



Annual Report — 2025

TABLE OF CONTENTS

Introduction	2
Pro-Rector's Message	3
SDG 1: No Poverty	4
SDG 2: Zero Hunger	7
SDG 3: Good Health and Wellbeing	12
SDG 4: Quality Education	25
SDG 5: Gender Equality	40
SDG 6: Clean Water and Sanitation	48
SDG 7: Affordable and Clean Energy	51
SDG 8: Decent Work and Economic Growth	55
SDG 9: Industry, Innovation and Infrastructure	60
SDG 10: Reduced Inequalities	64
SDG 11: Sustainable Cities and Communities	74
SDG 12. Responsible Consumption and Production	77
SDG 13: Climate Action	84
SDG 14; Life below Water	92
SDG 15: Life on Land	93
SDG 16: Peace, Justice, and Strong Institutions	94
SDG 17: Partnerships for The Goals	99
18 Final Year Projects 2025	103



Introduction

The University of Central Punjab (UCP) is dedicated to providing a comprehensive experience for its students. We offer a diverse range of academic programs alongside various extracurricular and co-curricular activities. These opportunities are designed to equip students with valuable skills and knowledge that extend well beyond their time at the university.

Our accomplished alumni have made significant contributions across various fields including health, business, technology, law, engineering, media, and science. With nine faculties offering a wide range of programs, students have the freedom to explore and discover their true passions. Our dedicated faculty members, with their wealth of national and international experience, tirelessly impart not just academic excellence, but also nurture a spirit of inquiry and innovation among our students.

Moreover, UCP takes pride in its vibrant community, boasting numerous societies that foster education, social bonds, entrepreneurship, and artistic expression. Our campus is equipped with modern facilities and state-of-the-art labs, providing students with a cutting-edge learning environment. Embracing sustainability, we have taken significant strides toward creating a greener campus through the installation of solar panels, reflecting our commitment to an eco-friendlier approach.

Beyond classrooms, our students benefit from interactive learning experiences in our contemporary auditorium, webinar room, and production house, where they can translate theoretical knowledge into practical applications. These avenues also facilitate meaningful interactions with industry experts, enabling our students to gain invaluable insights into their respective fields.

At the heart of it all, the University of Central Punjab remains dedicated to nurturing a generation of well-educated, socially conscious individuals who are poised to make a positive impact on Pakistan and the world.



Pro-Rector's Message

Welcome to the University of Central Punjab (UCP)! We are honored that you have chosen UCP for your educational journey, and we sincerely appreciate the trust parents place in us for their children's education.

At UCP, we believe university education is not merely an endpoint but a transformative journey. Our goal is to equip our students with the skills and knowledge they need to thrive in an ever-changing world. Through outstanding teaching, scholarships, flexible programs, and robust extracurricular opportunities, we ensure a truly enriching experience. Our faculty excels in pedagogy, maintaining rigorous academic standards with transparency and accountability.

UCP fosters a culture of transformation that permeates every aspect of our ecosystem. During their time here, students will experience this transformation firsthand. My wish for every UCP student is to undergo a life-changing educational journey, embodying values such as hard work, perseverance, and adaptability—qualities essential for future intellectuals, leaders and entrepreneurs.

Our commitment to our alumni extends beyond graduation; they are valued contributors to our community. Their diverse experiences and global presence enrich our institution, providing invaluable support and inspiration to current students.

I welcome you again to UCP, where you will embark on a transformational experience that prepares you not only for a successful career but also to contribute meaningfully to our nation. We look forward to accompanying you on this journey of growth and discovery.



Dr. Hammad Naveed
Pro-Rector, UCP



SDG 1:

No Poverty



1.1 World Food Safety Day Event

On June 8th, UCP, in collaboration with the Punjab Food Authority, hosted an event focused on raising awareness about safe and healthy food practices. This initiative indirectly supports economic stability by preventing foodborne illnesses and the associated healthcare and productivity costs, thus contributing to poverty reduction.



Event Link: [World Food Safety Day Event](#)



1.2 Inclusive Student Society (ISS)

As the first student community in Pakistan managed by both disabled and non-disabled students, ISS aims to foster mutual understanding, promote inclusivity, and challenge discriminatory attitudes. This ensures that all individuals, regardless of ability, have equal opportunities to thrive and escape poverty traps.

Inclusive Student Society in collaboration with Rizq society UCP chapter for an unforgettable evening filled with love, laughter, and learning. Let's bring smiles to the faces of these incredible children and show them that they are cherished and valued.



Event Link: [Inclusive Student Society](#)



1.3 Catalyst Society

This society organizes diverse volunteer campaigns and welfare activities, including relief efforts, awareness campaigns, medical/health camps, and seminars. Their work addresses critical social issues such as literacy, hygiene, health, gender equality, and human rights, all of which are fundamental to creating a more equitable society and sustainable poverty reduction.





1.4 Independence Day Preparations and Activities at Voice Shelter Home:

Volunteers in Service (VIS) department organized Independence Day Preparation and Activities at Voice Shelter Home for Independent Living. At Voice Shelter Home, orphans are taken care off and provided a good lifestyle with quality education.

UCP Volunteers not only decorated the shelter home but also gave away gifts to the orphaned and disabled children. They also engaged them in activities like face painting, drawing competition, etc.







SDG 2:

Zero Hunger

2 ZERO HUNGER



2.1 Rizq Chapter:

The UCP Rizq Society is actively engaged in tackling food insecurity and hunger. Its primary focus is on redistributing surplus food and advocating for equitable resource distribution, directly ensuring that food reaches those in need and minimizing food waste.



2.2 Ramadan Dasterkhwan

March 2nd – 29th March 2025



RIZQ UCP Chapter organized Ramadan Dasterkhwan to spread kindness and ensure that no one sleeps hungry. Through Rizq Dastarkhawan 2025, we are committed to providing meals to deserved ones.





2.3 Essar-e-Ramadan

March 7th – 28th 2025 (Every Friday)

Esaar e Ramadan journey ends with warmth and gratitude, as with the help of our dedicated volunteers we hosted our final dastarkhwan. As we close this chapter, let us cherish the memories shared around the dastarkhuan and strive to extend its essence of empathy and solidarity throughout the year.





2.4 The Ibtida Food Drive

April 17, 2025

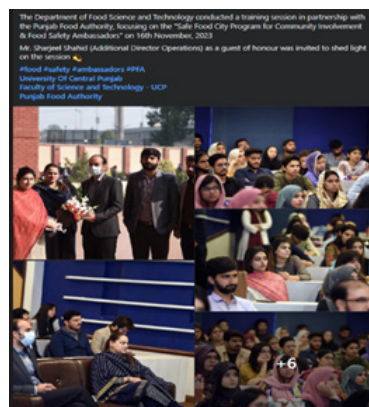
The IBTIDA Food Drive, held during the Result Distribution Ceremony, highlighted the collaborative efforts of students and teachers to address the basic needs of IBTIDA Scholars. Aligning with the fundamental rights of every Pakistani citizen, IBTIDA UCP remains committed to providing essentials like education, food, and healthcare, ensuring a brighter future for all.





2.5 Safe Food City Program:

November 16th, UCP invited community participation in the Safe Food City Program. This initiative aims to involve citizens in creating Food Safety Ambassadors, promoting safe food handling practices, and contributing to overall food security within urban areas.



2.6 Iftar Drive:



Iftar Drive in Collaboration with RIZQ Society UCP: On March 28th, 2024, the UCP Law Society partnered with the RIZQ Society to conduct a humanitarian iftar drive, distributing meals to those in need during the holy month of Ramadan. This direct food aid helps alleviate immediate hunger.





**2.7 Name of the Faculty Member:
Ashbeelah Shafaqat Ali**

Title of Activity: Final Project for the course of Advertising & PR
Title of Project: 1-Stop Hub SDG Goal 2: Zero Hunger



2.8 Largest Aftar & Ration Distribution



This Ramzan 2025, the Volunteers in Service (VIS) Department at UCP, in collaboration with Allah Walay Trust, organized one of the largest Aftar and Ration Distribution drives. Together, we provided Aftar meals to nearly 1 million people across various locations in Lahore during the holy month of Ramzan this year.

With the tireless dedication of our UCP Volunteers, thousands of individuals were served daily, ensuring that no one had to break their fast alone. This initiative embodied the true spirit of Ramzan—compassion, generosity, and service to humanity.



2.9 IBTDA & RIZQ at UCP: Friday Food Drive Spreading Kindness



IBTDA & RIZQ UCP successfully organized the Friday Food Drive, sharing care and compassion through every meal. This initiative directly supports SDG 2 – Zero Hunger by addressing food insecurity, while also fostering a spirit of generosity and community well-being.





SDG 3:

Good Health and Wellbeing

3 GOOD HEALTH AND WELL-BEING



3.1 FYP (Documentary)

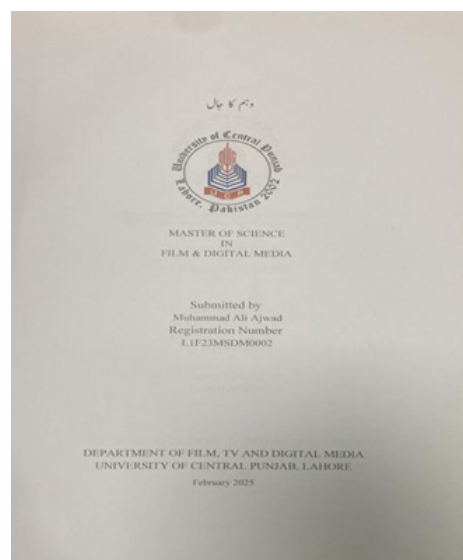
Obsessive-compulsive disorder (OCD) features a pattern of unwanted thoughts and fears known as obsessions. These obsessions lead you to do repetitive behaviors, also called compulsions. These obsessions and compulsions get in the way of daily activities and cause a lot of distress.

Name of Faculty member: Dr Atif Ashraf Title of Activity: FYP (Documentary)

Title of Documentary: OCD

Description: MS FYP on Obsessive Compulsive Disorder

Date: June 2025



Name of the Faculty Member: Sara Shah

Title of Activity: FYP Advertising & PR Title of Project:

Natura Gain Brief Description:

The big idea for this campaign was to provide high-quality NaturaGain to individuals seeking to gain weight healthily and naturally. Emphasizing its nutritional benefits and versatility as an organic weight gainer, we aimed to create awareness about the health advantages of including NaturaGain in one's diet. The goal was to promote its consumption as a nutritious and delicious alternative to synthetic weight gain supplements. We were committed to providing a consistent supply of premium quality NaturaGain, made in Pakistan with organic ingredients such as nuts, dates, roasted chickpeas, and oats, to individuals and businesses seeking to enhance their diet naturally and effectively.





Name of the Faculty Member: Hamza Ayub

Title of Activity: Documentary (BSFYP)

Title of Documentary: Forgotten but not alone

Brief Description: The documentary is about life at old age home. It sheds light on the problems that old people encounter in old age homes and how they navigate their life and their relations.

Date: Feb 2025





Name of the Faculty Member: Ms. Yakhshi Saleem

Title of Activity: Final Project for the course of Mobile Technologies and Journalism Practices

Title of Project: News Package on cigarette shops outside universities

SDG Goal 3: Good health and well-being





Brief Description: The students made a News Package by capturing and editing with their mobile on News Package on cigarette shops outside universities.

