intelligence and Big Data, Internet of Things, Cloud Infrastructure and Cyber Security, Augmented and Virtual Reality, Wearables and Implantable, Shared Economy, Robotics, 3D/4D Printing, Nanotech and Blockchain, etc.

The Program has been divided into two phases:

Phase I - Funding of FYP

FYP will be selected for funding with the following financial breakup:

Equipment: Maximum up to **Rs. 77,000/-** **Miscellaneous:** Maximum up to **Rs. 11,000/-**

Phase II - FYP National Championship

Selected Final Year Projects (FYP) from participating institutions will be invited to compete for the National Championship. Winners will be awarded the following prizes:

National Champion

Project Team (up to 3 Students)

Cash Prize

Rs. 400,000/-

FYP Supervisor

Cash Prize

Rs. 100,000/-

First Runner Up

Project Team (up to 3 Students)

Cash Prize

Rs. 275,000/-

FYP Supervisor

Cash Prize

Rs. 75,000/-

Second Runner Up

Project Team (up to 3 Students)

Cash Prize

Rs. 150,000/-

FYP Supervisor

Cash Prize

Rs. 50,000/-

IMPORTANT INFORMATION:

Eligible students must submit their FYP applications at <https://ignite.org.pk/ngiri>

Terms & Conditions, Do's & Don'ts, FAQs and Eligibility Criteria of the program are available at www.ignite.org.pk/ngiri



Igniting University Innovation through

NATIONAL GRASSROOTS ICT RESEARCH INITIATIVE NGIRI

2021-22

The Program has been divided into two phases:

Phase I - Funding of FYP

FYP will be selected for funding with the following financial breakup:

Equipment: Maximum up to Rs: 70,000/-

Miscellaneous: Maximum up to Rs: 10,000/-

Remuneration of Rs. 1,000/- per eligible FYP submission maximum up to Rs. 15,000/- will also be provided to nominated focal person of each participating institute.

Phase II - FYP National Championship

Selected Final Year Projects (FYPs) from participating institute will be invited to compete for the National Championship. Winners will be awarded the following prizes:

National Champion

- Project Team (up to 3 students): Cash Prize of Rs: 400,000/-
- FYP Supervisor: Cash Prize of Rs: 100,000/-

Through this Program Ignite provides financial assistance to selected Final Year Projects (FYPs) of undergraduate students (7th & 8th semester students only) studying in HEC recognized institutes of ICT related disciplines for developing prototypes / working models of their FYPs in order to increase creativity, innovation and hands on engineering and development skills.

Students are encouraged to develop their FYP having ICT components preferably based on 4th Industrial Revolution i.e. Artificial Intelligence and Big Data, Internet of Things, Cloud Infrastructure and Cybersecurity, Augmented and Virtual Reality, Wearables and Implantables, Shared Economy, Robotics, 3D/4D Printing, NeuroTech and Blockchain, etc.

First Runner Up

- Project Team (up to 3 students)
- FYP Supervisor:

Cash Prize of Rs: 275,000/-
Cash Prize of Rs: 75,000/-

Second Runner Up

- Project Team (up to 3 students)
- FYP Supervisor:

Cash Prize of Rs: 150,000/-
Cash Prize of Rs: 50,000/-

Important Information:

Eligible students must submit their FYP applications at <https://ignite.org.pk/ngiri> FYP application submission by any other means is not acceptable.

Terms & Conditions, Dos & Don'ts, FAQs and Eligibility Criteria of the program are available at <https://ignite.org.pk/national-grassroots-research-initiative/>

Please keep visiting our website for program updates and changes, if any.

For queries: ngiri@ignite.org.pk

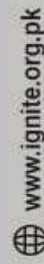
Note: The list of participating institutions is available at <https://ignite.org.pk/national-grassroots-research-initiative/>. Any eligible institution not included in the list may download the nomination form for participation from our website and submit the same to Ignite office via courier or email at ngiri@ignite.org.pk latest by 28 February, 2022.

APPLICATION SUBMISSION

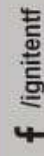
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APPLY ONLINE

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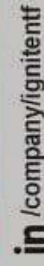
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Ministry of IT & Telecom
DIGITAL PAKISTAN

ignite
NATIONAL TECHNOLOGY FUND



MEMORANDUM OF UNDERSTANDING

By and between



AND



For Industry Academia Collaboration

DATED – October 2022

Memorandum of Understanding (MoU)

THIS MEMORANDUM OF UNDERSTANDING (the “**MoU**”) is made on October, 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:

Founded in 2005, **Islamabad Diagnostic Centre**, brain child of Dr. Rizwan Uppal is the first diagnostic facility providing entire spectrum of imaging & lab services under one roof. Since inception, IDC has built a successful track record and is known for its latest imaging technologies, broad range of laboratory tests and quick turn-around times, with over 2500 staff members, and one of Pakistan's largest pool of qualified Radiologists and Pathologists on its team.