Title of Activity: Consequences of Technostress on Job Performance, Job Satisfaction, and Job Turnover Intention of Media Personnel in Pakistan

Date: 18 April 2025

Brief Description: Ms. Tabinda Khurshid has successfully defended her doctoral dissertation. She explored the technostress on well-being of Media practitioners in Pakistan.

SDG Title and Number: Good health and well-being (SDG 3)



3.2 Healthy Eating for Busy Lives & Summer Wellness

The poster has an orange background with yellow and blue circular accents. At the top left are three logos: the University of Central Punjab (UCP) logo, the Evercare Hospital Lahore logo, and the Taste Budds logo. The main title 'HEALTHY EATING FOR BUSY LIVES & SUMMER WELLNESS' is in large, bold, white capital letters. Below the title, the speaker's name 'Ms. Hajra Saleem' and her credentials 'Registered Dietitian certified by PNDIS' are listed. Her role as 'Consultant Dietitian' at 'Evercare Hospital Lahore' is also mentioned. The event details include the time '10:00 am - 12:00 pm', the location 'Webinar Room C Building UCP', and the date 'May 21, 2025'. A photo of Ms. Hajra Saleem, a woman with long dark hair wearing a white lab coat and a blue lanyard, is on the right. The social media handle '@tastebudds.ucp' is at the bottom right.

HEALTHY EATING FOR BUSY LIVES & SUMMER WELLNESS

Ms. Hajra Saleem
Registered Dietitian certified by PNDIS

Consultant Dietitian
Evercare Hospital Lahore

 10:00 am - 12:00 pm

 Webinar Room C Building
UCP

 May 21, 2025

@tastebudds.ucp





3.3 Breast Cancer Awareness

October 9, 2024

The Human Resource Department hosted an informative session on Breast Cancer Awareness. The session, led by Dr. Huma Majeed, a Consultant from Evercare Hospital, focused on the early signs and symptoms of breast cancer. With the theme "Pink" to highlight breast cancer awareness, the event aimed to educate attendees on the importance of early detection and encourage proactive health practices





3.4 World Diabetes Day

November 14, 2024

The Human Resource Department, in collaboration with the Faculty of Pharmaceutical Sciences, hosted a session on “World Diabetes Day 2024,” featuring insights from Prof. Dr. Rizwan Zafar and Dr. Mehtab A. Khan. The session highlighted the importance of well-being in diabetes care. Beyond medication, resilience, responsibility, and organization are key to maintaining both physical and mental health. Patients with diabetes should not face additional mental health challenges. The discussion focused on raising awareness, prevention strategies, and bridging the gap between medication and mental health, aligning with our commitment to community wellness and the SDGs.





3.5 HIV/AIDS Awareness Seminar and Poster Competition December 17, 2024

The Health and Pharmacy Club, in collaboration with Punjab Aids Control Program, organized an HIV/AIDS awareness seminar and poster competition at the University of Central Punjab on 17th December 2024. Speakers included Dr. Fatima Saeed (In charge, Punjab Aids Control Program) and Mr. Shoaib Akram (Communication Officer, Punjab Aids Control Program). The seminar focused on HIV/AIDS prevention, treatment, and support.





3.6 Comprehensive First Aid & Fire Safety Workshop

April 16, 2025

The UCP Disaster Management Society, in collaboration with Rescue 1122, successfully conducted a comprehensive First Aid & Fire Safety Workshop. Participants received practical training in CPR, wound management, and the proper use of fire extinguishers. Engaging demonstrations and real-life rescue footage heightened awareness and participation. Rescue 1122 was presented with shields and certificates in appreciation of their support, while dedicated members of the society were also acknowledged for their efforts. The session underscored the critical importance of emergency readiness and life-saving skills.





3.7 Mental Health Week 2025

April 28, 2025

The UCP Psychology Society, in collaboration with the Department of Psychology, hosted Mental Health Week. Centered around the theme “Holistic Healing: Community and Mental Well-being,” the three-day event aimed to raise awareness, encourage open dialogue, and promote emotional wellness through educational and creative initiatives.





3.8 Down Syndrome Session

May 19, 2025

Workshop On Down Syndrome by Inclusive Students Society! With the presence of Ms. Shumaila, Psychologist and Head of Department at LISCA, participants learned how to better support and interact with individuals with Down syndrome with dignity, respect and open hearts. Everyone deserves to be seen not for what makes them different but for what makes them human.





3.9 Conference Publication & International Training on Cyber-Biosecurity -Good Health & Well Being

Title: Country Report on emerging biotechnology in Pakistan experience sharing for a Safe research practice. University of Manila, Philippines September 6 to September 10 2024.



3.10 Topic: Emerging trends in Biotechnological Sciences and Role of females

Speaker: Sadia Zia



ISO35001 Leadership Development Technical Working Group meeting by Health Security partners USA. Sadia Zia participated as technical working group member September 14 2024.





3.11 Sports Gala

The Faculty of Pharmaceutical Sciences organized a three-day sports festival for students. This initiative promotes physical activity, recreation, and overall well-being, recognizing the importance of a healthy lifestyle.





3.12 One Day Awareness Seminar on Congenital Heart Diseases:

Organized on February 2nd, 2022, in collaboration with UCP Health Club, UCP Welfare Society, and Pakistan Children Heart Foundation, this seminar raised crucial awareness about congenital heart diseases, promoting early detection and intervention.

3.13 UCP Psychology & Mental Health Society

This society is dedicated to raising awareness about psychological issues and aligns its activities with SDG 3. Their flagship event, the annual Mental Health Week, promotes mental well-being and helps to destigmatize mental health discussions.

3.14 Session on Dermatology

A free session on dermatology led by Dr. Mehvish Naeem was held on September 20, 2023, in collaboration with Health Cares and the Department of Basic and Applied Chemistry, offering valuable health advice and free consultations.

3.15 Cervical Cancer Awareness Seminar

Presented by Dr. Noreen Zafar on January 10, 2023, and organized by the Department of Microbiology, this seminar aimed to raise awareness about cervical cancer prevention and early detection through education.

3.16 Seminar on 'Quality Assurance in Pathology Labs

Hosted by the Department of Microbiology on December 23, 2023, in collaboration with Punjab Health Commission, NHS-NEQAS, and NUST, this seminar focused on maintaining high standards in diagnostic pathology, crucial for accurate health diagnoses.

3.17 Free Medical Camp in Sialkot:

Organized by the Faculty of Pharmaceutical Sciences in collaboration with UCP Health Club, Transparent Hands trust, and Diya Welfare Society on March 13, 2023, this camp provided free medical check-ups, medicines, and lab tests to over 300 patients in an underserved area, directly improving access to healthcare.



3.18 Awareness Campaign Against Drug Abuse & Poster Competition:

UCP secured the 2nd Runner-up position in an inter-university poster competition related to drug abuse, organized by the Anti-Narcotic Society of GC University, Lahore, effectively raising awareness about the harms of drug abuse.

International Webinar: Solving Pharmacokinetics (PK) Problems in Drug Design: This webinar contributes to advancements in pharmaceutical sciences, impacting health outcomes and drug safety by enhancing the design of more effective and safer drugs.

3.19 One-Day Workshop on Food Toxicology

This workshop provides valuable insights into food safety and the potential health risks associated with food contaminants, crucial for public health protection and informed consumption choices.

3.20 Facilities Hour Program (FMMC)

This program by the Faculty of Media and Mass Communication (FMMC) is explicitly linked to Good Health and Wellbeing, among other SDGs, indicating the media's role in disseminating crucial health information and promoting public health.

3.21 Health Clinic Show (FMMC)

This program specifically focuses on health-related topics, directly contributing to public health awareness and education through accessible media.

3.22 Anti-Drugs and Anti-Smoking Poster Campaign

Volunteers in Service (VIS) department organized a poster campaign against Drugs and Smoking to highlight their evils.

UCP Volunteers participated in the campaign with great enthusiasm and showed their talent as well. Their passion against drugs poured out on paper and this helped us bring into light that youths don't like drugs and smoking in general.



3.23 Free Eye Camp for Deserving

We're excited to announce that the Volunteers in Service (VIS) department at the University of Central Punjab (UCP) has resumed its mission of providing free healthcare services to rural areas. After a hiatus due to COVID-19, we're back and more committed than ever to delivering essential medical care right to where it's needed most.

On Friday, August 30th, 2024, we launched the first of many upcoming health camps on Raiwind Road. This initiative, in collaboration with Transparent Hands and Life Hospital, aimed to serve communities with limited access to healthcare.

Our day began with a tour of Life Hospital, where UCP volunteers learned about the incredible work being done. The team then moved on to the camp site to set up a Free Eye Camp, offering not only check-ups but also free medication and eyeglasses to those in need.

The dedication of our UCP volunteers, alongside the expert teams from Transparent Hands and Life Hospital, made this camp a resounding success. A large number of patients received the care they needed free of cost at their door step.





3.24 Air Quality Index monitors

A Real-Time Outdoor (weatherproof) Smart Air Quality & weather Monitor with an Online User Interface. Parameters collected and key features include:

- PM 2.5(ug/m3) (0.3-10u capability)
- Temperature (Degree Celsius)
- Humidity
- Time Stamp
- Historical Graphical Results
- Online Database and SD Card Backup.
- Live interactive dashboard of parameters setup
- WIFI enabled syncing

No. of Units Distributed: Two Units per LAACA Member University Campuses

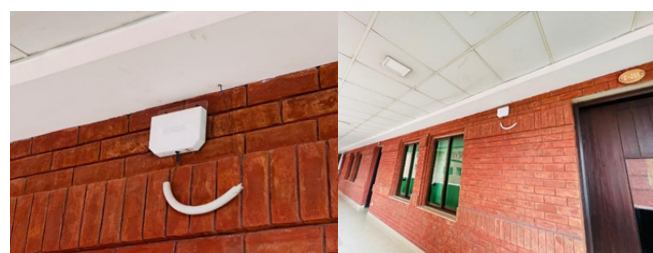
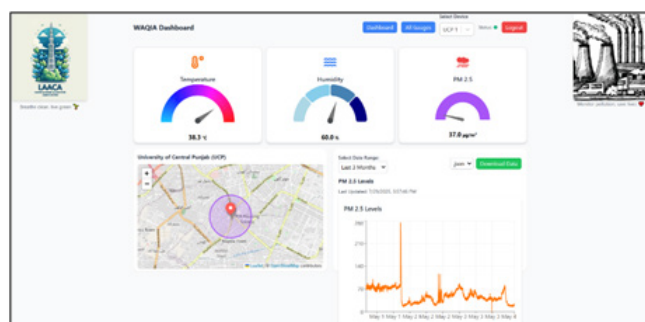
SOPs Installation:

- I. INTERNET: WIFI SSID and PASSWORD of University to be sent to IECE Technical Team for Connection
- II. POWER: 2 Pin Power Plug Connection
- III. MOUNTING: Screw 2 mounts into the wall to secure the AQI device

Dashboard Layout

Potential Outcomes: A free system, and networked system for Air Quality monitoring in Lahore, with study on Data Analytics, Trends, Forecasting, Dynamic Mapping of AQI, facts & data-based identification of causes of worsened AQI, Green Zones Identification, Tracking & Incentives for University Campus AQI Improvement over time, ranking of universities based Green Campus notion; Green Metric, AQI Metric, Sustainable Campus, SDG GOALS Achievement.

Technical Support Contact
info@iece.uol.edu.pk









SDG 4:

Quality Education

4.1 Title of Activity: Project for the course of Mobile Technologies and Journalism Practices

Name of the Faculty Member: Ms. Yakhshi Saleem

Title of Project: News Package on National history museum

SDG Goal 4: Quality education

Brief Description: The students made a News Package by capturing and editing with their mobile on National history museum located near Minar-e-Pakistan



4.2 Title of Activity: Project for the course of Mobile Technologies and Journalism Practices

Name of the Faculty Member: Ms. Yakhshi Saleem

Title of Project: News Package on Traditional breakfast at Old Lahore

SDG Goal 4: Quality education

Brief Description: The students made a News Package by capturing and editing with their mobile on News Package on Traditional breakfast at Old Lahore.

Screenshot:



4.3 Name of the Faculty Member: Dr Saleem Akhtar Title of Activity: Documentary (MS FYP)

Title of Documentary: From Shadows to Strength

Brief Description: This documentary investigates the transformative journey of a community institution dedicated to inclusive education and social empowerment.

Date: Feb 2024

SDG Title and Number: Quality education and (4) and Reduced Inequalities (10)

Screenshot:



4.4 Brief Description: Academic Partner in 3rd International Media and Communication

FMMC at the University Of Central Punjab (UCP) proudly participated as an

Conference (IMCC), held on May 29–30, 2025. The event was jointly organized by the UMT SMCS School of Media and Communication Studies and the Department of Communication and Media Research, SCS, PU.

SDG Title and Number: Quality Education, Partnership for Goals, SDGs no 4 and 17





4.5 Title of Activity: Communication Gala 2025

Date: April 29, 2025

Brief Description: A grand celebration of creativity, competition, and communication excellence at the Faculty of Media and Mass Communication (FMMC), UCP. There were four competitions in the Communication Gala: Poster Designing, TV Anchoring, Social Media Reels, and TV Commercials/PSM. The presence of esteemed judges from the media industry elevated the event. Short clips from the four exciting competitions were screened, showcasing the talent and passion of our participants. Winners and runners-up were celebrated with cash prizes, acknowledging their outstanding work.



4.6 Title of Activity: How to Create Your own Content

Date: June 6, 2024

Brief Description: Faculty members looked into the world of Generative Pre-trained Transformers (GPTs), gaining insights into how these advanced AI models can be customized and utilized in various media applications. They examined how GPTs can be leveraged to generate creative content and improve research and data analysis processes.

SDG Title and Number: Quality Education, SDG no 4.





4.7 Art Competition for Children:

July 5, 2024

An Art Competition for Children from Underprivileged Communities, Slums, and Orphanages. We are excited to announce, an inspiring art competition dedicated to celebrating the creativity and talent of children from underprivileged communities, slums, and orphanages. This special event, organized by Team Junoon in collaboration with the Inclusive Students Society, aims to provide these young artists with a platform to express themselves and shine.



4.8 Transforming of Education in slums, Teachers training of Ibtida

November 12, 2024

The objective of this workshop is to enhance your teaching skills and efficiency to maximize impact on our students.

Renowned educators will share valuable insights and strategies to improve your teaching techniques.

It's important to attend because it will Improve your teaching confidence and effectiveness Enhance student outcomes and learning experiences





4.9 Surbuland Talks: Future of Education and Internationalization January 17th 2025.

The Future of Education and Internationalization brought together thought leaders to explore the evolving landscape of global education. With Mr. Haider Miraj moderating, the session featured Dr. Hammad Naveed, Prof. Dr. Zia Ul-Qayyum, and Ms. Sarah Parvez, who shared insights on the power of globalization, international collaboration, and the future of higher education. A pivotal moment for fostering meaningful dialogue and shaping the future of transnational education



4.10 Sustainable Development Goals x Takhleeq Problem Solving Institute

Takhleeq Problem Solving Institute is committed to fostering inclusive and sustainable development through entrepreneurship and practice.

Goal 4: Quality Education

Initiatives:

- **Entrepreneurship Bootcamps & Workshops:** Takhleeq has successfully delivered 25+ training sessions on business planning, financial literacy, and digital skills to aspiring entrepreneurs and students who are in their final years.
- **Mentorship Programs:** Connected 15+ startups with industry experts to offer structured learning experiences. Takhleeq also extends mentorship to final year students of UCP to assist them in finalizing ideas and developing a growth mindset.
- **External Collaborations:** Takhleeq has partnered with external companies and organizations to share resources and foster mentoring practices. This helps students and startups to get real time assistance and training. This includes Dysol Global Pvt Ltd, Pakistan Agile Education and Pakistan Games Collective.



Takhleeq's Contributions:

- **Entrepreneurial Education:** Offering structured incubation programs with training modules in business planning, financial literacy, digital marketing, legal compliance, and social entrepreneurship.
- **Mentorship Programs:** Matching startups with expert mentors and advisors to support continuous learning and skill development.
- **Workshops & Bootcamps:** Hosting regular educational events, including design thinking sessions, pitch preparation workshops, ideation activities and market validation exercises.
- **Youth Engagement:** Targeted outreach to university students and recent graduates, equipping them with startup skills and career readiness.

Impact Metrics:

- 50+ entrepreneurs incubated annually
- 25+ classes taken through ideation in the entrepreneurship sessions
- 80% of participants are first-time business founders
- 20+ educational and ideation events organized yearly

Development of curriculum to safeguard the research practices from DURC(Dual use of Research concerns)

Curriculum Coordinator: Ms. Sadia Zia



4.11 Employer Alumni Panel Talk | Day 2

The second day of the panel talk brought new perspectives with a different set of participants. This session featured an employer and an alumnus who shared their unique experiences and practical advice with the students. Their insights helped students better understand the realities of the legal profession and explore possible career paths. With new students attending, the discussion remained engaging, thoughtful, and informative.

Guest:

- Mr. Saqlain Arshad, Employer
- Mr. Qambar Ali, Alumni

Date: 18th June, 2025

Students: 14

Following are some visuals from the event:



4.11 Workshop On Developing Course Rubrics And Designing Assessments Using Different Tools And Techniques, For Legal Education

Workshop program date: 27th September 2024 (Friday)

Participants:

- Dr. Hadia Awan (Dean)
- Dr. Talha Zubair (Guest Speaker)
- Dr. Barkat Ali
- Ms. Saba Awan
- Ms. Freeha Fahad
- Ms. Ammara Afzal
- Ms. Rida Khawar
- Mr. Zeeshan Ashraf
- Mr. Zeeshan Malik (Visiting)
- Mr. Ijaz Qutab (Visiting)
- Mr. Altumash (Visiting)
- Mr. Ahsan Shahzad (Visiting)
- Ms. Ummara Mustafa (Visiting)
- Mr. Rizwan Husain (Visiting)
- Mr. Saad Khan (visiting)
- Mr. Aurangzeb Doha (visiting)
- Mr. Mubashir (P.A to Dean)

A workshop was held on 27th September on the topic of **“WORKSHOP ON DEVELOPING COURSE RUBRICS AND DESIGNING ASSESSMENTS USING DIFFERENT TOOLS AND TECHNIQUES, FOR LEGAL EDUCATION”**, Dr Talha Zubair from FOMS was the guest speaker and he delivered his lecture on the topic of **“ASSESSMENT AND GRADING, PURPOSE AND TECHNIQUE IN LEGAL PERSPECTIVE”**. The workshop started with the name of Allah at 02:30 p.m., after that short presentation of overview of the day by Muhammad Aamer Kamran. After that Mr. Mubashir briefed the audience with the portal details with practical exposition. At around 3:15 P.m. Panel Discussion started in which participants were Dr. Hadia, Mr. Ijaz Qutab, MS Ammara, Miss Shaista and Miss Saba. on the topic of rubric assessment. At 3:50 Dr Talha started his lecture and it went very well till 5:15. at the end an activity was performed by all members. The workshop was ended with refreshment.



4.12 Lecture on Critical Thinking

Lecture on critical thinking was held on Friday, 31st January in which Honorable Former Chief justice Anwar ul Haq gave a productive lecture on the topic of Critical thinking in law for LLB students and faculty members. In this lecture he told students about the relation of law and critical thinking. He also put some light on the decision making with the help of critical thinking. Students asked many questions and he responded it with his wisdom and intellect.





4.13 Unlocking Disruptive Innovation

Empowering Techno Entrepreneurs! Dr. Irfan Sabir from UCP Business School hosted a guest speaker session on disruptive innovation for techno entrepreneurs, fostering an innovative mindset and entrepreneurial skills among students.

4.14 Workshop “Fostering Effective Teaching & Learning

The Department of Mathematics hosted a workshop on September 6-7, 2023, providing insights and strategies for enhancing teaching and learning in mathematics, thereby improving pedagogical practices.

4.15 Exploring the World of Microbiology

On September 20th, 2023, the Department of Microbiology hosted a training session titled “Research Techniques - From Theory to Practical,” enhancing students’ practical skills and research capabilities.

4.16 Workshop on Grant Writing Proposals and Com-

by Dr. Muhammad Akhyar:

This workshop equips researchers and academicians with essential skills in writing competitive grant proposals and commercializing their research. This promotes a knowledge-based economy, fosters innovation, and bridges the gap between academia and industry, which is crucial for sustainable technological advancement and educational excellence.

4.17 6th One-Day Lab Training for Chemistry and Biochemistry Postgraduate Students:

This hands-on lab training enhances technical skills and ensures that students are prepared for real-world challenges. It also emphasizes safety, efficiency, and sustainable laboratory practices, contributing to a comprehensive and responsible education.



4.18 One-Day Talk on Research Methodologies & Academic Paper Writing by FOE:

This talk promotes research literacy and scientific communication. It helps in generating impactful research that addresses social, environmental, and health-related challenges, ensuring that education contributes to evidence-based policies for sustainable development.

4.19 Guest Speaker Session:

- **Industrial Relevance of Organic Chemistry:**

Provides students with valuable insights into the practical applications of organic chemistry in various industries, bridging academic theory with industrial practice.

- **Training on HPLC, UV-Vis and AAS techniques:**

This training enhances technical skills crucial for various scientific and industrial applications, preparing students for specialized roles in analytical chemistry and related fields.

- **Maths Department Workshop:**

“Enhancing Math Curriculum with Python for CS and Business Applications”: This workshop aligns with SDG 4 by promoting inclusive and equitable access to modern, tech-integrated learning. By equipping students with computational and analytical skills relevant to real-world

4.20 FMMC Educational Activities:

Various educational activities conducted by individual faculty members at the Faculty of Media and Mass Communication (FMMC) directly contribute to quality education by providing specialized knowledge and skills in media and communication.

- **News Round Up Program (FMMC):**

This program by FMMC is linked to Quality Education, among other SDGs, by providing factual information and fostering informed citizenship.

- **Persian Show Program (FMMC):**

This program by FMMC is linked to Quality Education, among other SDGs, by promoting cultural education and linguistic understanding.

Seminar on Muslim Women in Aotearoa New Zealand (V 1.3 AR V.3.docx): A seminar on August 8, 2023, on “Our Hijrah research project” focused on documenting the history of Muslim women in Aotearoa New Zealand for UNESCO, which promotes cultural understanding and diverse knowledge.



- **Literacy Day Book Collection Drive:**

Volunteers in Service (VIS) Department, in partnership with the Faculty of Languages and Literature, has proudly wrapped up an inspiring Book Collection Campaign. Together, we gathered essential Punjab Text Book Board course books to empower deserving students at schools. These books will now find their way to eager young minds, thanks to the incredible team of Hope Uplift Foundation. It was a heartfelt moment when Mr. Imran (Senior Officer, VIS) handed over the precious collection to Mr. Arshad Nouman (Manager, Marketing & PR, Hope Uplift Foundation).