(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 ISLAMABAD DIAGNOSTIC CENTRE. and CUST through specialized short courses, workshops or seminars.
- (g). Sponsorship of students by ISLAMABAD DIAGNOSTIC CENTRE. 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 ISLAMABAD
DIAGNOSTIC CENTRE.

Dr. Sahar Fazal

Dean, Faculty of Health and Life Sciences

4. **KEY POINTS OF MoU**

- 4.1 CUST will facilitate ISLAMABAD DIAGNOSTIC CENTRE in Projects and Research.
- 4.2 CUST will give Special invitations to ISLAMABAD DIAGNOSTIC CENTRE in academic events like Open House, Job Fairs, Promotional Activities, Convocation, Conferences etc.
- 4.3 CUST will invite Guest Speakers from ISLAMABAD DIAGNOSTIC CENTRE for Training/Special Courses, Seminars, and will also seek input in the Curriculum.
- 4.4 CUST will nominate experts from ISLAMABAD DIAGNOSTIC CENTRE in Industrial Advisory Board.
- 4.5 ISLAMABAD DIAGNOSTIC CENTRE will facilitate students of CUST in Summer Internships.
- 4.6 ISLAMABAD DIAGNOSTIC CENTRE will facilitate students of CUST in Industrial Visits.
- 4.7 CUST and ISLAMABAD DIAGNOSTIC CENTRE will share its Labs and Testing Facilities in future, if required.
- 4.8 CUST and ISLAMABAD DIAGNOSTIC CENTRE will exchange scientific, academic and technical information and appropriate academic materials and other information of mutual interest.
- 4.9 CUST and ISLAMABAD DIAGNOSTIC CENTRE will identify the opportunities for exchanges and cooperation and joint research and development in disciplines of mutual interest;

5. REPRESENTATION TO THE PUBLIC AND CONFIDENTIALLY

- 5.1 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.
- 5.2 Notwithstanding the generality of the above, the Parties may notify third parties of the fact that this MoU is in effect.
- 5.3 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.

6. AMENDMENTS

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

7. TERM OF MOU

- 7.1 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.
- 7.2 The termination of this MoU shall not affect the implementation of the projects or programs established under it prior to such termination.

8. DISPUTE RESOLUTION

- 8.1 "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, an arbitrator under the provision of the Arbitration Act, 1940 and the venue of arbitration Islamabad, Pakistan and the decision will be final".

9. NON-BINDING NATURE OF THIS MOU

- 9.1 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.

10. ENTIRE AGREEMENT

10.1 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

Signed for & on Behalf of ISLAMABAD
DIAGNOSTIC CENTRE

By its authorized signatories

Name: Dr. Sahar Fazal
Dean
Faculty of Health and 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

Representative of Bio-Labs

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 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.
- 5.5 CUST will request Bio-Labs for Visiting Professor expertise if required.
- 5.6 Bio-Labs will facilitate students of CUST in Summer Internships.
- 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.

- 5.9 CUST and Bio-Labs will exchange scientific, academic and technical information and appropriate academic materials and other information of mutual interest.
- 5.10 CUST and Bio-Labs will identify the opportunities for exchanges and cooperation and joint research and development in disciplines of mutual interest;
- 5.11 CUST and Bio-Labs 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

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

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

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 Bio-Labs
By its authorized signatories

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

MEMORANDUM OF UNDERSTANDING

By and between



AND



For Industry Academia Collaboration

DATED – October 2022

Memorandum of Understanding (MoU)

THIS MEMORANDUM OF UNDERSTANDING (the “**MoU**”) is made on October, 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:

MARHABA Laboratories (Pvt) Ltd. was conceived by Hakeem Muhammad Usman during his student days at Tibbia College Lahore where he would often ponder over the reasons for the decline of Oriental Pharmacy which had such a glorious past and a comprehensive pharmacopoeia withstanding the test of time for a thousand years. He felt hurt to see this rich heritage being lost and people falling prey to gimmicks and slogan mongering of the contemporary pharmaceutical industry which has converted this noble profession in service to humanity and Allah into just another mass production industry with the sole objective of selling the product and earning huge profits After that graduation, Hakeem Muhammad Usman along with four younger brothers established MARHABA Laboratories (Pvt) Ltd. on the 1st of July 1975.