4.21 Initiatives:

- **Entrepreneurship Bootcamps & Workshops:** Takhleeq has successfully delivered 25+ training sessions on business planning, financial literacy, and digital skills to aspiring entrepreneurs and students who are in their final years.
- **Mentorship Programs:** Connected 15+ startups with industry experts to offer structured learning experiences. Takhleeq also extends mentorship to final year students of UCP to assist them in finalizing ideas and developing a growth mindset.
- **External Collaborations:** Takhleeq has partnered with external companies and organizations to share resources and foster mentoring practices. This helps students and startups to get real time assistance and training. This includes Dysol Global Pvt Ltd, Pakistan Agile Education and Pakistan Games Collective.

4.22 Takhleeq's Contributions by VIS:

- **Entrepreneurial Education:** Offering structured incubation programs with training modules in business planning, financial literacy, digital marketing, legal compliance, and social entrepreneurship.
- **Mentorship Programs:** Matching startups with expert mentors and advisors to support continuous learning and skill development.
- **Workshops & Bootcamps:** Hosting regular educational events, including design thinking sessions, pitch preparation workshops, ideation activities and market validation exercises.
- **Youth Engagement:** Targeted outreach to university students and recent graduates, equipping them with startup skills and career readiness.

Impact Metrics:

- 50+ entrepreneurs incubated annually
- 25+ classes taken through ideation in the entrepreneurship sessions
- 80% of participants are first-time business founders
- 20+ educational and ideation events organized yearly



4.23 IBTIDA

IBTIDA scholars showcased their creativity with stunning stick-crafted showpieces, including a beautifully designed house model, highlighting their artistic skills and attention to detail. UCP remains committed to empowering children through skill development and education.



IBTIDA passionately empowers its scholars through vocational training, fostering creativity and skills. From crafting bags and cycles from newspapers to growing vegetables through kitchen gardening, IBTIDA's initiatives aim to combat past challenges and build a brighter future. By providing education, vocational training, and basic needs, IBTIDA and UCP fulfills its social responsibility, paving the way for a better tomorrow.



4.24 Creative Handcrafting Workshop for IBTIDA Scholars

The IBTIDA UCP x EPS Creative Handcrafting Workshop provided scholars with a valuable platform for skill-based learning and creative expression. The initiative encouraged students to explore their artistic abilities, build teamwork, and gain confidence. This effort aligns strongly with SDG 4 – Quality Education, as it promotes inclusive, innovative, and lifelong learning opportunities for young learners.



4.25 IBTIDA Scholars Begin Sewing Workshop Journey

The IBTIDA Scholars' Sewing Workshop at UCP marks a significant step in promoting skill development and self-reliance. By learning sewing techniques, scholars are not only enhancing creativity but also gaining practical vocational skills. This initiative reflects SDG 4 – Quality Education, as it empowers learners with lifelong skills that foster confidence, independence, and future opportunities.



4.26 IBTIDA Scholars' Qurani Safar: A Journey of Learning and Barakah

The best among you are those who learn the Quran and teach it.”

– Prophet Muhammad (P.B.U.H) (Sahih Bukhari 5027)

IBTIDA Scholars continue their Qurani Safar with moments filled with learning, bonding, and barakah. Young scholars memorized duas with dedication, while volunteers supported with compassion, guided under the leadership of our Vice President. This initiative reflects SDG 4 – Quality Education, as it nurtures spiritual learning, character development, and a lifelong connection with the Deen.







SDG 5:

Gender Equality

5.1 Exploring Cyber Harassment and Abuse against Feminist Activists: A Case Study of Pakistan.

Date: February 24, 2025

Brief Description: the focus of this MPhil Thesis was women and cyber protection for them.

SDG Title and Number: Gender Equality, SDG no 5



5.2 Seminar on National Women's Equality Day

Date: August 26, 2024

Special seminar on National Women's Equality Day, featuring guest speaker Warda Rashid Khan Let's come together to honor the contributions of women and discuss the path forward for equality.





5.3 Self-Defense Workshop

November 6, 2024

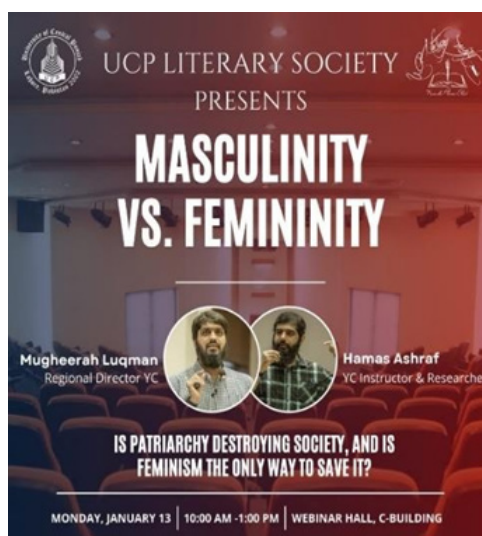
Our Self-Defense Workshop is more than just about techniques it's about building self-awareness, boosting, confidence, and embracing empowerment. **Develop the skills to navigate any situation with confidence in this workshop. Our expert trainers will equip you with proven techniques to remain calm and secure in the face of challenges.**



5.4 Masculinity vs. Femininity

January 13, 2025

As a man, do you feel pressured to define yourself solely by your career, neglecting your innate nature? As a woman, do you find yourself torn between societal demands to equate career success with marriage or to adopt masculinity to thrive in a capitalist society.



5.5 Sensitizing students about the vital role women have played throughout

April 18, 2025



The Voltaire Society warmly invites you to an engaging session dedicated to sensitizing students about the vital role women have played throughout history as voices of resistance, symbols of courage, and agents of change.



5.6 Takhleeq Problem Solving Institute SDG 5: Gender Equality

Initiatives & Contributions:

- **Women inclusion in Cohorts:** Takhleeq has ensured that its cohort has 40% of women representation that have access to training material, workshops and mentorship.
- **Women mentors & trainers from the industry:** As part of Takhleeq's initiatives, all workshops, activities, training and adhoc sessions have women mentors from the industry. This inclusivity allows women entrepreneurs to learn from industry specialists and pave their own paths.
- **Safe Spaces & Dialogue Forums:** Takhleeq has conducted sessions on gender equity, workplace harassment, and leadership for women to ensure all women entrepreneurs are aware and included.
- **Capacity Building:** Takhleeq focuses on specialized training for women entrepreneurs focusing on confidence-building, negotiation, and leadership.
- **Women-Led Startup Support:** Dedicated quotas for female-led startups in Takhleeq's cohorts.

Impact Metrics:

- 40% of incubated startups are women-led
- Bringing in 25+ women mentors across the year for

Role of women in shaping civil society narrative for women empowerment

Ms.Sadia Zia as Guest Consultant University of Central Punjab Lahor



5.7 Report on the Session: Tribute to Women in Climate Action Published

Date: March 21, 2025

Venue: University of Central Punjab

Organized by: Environment Protection Society

The Environment Protection Society University of Central Punjab hosted an inspiring session titled Tribute to Women in Climate Action, celebrating the achievements and contributions of women leaders, scientists, and activists in addressing climate change. The event aimed to recognize the critical role women play in sustainability, resilience-building, and environmental advocacy while fostering discussions on enhancing gender-inclusive climate solutions.

Key Highlights:

Opening Remarks:

The session began with a warm welcome from Patron EPS Ms. Sadia Zia, who emphasized the importance of gender equity in climate action and the need for more inclusive policies and opportunities for women in the field.

Keynote Speech:

Ms. Bakhtawar, Director of the Youth General Assembly Climate Forum and a member of the Prime Minister's National Youth Council delivered a compelling address on the power of female-driven initiatives in combating environmental challenges. The speaker highlighted success stories from Pakistan and beyond, emphasizing the need for investment in women-led climate solutions.

Interactive Session:

Participants engaged in a vibrant Q&A session, where students and faculty members posed insightful questions on policy frameworks, grassroots activism, and career pathways for women in environmental sciences.



Conclusion:

The event successfully highlighted the invaluable contributions of women in climate action and sparked meaningful discussions on empowering future female leaders in sustainability. Attendees left with renewed inspiration and actionable insights to contribute towards a greener and more equitable future.



5.8 Awareness Seminar on Harassment at the Workplace

An awareness seminar on 'Harrassment at Workplace' was conducted in collaboration with the Federal Ombudsman Secretariat for Protection against Harassment (FOSPAH) on 6th November 2024. Ms. Lubna Ali, Regional Head, was the Chief Guest. Ms. Lubna highlighted the different aspects of the relevant law and elaborated on the role and working procedure of FOSPAH. The objective of the seminar was to spread awareness regarding the form of harassment at workplace and the available remedies for the aggrieved individuals. Students and faculty from FoL attended the Seminar.





5.9 Activities Organized by VIS

- **Students Visit to Child Protection Center:**

Students organized literary and fun activities for children and distributed goody bags, fostering connections and compassion, which indirectly supports vulnerable girls and their well-being.

- **Students Distribution of Ration Bags:**

Students organized an event to distribute ration bags to families in need within the community, providing crucial support to female-headed households, who are often more vulnerable.

- **Packing Goody Bags for Child Protection Center**

Faculty and students participated in packing goody bags for the Child Protection Center, supporting the well-being and providing some comfort to children, including girls, in challenging circumstances.

5.10 Online Session on “The Real Truth Behind Domestic Violence

On May 4, 2024, the UCP Law Society conducted an impactful online session featuring Neelam Jaffri, an expert on domestic violence and women’s rights. This directly raises awareness, advocates for victims, and promotes legal understanding to combat gender-based violence.

5.11 NISA Society for Women Empowerment:

This society aims to empower women by instilling skills for self-advocacy and aligning with gender equality and sustainability through economic empowerment and equal opportunities, fostering female leadership and participation.

- **For Female Students Of UCP**

This initiative aims to reduce inequalities and enhance safety for female students by providing safe and accessible transportation, thereby promoting their mobility and equal access to education and opportunities.

- **Overcoming Gender Exclusion**

Women’s Role in Pakistan’s Democracy (IC3D-2025): A paper presented by Aaisha Siddiqua from the University of the Punjab, Lahore, specifically highlighting women’s vital role and contributions in democratic processes.

Digitalization and Women’s Political Participation in Pakistan (IC3D-2025)

A paper presented by Sanwal Kharal from Aston University, UK, exploring the impact of digitalization on women’s political engagement and participation, addressing disparities



in access and influence.

Publications: A completed thesis titled “Implementation of International Laws and Norms Regarding Women’s Rights in Pakistan (2000-2024)” directly addresses the legal frameworks and institutional efforts to ensure gender equality in Pakistan.

5.12 Initiatives & Contributions:

- **Women inclusion in Cohorts:**

Takhleeq has ensured that its cohort has 40% of women representation that have access to training material, workshops and mentorship.

- **Women mentors & trainers from the industry:**

As part of Takhleeq’s initiatives, all workshops, activities, training and adhoc sessions have women mentors from the industry. This inclusivity allows women entrepreneurs to learn from industry specialists and pave their own paths.

- **Safe Spaces & Dialogue Forums:**

Takhleeq has conducted sessions on gender equity, workplace harassment, and leadership for women to ensure all women entrepreneurs are aware and included.

- **Capacity Building:**

Takhleeq focuses on specialized training for women entrepreneurs focusing on confidence-building, negotiation, and leadership.

- **Women-Led Startup Support:**

Dedicated quotas for female-led startups in Takhleeq’s cohorts.

Impact Metrics:

- 40% of incubated startups are women-led
- Bringing in 25+ women mentors across the year for



SDG 6:

Clean Water & Sanitation



6.1 Surviving the Sands (Documentary)

Date: February 7, 2025

Brief Description: This documentary focuses on the nomadic tribes of the Cholistan Desert in Pakistan and their daily struggle to access clean and safe water. It highlights traditional water conservation practices, the impact of water scarcity on health and livelihoods, and the need for sustainable water management systems in arid regions.

SDG Title and Number: Clean Water and Sanitation (SDG 6)

Name of the Faculty Member: Omer Saeed Qureshi

Title of Activity: FYP (Journalism)



6.2 Water for the Future: Navigating Sustainability from Rivers to Oceans

June 17, 2025 | Tuesday

13:00 - 16:00 Hrs PKT

Online Zoom

Ms Sadia Zia

Principal Lecturer,

University of Central Punjab, Lahore





Poster competition of clean water and Sanitation: Students actively participated in a poster competition to raise awareness about the critical importance of clean water and sanitation, promoting community engagement in these issues.

Talk on Decolonizing Water: Prof. Daanish from King's College London delivered a talk on "Decolonizing Water? Understanding Pakistan Floods 2022 as Part of the Colonial Present," organized by the Voltaire Society. This discussion addressed water equity, governance, and management challenges, especially in the context of climate change.

Activity:

Testing and checking quality of water for UCP community: This crucial activity ensures access to safe drinking water for the entire UCP community. It involves meeting safe drinking water standards, identifying any contaminants, and proactively addressing potential health risks, which is fundamental for health, well-being, and sustainability.

Treated Wastewater from the Effluent Treatment Plant (ETP)

- The **ETP treats 500 liters per day** (~182,500 liters/year) of institutional wastewater from laboratories, washrooms, and other campus facilities.

Treatment Process:

1. **Collection Tank:** Raw wastewater is initially stored to ensure consistent flow into the treatment process.
 2. **Anaerobic Tank:** Microorganisms break down organic contaminants in the absence of oxygen, producing biogas and digestate (used as organic fertilizer).
 3. **Aerobic Tanks (I & II):** Aerobic bacteria oxidize remaining organic matter, reducing Chemical Oxygen Demand (COD) from ~100 kg/m² to <20 kg/m², while generating additional biomass.
 4. **Bio Sand Filter:** Physically and biologically filters pathogens, heavy metals, and other inorganics.
 5. **Break Tank:** Balances water flow to ensure efficient filtration.
 6. **Nano Filtration Units:** Advanced purification using nanoparticle-based membranes removes viruses, bacteria, and residual pollutants, producing safe, clean water.
 7. **Filtered Water Storage:** Treated water is stored in tanks, ready for reuse.
1. **ETP treated wastewater:** 500 liters/day → 182,500 liters/year
 2. Rainwater absorption/conservation area: 343,983 m² (out of total campus area 449,707 m² → 76.47%)
 3. **Water conservation goal:** >50% implemented









SDG 7:

Affordable and Clean Energy

Production of Biogas (Renewable Energy) from Potato and Banana Peels: Dr. Muhammad Riaz and his research students successfully produced biogas from potato and banana peels using an anaerobic digester. This innovative research demonstrates the potential for local, sustainable, and affordable renewable energy solutions.

Purification of Biogas Produced from Different Organic Wastes and Use of its Byproduct as Liquid Biofertilizer for Hydroponic Technique

Dr. Muhammad Riaz

Department of Basic and Applied Chemistry, Faculty of Science and Technology, University of Central Punjab, Lahore 54000, Pakistan.

Summary

The decomposition of fruit waste in an open environment is the major cause for the release of methane (a major global warming gas) into the environment. Anaerobic biodigester produces biogas (renewable energy) and helps to decrease methane emissions (carbon emissions) in the environment, making it also a clean renewable energy source. The biogas produced is purified by using different chemicals to remove carbon dioxide and hydrogen sulphide from biogas. Biogas purification can further help reduce emissions (carbon emissions) into the environment. The byproduct of the biogas digester is used as a liquid biofertilizer to grow plants by hydroponic technique.

Some highlights of current research work

Following are some highlights of current research work





Purification and measurement of biogas



Burning test of biogas produced



The automatic nutrient flow in hydroponic technique using a solar light-based pump



The solar light-based automatic nutrient pump



Use of biogas byproduct by hydroponic and non-hydroponic (control) technique for growing Lettuce



Use of biogas byproduct by hydroponic and non-hydroponic (control) technique for growing spinach



PERIDOT Project

Aligned SDGs:

- SDG 7 – Affordable and Clean Energy

Overview

The PERIDOT Project analyzes how energy sustainability and environmental protection provisions are incorporated in regional and bilateral trade agreements. It focuses on the enforceability of these clauses and their effects on renewable energy trade, environmental goods, and pollution emissions.

Objectives

- Develop a database of trade agreements with sustainable energy and environmental clauses.
- Identify determinants influencing the inclusion of such clauses, especially in North–South agreements.
- Assess their impact on trade in energy resources and services.
- Examine their role in reducing CO₂ emissions using econometric models.
- Provide policy recommendations for Pakistan to integrate sustainability in future trade agreements.

Collaboration

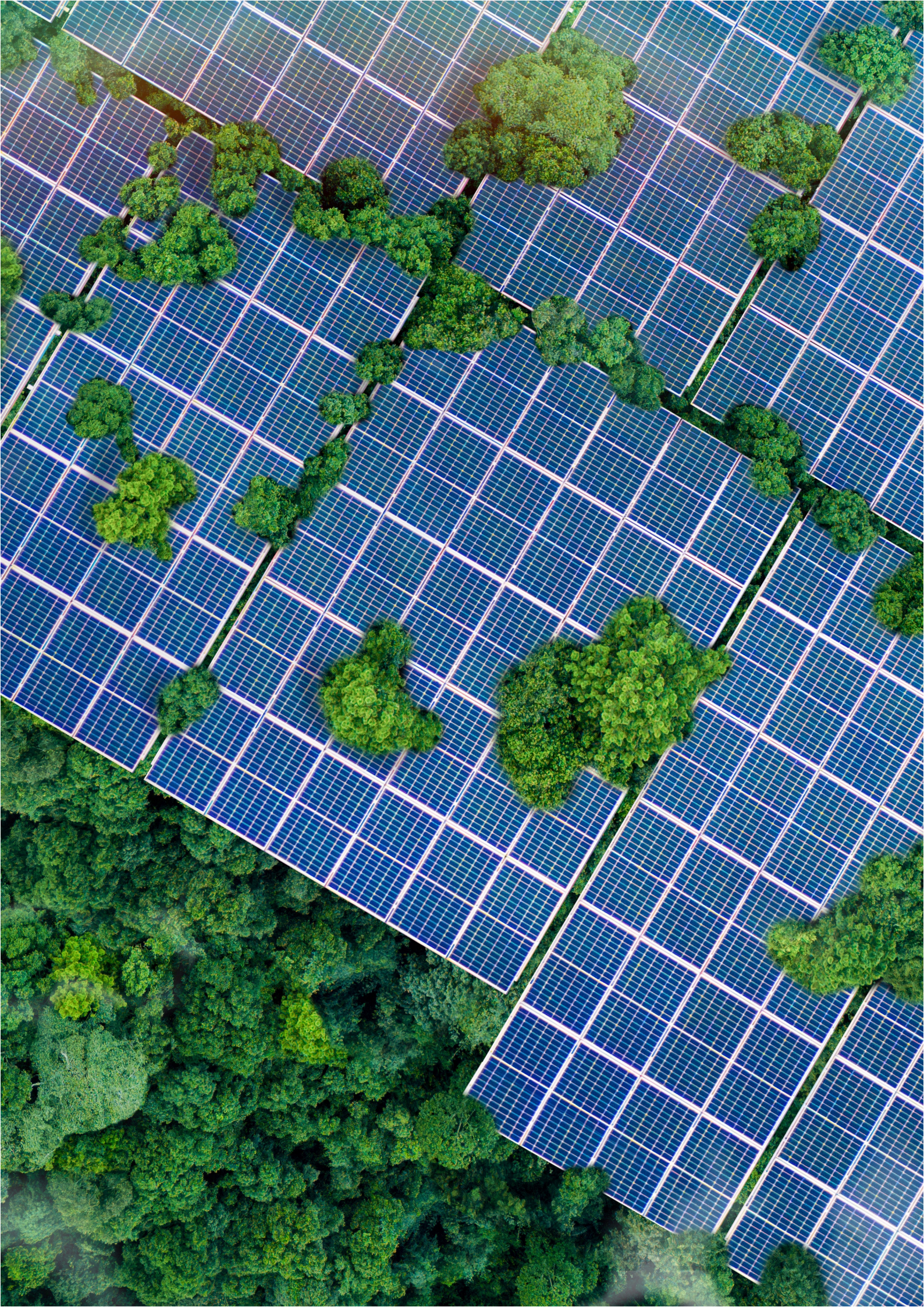
The project is conducted with an international partner in France, an expert in trade and environmental economics, to strengthen analytical and policy capacity.

Relevance to Pakistan

Pakistan currently lacks trade agreements with energy or environmental clauses. This study will guide policymakers in designing sustainable trade policies that promote clean energy, environmental protection, and climate resilience.

Expected Outcomes

- Database of sustainability clauses in trade agreements.
- Evidence on trade–environment linkages.
- Policy framework to support Pakistan’s transition to clean and sustainable energy trade.





SDG 8:

Decent Work & Economic Growth



Two-day hands-on training workshop on Microbiological and Molecular Techniques: Organized by the Department of Microbiology, this workshop provided valuable insights and practical skills for MS and PhD students' research work, significantly enhancing their employability in scientific and industrial sectors.

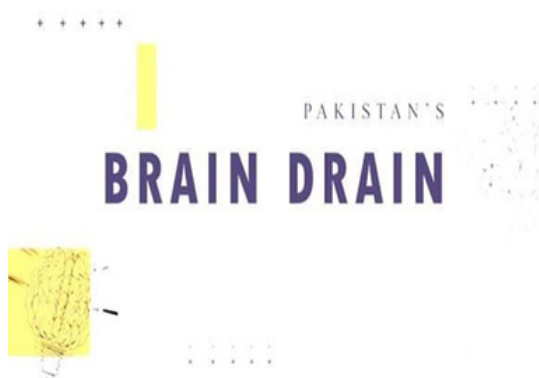
Name of the Faculty Member: Muhammad Shahid

Title of Activity: Documentary (MS FYP)

Title of Documentary: Brain Drain

Brief Description: The documentary is about Brain Drain of Pakistani students because of lack of facilities, job opportunities and fear of financial future.