(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 MARHABA LABORATORIES (PVT) LTD. and CUST through specialized short courses, workshops or seminars.
- (g). Sponsorship of students by MARHABA LABORATORIES (PVT) LTD. 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 MARHABA
LABORATORIES (PVT) LTD.

4. **KEY POINTS OF MoU**

- 4.1 CUST will facilitate MARHABA LABORATORIES (PVT) LTD. in Projects and Research.
- 4.2 CUST will give Special invitations to MARHABA LABORATORIES (PVT) LTD. in academic events like Open House, Job Fairs, Promotional Activities, Convocation, Conferences etc.
- 4.3 CUST will invite Guest Speakers from MARHABA LABORATORIES (PVT) LTD. for Training/Special Courses, Seminars, and will also seek input in the Curriculum.
- 4.4 CUST will nominate experts from MARHABA LABORATORIES (PVT) LTD. in Industrial Advisory Board.
- 4.5 MARHABA LABORATORIES (PVT) LTD. will facilitate students of CUST in Summer Internships.
- 4.6 MARHABA LABORATORIES (PVT) LTD. will facilitate students of CUST in Industrial Visits.
- 4.7 CUST and MARHABA LABORATORIES (PVT) LTD. will share its Labs and Testing Facilities in future, if required.
- 4.8 CUST and MARHABA LABORATORIES (PVT) LTD. will exchange scientific, academic and technical information and appropriate academic materials and other information of mutual interest.
- 4.9 CUST and MARHABA LABORATORIES (PVT) LTD. will identify the opportunities for exchanges and cooperation and joint research and development in disciplines of mutual interest;

5. REPRESENTATION TO THE PUBLIC AND CONFIDENTIALLY

- 5.1 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.
- 5.2 Notwithstanding the generality of the above, the Parties may notify third parties of the fact that this MoU is in effect.
- 5.3 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.

6. AMENDMENTS

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

7. TERM OF MOU

- 7.1 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.
- 7.2 The termination of this MoU shall not affect the implementation of the projects or programs established under it prior to such termination.

8. DISPUTE RESOLUTION

- 8.1 "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, an arbitrator under the provision of the Arbitration Act, 1940 and the venue of arbitration Islamabad, Pakistan and the decision will be final".

9. NON-BINDING NATURE OF THIS MOU

- 9.1 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.

10. **ENTIRE AGREEMENT**

10.1 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

Signed for & on Behalf of MARHABA
LABORATORIES (PVT) LTD.

By its authorized signatories

By its authorized signatories

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

Name:

MEMORANDUM OF UNDERSTANDING

By and between



AND

PINKRIBBON[®]
United Against Breast Cancer

For Industry Academia Collaboration

DATED – October 2022

Memorandum of Understanding (MoU)

THIS MEMORANDUM OF UNDERSTANDING (the “**MoU**”) is made on October, 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:

Pink Ribbon Pakistan is a non-funded, self-sustained and the only organization in the country which is dedicatedly working on the issue of breast cancer with nationwide outreach since 2004. Pink Ribbon strive to significantly reduce breast cancer mortality in the country by creating widespread awareness through community engagement on prevention, early detection and increased access to treatment. Scope of work is holistic from strategic interventions to public awareness including patient-aid and service delivery. To provide relief to poor people, we are setting up a dedicated Breast Cancer Hospital where deserving patients will get free of cost treatment under one roof.

(CUST and Pink Ribbon Pakistan 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). 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 through specialized short courses, workshops or seminars.
- (g). Sponsorship and internships 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 PINK RIBBON
PAKISTAN

Dr. Muzaffar Abbas

Dean, Faculty of Pharmacy

4. **KEY POINTS OF MoU**

- 4.1 CUST will give Special invitations to PINK RIBBON PAKISTAN in academic events like Open House, Job Fairs, Promotional Activities, Convocation, Conferences etc.
- 4.2 CUST will invite Guest Speakers from PINK RIBBON PAKISTAN for Training/Special Courses and Seminars
- 4.3 CUST will nominate experts from PINK RIBBON PAKISTAN in Industrial Advisory Board, if required.
- 4.4 PINK RIBBON PAKISTAN will facilitate students of CUST in Summer Internships.
- 4.5 PINK RIBBON PAKISTAN will facilitate students of CUST in Industrial Visits.
- 4.6 CUST and PINK RIBBON PAKISTAN will exchange scientific, academic and technical information and appropriate academic materials and other information of mutual interest.
- 4.7 CUST and PINK RIBBON PAKISTAN will identify the opportunities for exchanges and cooperation and joint research and development in disciplines of mutual interest;

5. **REPRESENTATION TO THE PUBLIC AND CONFIDENTIALITY**

- 5.1 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.
- 5.3 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.