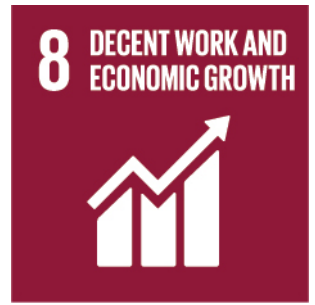
Date: Feb 2025



SDG Title and Number: SDG 8: Decent Work and Economic Growth
Takhleeq Problem Solving Institute SDG 8: Decent Work and Economic Growth

8.1 Initiatives & Contributions:

- **Job Creation through Startups:** Startups incubated under Takhleeq generated 50+ jobs in local communities thereby contributing to economic development and growth.
- **Capacity Building & Skill Development:** Takhleeq has provided digital upskilling and business training to 100+ individuals by providing them with soft skills that are required to uplift businesses. All training, skills-based sessions and workshops are designed to enhance employability through digital and entrepreneurial skill building.
- **Micro-Grant Programs:** Takhleeq aims to provide its entrepreneurs with small-scale funding to stimulate local economic activity.



- **Economic Upliftment:** Takhleeq is completely on board on supporting businesses that target low-income communities or solve local socio-economic challenges. A startup working at Takhleeq is fostering socio-economic development by providing low-income communities with free education for all.
- **Freelance & Gig Support:** Takhleeq is constantly working on training the students at UCP in upping their freelancing skills and connecting them with global work opportunities; thereby contributing to economic growth.

Impact Metrics:

- 50+ jobs created by Takhleeq-supported startups
- 100+ individuals upskilled through workshops, sessions and mentor-based training

Employer Alumni Panel Talk

The Employer Alumni Panel Talk organised for students of Semester 10 was a valuable learning experience, featuring insights from a legal professional and several alumni who shared their career journeys and practical advice. The discussions were engaging and informative, offering students a clearer view of Industry challenges and expectations. Another purpose of the event was to help students understand different career paths in the legal field and gain knowledge from real-world experiences. The event was originally planned as a three-day series, but it was adjusted to two days with a combined session on day 1 due to the unavailability of one of the employers.

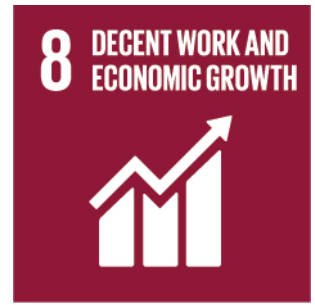
Guest:

- Mr. Mamoom Ghazi, Employer
- Ms. Fizza Altaf, Alumni
- Mr. Abdullah Awan, Alumni
- Ms. Mariyam, Alumni

Date: 17th June, 2025v zv

The following are some visuals from the event:





8.2 Guest Lecture by Barrister Ahmad Hassan on Aligning Legal Education with Practice:

On June 12, 2024, the UCP Law Society organized a lecture to provide law students with practical insights into aligning legal education with the demands of the legal profession in Pakistan, preparing them for decent work opportunities.

8.3 Industrial Tour to Al-Rehman Group of Industries (Textile Division):

This tour provided students with invaluable practical exposure to industrial practices and potential career paths in the textile sector, bridging academic learning with real-world employment opportunities.

8.4 3-day training course on Halal Lead Auditor:

This comprehensive training empowers professionals with specialized skills in halal auditing. It promotes ethical food certification, significantly enhancing employability in the growing halal industry, and supports culturally sustainable food systems.

8.5 Facilities Hour Program (FMMC):

This program by FMMC is explicitly linked to Decent Work and Economic Growth, indicating the media's role in promoting economic opportunities and workforce development through information dissemination.

8.6 Publication:

An article published titled: "Social Clauses in Free Trade Agreements: An Efficient Tool to Improve Labour Standards?" directly addresses the improvement of labor standards within trade agreements, contributing to decent work conditions globally.

8.7 Initiatives & Contributions by VIS

• Job Creation through Startups:

Startups incubated under Takhleeq generated 50+ jobs in local communities thereby contributing to economic development and growth.

• Capacity Building & Skill Development:

Takhleeq has provided digital upskilling and business training to 100+ individuals by providing them with soft skills that are required to uplift businesses. All training, skills-based sessions and workshops are designed to enhance employability through digital and entrepreneurial skill building.

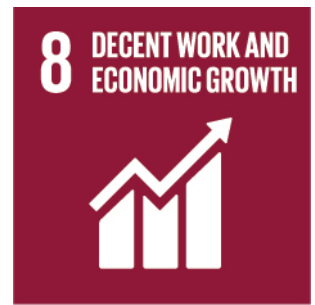
• Micro-Grant Programs:

Takhleeq aims to provide its entrepreneurs with small-scale funding to stimulate local economic activity.

• Economic Upliftment:

Takhleeq is completely on board on supporting businesses that target low-income communities or solve local socio-economic challenges. A startup working at Takhleeq is fostering socio-economic development by providing low-income communities with free education for all.

• Freelance & Gig Support: Takhleeq is constantly working on training the students at UCP in upping their freelancing skills and connecting them with global work opportu-



Impact Metrics:

- 50+ jobs created by Takhleeq-supported startups
- 100+ individuals upskilled through workshops, sessions and mentor-based training

8.8 IBTIDA Entrepreneurs: From Skills to Sustainable Livelihoods

IBTIDA Entrepreneurs have turned their creativity into thriving ventures, producing show-pieces, bags, and innovative handmade products. By aligning with SDG 8 – Decent Work and Economic Growth, this initiative empowers individuals with education and vocational skills, fostering financial independence, supporting families, and building pathways toward a sustainable and brighter future









SDG 9:

Industry, Innovation and Infrastructure

Inauguration ceremony of establishment of national center of nanoscience and nanotechnology: Dr. Muhammad Akhyar Farrukh joined this project as a Principal Investigator, contributing significantly to the establishment of advanced scientific infrastructure and fostering innovation in nanotechnology.

9.1 Tour to Islamabad, FOHSS:

The Department of Political Science and International Relations organized a study tour to Islamabad to establish connections and explore collaboration opportunities with relevant industries and organizations, including visits to the National Assembly, Supreme Court, and various ministries and institutes, fostering institutional linkages.

9.2 Industrial Tour to Punjab Forensic Science Agency (PFSA):

On January 10, 2023, an informative visit was organized for students of Forensic Linguistics, providing insights into various departments of the PFSA and its advanced technological infrastructure, connecting academic learning with specialized industry.

9.3 Visits by FOE:

Explored Pakistan's cultural heritage, literary achievements, and fostered cultural understanding and intellectual growth through visits to The Pakistan Monument, Pak Mission Society, and Pakistan Academy of Letters, contributing to cultural infrastructure.

Workshop on Grant Writing Proposals and Commercialization by Dr. Muhammad Akhyar: This workshop strongly promotes innovation and helps bridge the gap between academia and industry for sustainable technological advancement by enabling the commercialization of research.

9.4 One-Day Talk on Biopolymer:

Focuses on innovative and sustainable materials (biopolymers) and their applications, contributing to advancements in environmentally friendly industries.

Training on HPLC, UV-Vis and AAS techniques: Enhances technical skills essential for industry, research, and innovation in various sectors, supporting high-tech infrastructure.

Physics Department Session on Pakistan's First Manned Space Mission: This session promotes scientific curiosity and innovation in space science and technology, which are key drivers of sustainable economic and technological advancement and critical infrastructure.

9.5 Facilities Hour Program (FMMC):

This program by FMMC is linked to Industry, Innovation, and Infrastructure, indicating media's role in promoting technological advancements and economic development.



9.5 Facilities Hour Program (FMMC):

This program by FMMC is linked to Industry, Innovation, and Infrastructure, indicating media's role in promoting technological advancements and economic development.

9.6 News Round Up Program (FMMC):

This program by FMMC is linked to Industry, Innovation, and Infrastructure by reporting on new developments and innovations.

9.7 Persian Show Program (FMMC):

This program by FMMC is linked to Industry, Innovation, and Infrastructure through cultural and educational content.

Name of the Faculty Member: Ms. Yakhshi Saleem

9.8 Project for the course of Mobile Technologies and Journalism Practices

Title of Project: News Package on production of Jeans fabric in Pakistan

SDG Goal 9: Industry, innovation and infrastructure

Brief Description: The students made a News Package by capturing and editing with their mobile on News Package on production of Jeans fabric in Pakistan



9.9 Industrial Visits to Suno News

Date: April 21, 2025

Brief Description

FMMC has organized an industrial visit to the renowned TV channel Suno News for 2nd-semester BS students. It offered students an immersive experience into the operations and workflow of a leading news channel. Upon arrival, the team at Suno News extended a warm welcome, followed by an insightful overview of the organization. The tour began with an overview of the TV channel, followed by an in-depth look at its key departments, including the Newsroom, Production Control Room, Programming Division, and studio facilities.

SDG Title and Number: Industry, Innovation and Infrastructure, SDG no 9





9.10 Initiatives & Contributions by VIS

- **Tech Enablement Program:**
Takhleeq has and is supporting more than 30 startups in leveraging emerging technologies and linking their business needs to using AI, IoT and tech-based opportunities.
 - **Prototyping Support:**
All startups incubated at Takhleeq are offered access to labs, technical mentorship, and innovation funding to grow their products/services.
 - **Innovation Challenges:**
Takhleeq has organized two OOTAs to foster ideation and problems solving within the students of UCP by liaising with industry partners and identifying scalable solutions. Takhleeq aims to host at least 6 OOTAS throughout the year to foster innovation and creativity.
 - **Innovation Labs:**
Takhleeq provides access to makery lab, co-working spaces, and testing environments that would enable startups and entrepreneurs to test their products & services in real time environment.
 - **Hackathons & Innovation Challenges:**
Takhleeq is always encouraging product development around real-world problems and to encourage all entrepreneurs and startups at Takhleeq, it hosts hackathons and workshops that encourages ideation and problem-solving mindset.
- Impact Metrics:**
- 25+ startups have access to the co-working space
 - 5+ innovation challenge events organized annually
 - 20+ workshops, trainings and sessions organized to foster creativity and innovation

9.11 Industry, Innovation, and Infrastructure

Initiatives & Contributions

- **Tech Enablement Program:**
Takhleeq has and is supporting more than 30 startups in leveraging emerging technologies and linking their business needs to using AI, IoT and tech-based opportunities.
- **Prototyping Support:**
All startups incubated at Takhleeq are offered access to labs, technical mentorship, and innovation funding to grow their products/services.
- **Innovation Challenges:**
Takhleeq has organized two OOTAs to foster ideation and problems solving within the students of UCP by liaising with industry partners and identifying scalable solutions. Takhleeq aims to host at least 6 OOTAS throughout the year to foster innovation and creativity.
- **Innovation Labs:**
Takhleeq provides access to makery lab, co-working spaces, and testing environments that would enable startups and entrepreneurs to test their products & services in real time environment.
- **Hackathons & Innovation Challenges:** Takhleeq is always encouraging product development around real-world problems and to encourage all entrepreneurs and startups at Takhleeq, it hosts hackathons and workshops that encourages ideation and problem-solving mindset.



Impact Metrics:

- 25+ startups have access to the co-working space
- 5+ innovation challenge events organized annually
- 20+ workshops, trainings and sessions organized to foster creativity and innovation

Suitability of Fly Ash Bricks for the Construction Industry

Prepared by:

Prof. Dr. Engr. Kafeel Ahmed

Department of Civil Engineering, Faculty of Engineering

University of Central Punjab

Abstract

The trend of urbanization has resulted in the development of housing societies around major cities in Pakistan, leading to an increase in brick production. Coal power plants are producing tons of fly ash as a by-product, which is being dumped at landfills across the country. This practice adversely affects the environment by causing air pollution.