6. AMENDMENTS

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

7. TERM OF MOU

7.1 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.

7.2 The termination of this MoU shall not affect the implementation of the projects or programs established under it prior to such termination.

8. DISPUTE RESOLUTION

8.1 "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, an arbitrator under the provision of the Arbitration Act, 1940 and the venue of arbitration Islamabad, Pakistan and the decision will be final".

9. NON-BINDING NATURE OF THIS MOU

9.1 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.

10. ENTIRE AGREEMENT

10.1 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

Signed for & on Behalf of PINK RIBBON
PAKISTAN

By its authorized signatories

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

Name:

Name: Dr. Sahar Fazal
Dean, Faculty of Health and Life Sciences
CUST, Islamabad



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>

Activity Sheet for Signing MoU with Pharmaceutical Industries

S.No	List of Pharmaceutical Industries	Letters Prepared	Initial Contact	Visit of Industry	MoU Document Finalization	MoU
1	Shaigan Pharmaceuticals	✓	✓	✓	✓	✓
2	Vision Pharmaceuticals	✓	✓	✓	✓	
3	Crystollite Pharmaceuticals	✓	✓	✓	✓	
4	BioLab Pharmaceuticals	✓	✓	✓	✓	✓
5	Amson Pharma, Kahuta Road	✓	✓	✓	✓	
6	Hygeia Pharma, Kahuta Road	✓	✓	✓	✓	
7	Rotex Pharma, Kahuta Road	✓	✓	✓	✓	
8	Danas Pharma	✓	✓	✓	✓	
9	Davis Pharma	✓	✓	✓	✓	
10	Innvotek Pharma	✓	✓	✓	✓	
11	Focus and Rulz Pharma	✓	✓	✓	✓	✓
12	Medizan Vaccine Pharma	✓	✓	✓	✓	
13	Glitz Pharma	✓	✓	✓	✓	
14	Evolution Pharma	✓	✓	✓	✓	
15	Metro Pharma	✓	✓	✓	✓	
16	Grays Pharma	✓	✓	✓	✓	
17	Advanced Pharma	✓	✓	✓	✓	
18	Hawk Bio Pharma	✓	✓	✓	✓	
19	Linear Pharma	✓	✓	✓	✓	
20	Regal Pharma	✓	✓	✓	✓	
21	Greater Pharma	✓	✓	✓	✓	
22	Reliance Pharma	✓	✓	✓	✓	
23	Herbion Pharma	✓	✓	✓	✓	
24	Quershi Pvt Ltd	✓	✓	✓	✓	
25	IDC	✓	✓	✓	✓	



Capital University of Science and Technology

Islamabad Expressway, Kahuta Road, Zone-V, Islamabad

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20th December, 2022

Islamabad Chamber of Commerce & Industry (ICCI) Visit to Capital University of Science and Technology (CUST)

The Islamabad Chamber of Commerce & Industry (ICCI) visited Capital University of Science and Technology (CUST) on December 19th, 2022. The agenda of the meeting was to promote joint academic and R&D activities of mutual interest in accordance with their respective needs and objectives as well as to promote academia-industry linkages.

Following team members of CUST received and welcomed the ICCI members:

- Prof. Aamer Iqbal Bhatti, Dean Research & Innovation
- Dr. Muzaffar Abbas, Dean Pharmacy,
- Prof. Sahar Malik, Dean Health and Life Sciences,
- Dr. Lakhi Muhammad, HoD Management Sciences
- Prof. Majid Ali, Civil Engineering Department
- Dr. Ansar Ali Rajput, Management Sciences Department
- Mr Noshawan, Manager Psychology
- Mr. Jahanzeb Malik, Assistant Director ORIC

The honorable members of ICCI team included:

- Engr. M. Azhar-Ul-Islam Zafar, Vice President, ICCI
- Mr. Aamir Hussain, Executive Member ICCI and CEO, Tesla Industries (Pvt) Ltd.
- Mr. Hamayun Kabir, Executive Member ICCI and CEO, Medera Pharmaceuticals
- Mr. Ch. Muhammad Ali, Executive Member ICCI and CEO, Mabcon (Pvt) Ltd.
- Dr. Muhammad Usman, Executive Member ICCI and CEO Pak Roller Flour Mills
- Mr. Adnan Mukhtar, Convener HEC
- Mr. Muhammad Majid, Secretary ICCI

Dean Research & Innovation, Prof. Aamer Iqbal Bhatti gave a brief presentation about CUST Salient Features, Achievements, Academics, Scholarships, MoUs, Research and Development and Capacity Building activities.