To address this issue, **Punjab Group** took the initiative to use fly ash in brick manufacturing. Samples of fly ash bricks were collected from different sources and provided to the **Department of Civil Engineering, Faculty of Engineering, University of Central Punjab (UCP)** for testing.

In this study, the **strength investigation of fly ash bricks** using locally available materials was conducted. Eighteen different compositions of bricks were tested, with varying proportions of fly ash, sand, and cement. Several tests, including **compressive strength, flexural strength, water absorption, and efflorescence** were performed on the fly ash bricks. The results showed that the **compressive and flexural strengths** of fly ash bricks satisfied the designated compressive strength requirements for masonry construction as per the Building Code of Pakistan. All brick units incorporating fly ash also met the criteria of the minimum flexural strength in accordance with **ASTM C67**. Brick specimens satisfied **ASTM C62** requirements for water absorption.

Results suggest that bricks incorporating fly ash can be a viable solution for the waste management of fly ash, while still meeting the minimum required standards for masonry construction.

Introduction

Within the construction industry of Pakistan, the use of **burnt clay bricks** has remained prevalent. However, the feasibility of substituting them with **fly ash bricks** has emerged due to their advantages of being **lightweight** and having **superior compressive strength**, which can promote innovation and sustainability in the field of building and infrastructure development (Mainuddin et al., 2019).

Moreover, environmental pollution caused by burning clay bricks and the loss of fertile agricultural soil can be effectively addressed by adopting fly ash bricks. The constituents of fly ash bricks are illustrated in Figure

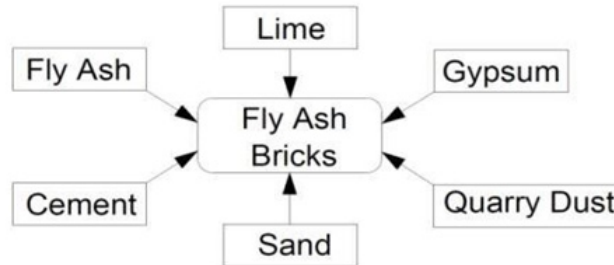


Figure 1: Ingredients Fly Ash Brick (Mainuddin et al., 2019)

Objective

The objective of this research was to study the strength of fly ash bricks by utilizing locally available fly ash collected from different sources by Punjab Group. In order to achieve this objective, the study focused on the impact of varying percentages of the best fly ash, sand, and cement on the strength of the bricks.

Experimentation Overview

The experimentation involved the preparation of eighteen different samples with varying proportions of fly ash, sand, and cement.

- The proportion of fly ash was 50%, 60%, and 70%,
- The proportion of sand was reduced from 44% to 14% by a reducing rate of 2%, and
- The proportion of cement was increased from 6% to 16% by an increasing rate of 2%.

MATERIALS AND METHODOLOGY

Fly Ash

The fly ash used for the production of brick specimens in this research was collected from Century Paper Mill, Lahore. It was classified as Class “F” fly ash because the CaO content was less than 10% according to the chemical analysis.

Stone Dust

The stone dust was acquired from the Sargodha crush plant. The primary purpose of using stone dust was to attain early initial strength and a rough texture. After analyzing the stone dust, its fineness modulus was found to be 2.52.

Water

Groundwater was used for the production of fly ash bricks.

Sand

Fine Ravi sand, locally available in the surroundings of Lahore, was used in the production of fly ash bricks.

Cement

In the production of fly ash bricks, cement plays a crucial role as it acts as a binding agent that holds the other components together. In this study, DG Cement was used for the manufacturing of the fly ash bricks.

Mix Compositions

Before use, the sand and stone dust underwent a sieving process to ensure their suitability.

In the subsequent phase, varying quantities of fly ash bricks were produced at a brick manufacturing plant. These bricks were subjected to comprehensive testing to evaluate their mechanical properties (such as compressive and flexural strengths) and durability properties (including water absorption and efflorescence).

The test mixtures were examined following the ASTM C67 standard. To obtain accurate results, five similar brick specimens of each mix composition were analyzed for compressive and flexural strengths at specific ages — 8, 56, 90, and 120 days.

For each proportion of fly ash, approximately 80 brick specimens were prepared, resulting in the production of around 1500 bricks for comprehensive testing.

The constituent materials were first dry mixed according to the mix proportions, then wet mixing was carried out, and finally, a compressive force was applied to form the bricks in molds.

The process is shown in Figure 2 and Figure 3.



Figure. 2(a) Mixing the material in the mixture (b) Conveyor belt carrying the mixture



Figure.3 (c) Placing the mixture into dies (d) Demolding of the bricks



TESTING PROGRAM

To examine the mechanical performance of bricks, two tests — compression and flexure strength — were conducted on the brick specimens.

For both tests, sampling and capping were done in accordance with ASTM C67.

Moreover, to examine durability, a water absorption test was performed, and for physical inspection, an efflorescence test was conducted — both in accordance with ASTM C67 standards.

Compression Test

The mechanical properties of brick specimens were determined as per ASTM C67 (Standard Test Methods for Sampling and Testing of Brick).

Five specimens of each mix were tested after 28, 56, 90, and 120 days.

Twenty-four hours prior to the test, the brick specimens were capped using plaster of Paris to ensure a uniform application of load.

For the compression test, brick samples were capped one day before testing. The dry half bricks were used for the compression test, and five specimens of each mix were tested, as shown in Figure 4.

During the compression test, it was ensured that the unit being tested had its full height and width intact, while the length was maintained at no less than one-quarter of the unit's overall length.



Figure. 4: Compression test of fly ash bricks

Flexural Test

Five specimens of each mix were tested after 28, 56, 90, and 120 days for the flexural test.

The test specimens consisted of completely dry, full-size units.

Twenty-four hours prior to the test, preparations were completed to ensure uniform conditions.

Testing of samples for flexure is shown in Figure 5.

Water Absorption Test

The water absorption test is an essential test in the evaluation of building materials.

This test was conducted in accordance with the specified requirements to British Standard (ASTM C67).

Five specimens of each mix were tested after 28, 56, 90, and 120 days for water absorption capacity.

Efflorescence Test

This test was conducted in accordance with the specified requirements to British Standard (ASTM C67).

For this test, five brick samples of every mix were tested for efflorescence, as shown in Figures 6 and 7.

This test procedure does not give a quantitative result.



Figure.6:
Efflorescence test of fly ash bricks



Figure.
Efflorescence visible on samples

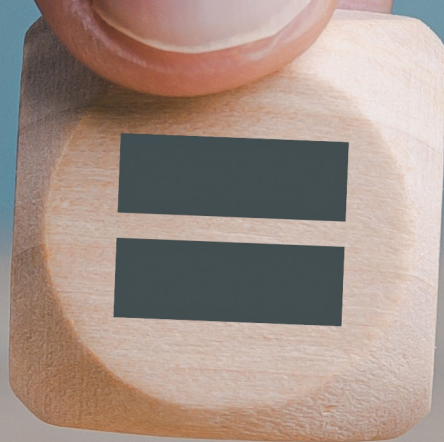
Figure 7: The properties specified by the different standards. (Abbass et al., 2022)

Conclusions

The following conclusions are drawn from this investigation:

1. The fly ash content affects the compressive strength in such a way that a decrease in fly ash content gives more compressive strength.
2. All fly ash brick specimens fulfilled the minimum flexural strength criteria as outlined in PBC and ASTM C67.







SDG 10:

Reduced Inequalities

10.1 Making Pakistan Sustainable

The Role of Future Journalists in Driving Development

Date: April 15, 2025

Brief Description FMMC hosted an **Alumni Mentoring Session**, featuring Ms. Mariya So-hail, Counsellor at the Migrant Resource Centre, Pakistan, supervised by the International Centre for Migration Policy Demustainable Development Goals (SDGs), ethical storytelling, and exploring global opportunities for young media professionals.

SDG Title and Number: Reduced Inequalities, SDG no 10



The Role of Future Journalists in Driving Development

10.2 World Braille Day

January 20th 2025

"On the occasion of World Braille Day, the Inclusive Students Society, in conjunction with the Civil Engineers Society, is hosting an event of World Braille Day aimed at raising awareness about Braille and honoring the determination of individuals with visual impairments.



World Braille Day



10.3 Humanity Day February 6th 2025

Humanity Day at UCP, a special event dedicated to celebrating the power of compassion, kindness, and unity. Inspired by the timeless wisdom of Wasif Ali Wasif, this gathering will provide an opportunity to reflect on the importance of empathy, embrace our shared humanity, and inspire positive change in the world around us. The event will feature insightful discussions, inspiring messages, and a collective commitment to making a difference understanding thrive.

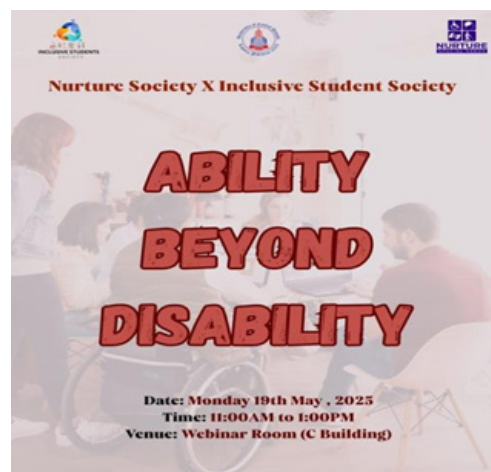


Humanity Day February 6th 2025

10.4 Ability Beyond Disability

May 19th 2025

Join us for an empowering webinar co-hosted by Nurture Society and Inclusive Society UCP! This seminar brings together brilliant speakers to redefine disability and unlock possibilities. Discover how individuals with diverse abilities can thrive, contribute, and lead fulfilling lives. Explore the intersection of disability rights, advocacy, and inclusivity, and learn from experts passionate about creating a more accessible world.

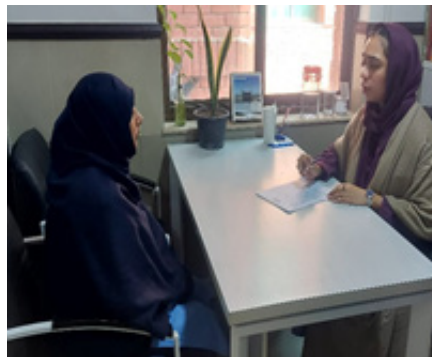


Ability Beyond Disability



10.5 UCP Law Clinic Pro bono Services

The UCP Law Clinic has successfully handled more than seven cases under its Pro Bono and Legal Advice Wing, offering legal support to university faculty and staff. These cases have covered a range of legal issues, including inheritance, family matters such as divorce, succession certificates, revenue concerns, property disputes, and contract-related matters. The clinic follows a structured process where an initial meeting is conducted with the concerned individual to gather primary information about the case. Based on this preliminary assessment, the matter is then referred to a practicing lawyer who is a member of the UCP Law Clinic. The lawyer provides professional legal advice and, where appropriate, initiates formal legal proceedings. Through this approach, the clinic continues to promote access to justice by offering free legal assistance within the university community.



UCP Law Clinic Pro bono Services

10.6 Ride with Pride for Female students of UCP

This initiative aims to reduce inequalities for female students by providing safe and accessible transportation, thereby promoting their equitable access to education and university life.



Ride with Pride for Female students of UCP



10.7 Seminar by Dr. Saima Majeed, FC Lahore

The Psychology Department organized a seminar on Emotional Well-being with Rational Emotive Behaviour Therapy (REBT), addressing mental health disparities and providing therapeutic insights for diverse populations.