The house appreciated the efforts of CUST in nation building and suggested the following points to further enhance its relationships with ICCI and industry for the growth and development of students and society.

- CUST and ICCI should focus on arranging seminars for students and present them success stories of notable persons of society.
- CUST and ICCI should focus on employment and internship in industry for graduates
- CUST and ICCI should ensure graduates will have the capability to be entrepreneur by participating in Expos of ICCI, also by arranging Festivals / Job Fairs at CUST.
- CUST may grant scholarships and special seats in engineering programs for industry employees' and ICCI members children.

The house also suggested that to achieve the above-mentioned tasks a Working Group should be created and it will meet at least once a month preferably online. ORIC Office from CUST and Mr. Majid, Secretary ICCI will finalize the Working Group members and initiate the further correspondence.

It was also highlighted that HEC/PEC should further encourage universities to adopt 4+1 academic criterion to enable students to spend 4 years in universities and one year in industries for degrees in order to provide them practical experience of industrial functions.

At the end, Dean Research & Innovation presented the Souvenir of CUST to Vice President ICCI and thanked him for visiting CUST. Vice President ICCI, also presented the Souvenir of ICCI to Dean ORIC and discoursed the importance of such meetups/liaison in context of strong academia-alumni relationship.



Prepared by:

Jahanzeb Malik
Assistant Director ORIC

Approved by:



Prof. Aamer Iqbal Bhatti
Dean Research & Innovation

Copy for Information To: -

- Vice Chancellor CUST
- Vice President ICCI
- Secretary ICCI



Capital University of Science and Technology
Islamabad

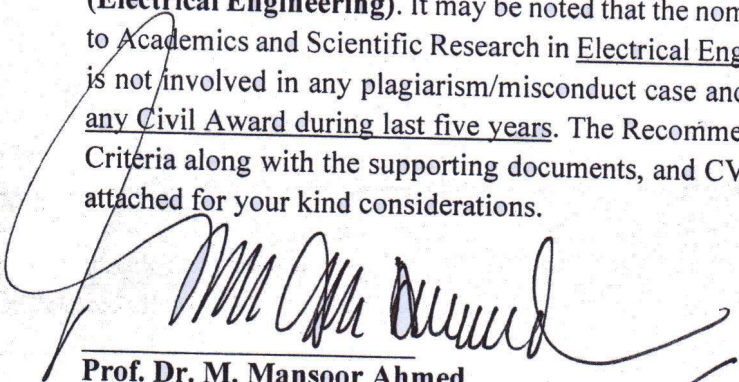
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Dated: January 09, 2023

Engr. Muhammad Raza Chohan
Advisor (Academics, Curriculum & NAHE)
Ministry of Science and Technology,
Sector, H-8, Islamabad,
Tel No. (92-51) 90402100.

Subject: Nomination for the award of "Sitara-e-Imtiaz/Pride of Performance" in field of Engineering (Electrical Engineering)

It is our pleasure to nominate Prof. Dr. Aamer Iqbal Bhatti (working as Professor at our Department of Electrical Engineering, Capital University of Science & Technology CUST, Islamabad) for the award of "**Sitara-e-Imtiaz/Pride of Performance" in field of Engineering (Electrical Engineering)**". It may be noted that the nominee has made outstanding performance to Academics and Scientific Research in Electrical Engineering. It is to certify that the nominee is not involved in any plagiarism/misconduct case and that the nominee has not been granted any Civil Award during last five years. The Recommendation Form, Citations and Quantified Criteria along with the supporting documents, and CV (hard and soft copy) of the nominee is attached for your kind considerations.


Prof. Dr. M. Mansoor Ahmed
Vice Chancellor
Capital University of Science & Technology
Islamabad

Enclosed:

Recommendation Form, Citations and Quantified Criteria with supporting documents and CV (hard and soft copy) of Prof. Dr. Aamer Iqbal Bhatti