MOU UCP with Deaf Reach, Family Educational Services Foundation Pakistan: This Memorandum of Understanding facilitates student and faculty placements, consultancy services, industrial problems as final year projects, talks, collaborative research, joint conferences, and specialized training programs. This aims to significantly reduce inequalities for individuals with disabilities by providing educational and professional opportunities.

Lawyers as Entrepreneurs: Industry Talk with Muhammad Saqlain Arshad: On February 23, 2024, the UCP Faculty of Law organized a talk to provide students with practical insights into the legal & professional industry, promoting diverse career paths & entrepreneurial opportunities to reduce economic disparities.

Overcoming Gender Exclusion: Women's Role in Pakistan's Democracy (IC3D-2025): A paper presented by Aaisha Siddiqua from the University of the Punjab, Lahore, specifically highlighted women's vital role and contributions in democratic processes, addressing political inequality.

Digitalization and Women's Political Participation in Pakistan (IC3D-2025): A paper presented by Sanwal Kharal from Aston University, UK, explored the impact of digitalization on women's political engagement and participation, addressing disparities in access and influence in the digital realm.

10.8 Promoting the Construction of Social Fairness (IC3D-2025)

Recommendations from the conference included strengthening tax regulation, increasing tax rates for high-income groups, increasing transfer payments to low-income groups, and improving social security systems to ensure basic living needs for low-income people, all directly aimed at reducing economic inequality and promoting social justice.

10.9 Promoting the Integration of Diverse Cultures and Social Integration (IC3D-2025)

Efforts to promote the integration of diverse cultures and social integration, and to cultivate awareness of cultural tolerance and diverse values, were discussed at the IC3D-2025 conference, aiming to reduce social and cultural inequalities.







SDG 11:

Sustainable Cities & Communities

11.1 Lecture on Climate Change

The Rights of Future Generations:

In December 2023, FOHSS hosted a lecture by Mr. David M. Forman, Director of the Environmental Law Program at the University of Hawaii, Manoa. The lecture focused on sustainable development and environmental preservation, which are critical for building resilient and sustainable cities and communities that can withstand future environmental challenges.

Name of the Faculty Member: Muhammad Shahid

Title of Activity: Documentary (BS FYP)

Title of Documentary: Shadow Streets



Lecture on Climate Change

Brief Description: The documentary is about life at Androon Lahore (Old Lahore) and problems faced by the residents.

Date: Feb 2025

SDG Title and Number: SDG 11: Sustainable Cities and Communities

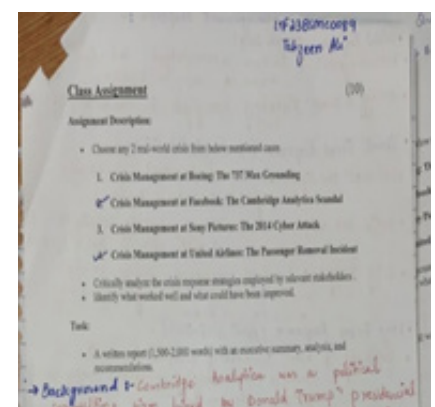
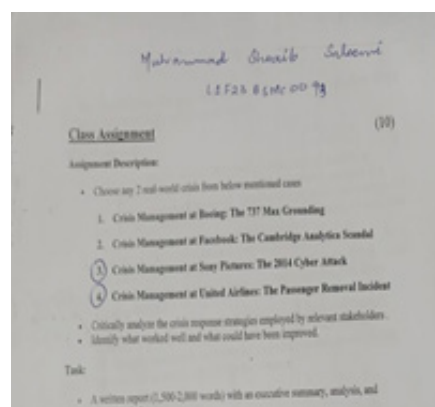
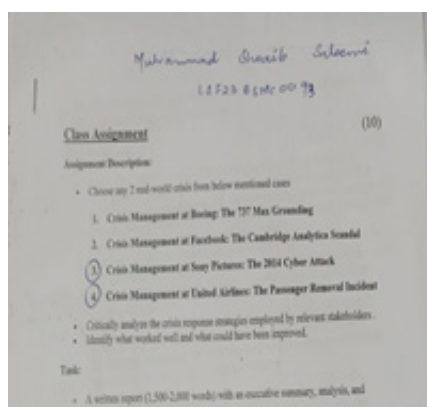
Name of the Faculty Member: Dr. Aisha Hakim

Title of Activity: Class Assignment **Title of Project:** Crisis Management

SDG 11: Sustainable Cities and Communities

Students were given an activity to choose any real-world crisis. They had to evaluate the strategies being employed by the Stakeholders for the crisis

Screehots





11.2 Recycling Workshop

March 24th 2025

The Environmental Protection Society (EPS) and ReLife Green Energies proudly present an engaging Recycling Workshop to promote sustainability and responsible waste management.



Recycling Workshop

11.3 Industry and Academia consortium for empowering the youth through digital automation

Ms. Sadia Zia as Guest Speaker for Cyber-Biosecurity October 21, 2024 all directly aimed at reducing economic inequality and promoting social justice.



Industry and Academia consortium for empowering the youth through digital automation



11.4 6th One-Day Lab Training for Chemistry and Biochemistry Postgraduate Students

This training emphasizes safety, efficiency, and sustainable laboratory practices, directly contributing to the responsible use of chemicals and resources in scientific research and production.

11.5 One-Day Talk on Biopolymer

Focuses on sustainable materials (biopolymers) and their potential for responsible production and consumption by offering environmentally friendly alternatives to traditional materials.

11.6 Workshop on Food Toxicology

Contributes to responsible food production and consumption by ensuring food safety and quality, thereby minimizing food waste and protecting consumer health.

3-day training course on Halal Lead Auditor: This training empowers professionals with specialized skills in halal auditing. It promotes ethical food certification and culturally sustainable food systems, encouraging responsible production practices that adhere to specific ethical and quality standards.





SDG 12:

Responsible Consumption and Production



12.1 Title of Activity: Advertising Campaign (BS)

Title of Project: Drink the Difference

Brief Description: This advertising campaign promotes SIP SIP, a brand offering reusable borosilicate glass bottles designed for eco-conscious hydration. It highlights key features like being non-toxic, thermal shock resistant. By encouraging the use of reusable glass bottles reducing plastic usage directly helps combat global warming, as plastic production and waste contribute significantly to greenhouse gas emissions and environmental degradation.

Date: Feb 2025

SDG Title and Number: Responsible Consumption and Production (12)



Advertising Campaign (BS)

12.2 Plastic Digital Platform Awareness Session

March 27th 2025

Empowering change, one step at a time! The Plastech Digital Platform Awareness Session brought together passionate minds to explore innovative ways of turning plastic waste into value. Together, we move towards a cleaner, more sustainable future!



12.3 Workshop: Hands on Training on Biological Waste Management

May 19th 2025

Workshop on Biological Waste Management and Segregation, organized by the Department of Microbiology and EPS Society. External trainers shared valuable insights through engaging theoretical and practical sessions, highlighting effective strategies for managing and segregating biological waste



Hands on Training on Biological Waste Management

12.4 Report on the Workshop: Making Pencils from Paper Waste

Date: Monday 24 March, 2025

Venue: University of Central Punjab

Organized by: Environment Protection Society

The Environment Protection Society University of Central Punjab hosted an innovative workshop organized by the Environment Protection Society, focusing on sustainable waste management and recycling. The event highlighted the importance of re-purposing waste materials and provided hands-on training on making eco-friendly pencils from discarded paper. The workshop aimed to educate participants on practical recycling techniques and promote a circular economy approach to waste reduction.



Key Highlights:

Opening Remarks:

The session began with a welcome address by Patron Environment Protection Society Ms. Sadia Zia who emphasized the significance of reducing paper waste and adopting sustainable practices in daily life.

Expert Sessions:

Environmental expert Mr. Mudassir Tahir trained the students for making pencils from trash paper using organic glue and graphite. Students made their own pencils and decorate them with environment friendly items.

Conclusion:

The workshop successfully demonstrated the practical application of recycling paper waste into usable products, inspiring participants to take actionable steps toward environmental conservation. By equipping attendees with hands-on skills and awareness, the event fostered a culture of sustainability and resourcefulness within the university community



Making Pencils from Paper Waste

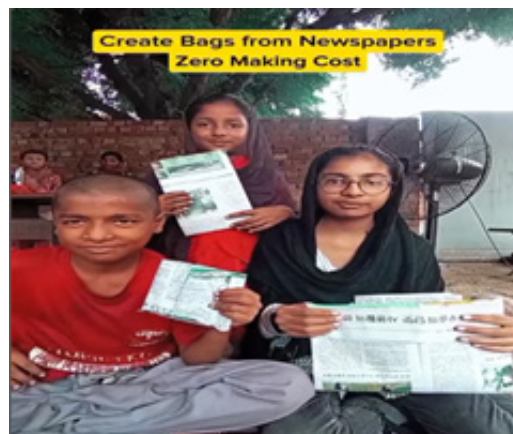


12.5 IBTIDA Scholars Embrace Sustainability Through Eco-Friendly Workshop

In today's workshop, IBTIDA scholars gained hands-on experience in sustainable practices by stitching reusable bags and creating planters through upcycling. The session not only promoted environmental awareness but also enhanced vocational skills, empowering young individuals to actively contribute to a greener future. By fostering creativity, responsibility, and community engagement, this initiative reflects IBTIDA's commitment to advancing the UN SDG 12.



IBTIDA Scholars Embrace Sustainability Through Eco-Friendly



IBTIDA Scholars Turn Creativity into Entrepreneurship

IBTIDA's young entrepreneurs are shining bright! Today, our scholars transformed recycled newspapers into eco-friendly bags and envelopes, practiced negotiation skills, and successfully sold their products to local shopkeepers.



12.1 Brief Report on Reverse Vending Machine Installation

Date: August 14, 2025

1. Introduction

As part of UCP's commitment to environmental sustainability and responsible waste management, a Reverse Vending Machine (RVM) for plastic bottle collection and degradation has been installed on campus. This initiative aims to reduce plastic waste, promote recycling behavior among students and staff, and support national and global sustainability targets. Environmental Protection Society & Takhleeq Problem Solving Institute jointly implement the process with external partners including ISP environmental solutions & Enter-tech Group of Companies.

2. Impact on University Commitment to SDGs

The installation of the RVM directly supports UCP's sustainability agenda and reflects the university's active role in achieving the United Nations Sustainable Development Goals (SDGs). By integrating innovative waste management technologies, UCP is fostering a culture of environmental responsibility and leading by example in the higher education sector.

3. Alignment with Relevant SDGs

The initiative contributes to the following SDGs:

SDG 12: Responsible Consumption and Production

- Encourages reduction, recycling, and responsible disposal of plastic waste.
- Promotes sustainable campus practices and circular economy principles.

SDG 13: Climate Action

- Supports reduction of carbon emissions associated with plastic production and waste handling through effective recycling mechanisms.

SDG 14: Life Below Water & SDG 15: Life on Land

- Reduces the likelihood of plastic pollution entering terrestrial and aquatic ecosystems, protecting biodiversity.

SDG 17: Partnerships for the Goals

Demonstrates collaboration between academia, technology providers, and environmental stakeholders to advance sustainability goals.

Key Outcomes (Initial Phase)

Plastic bottles collected: 4977 units per month (average).

Estimated plastic Recycled: 978 Bottles/month.

CO2 Saved: 96.20 kg

Behavioral Shift: Visible increase in plastic disposal through proper recycling channels.

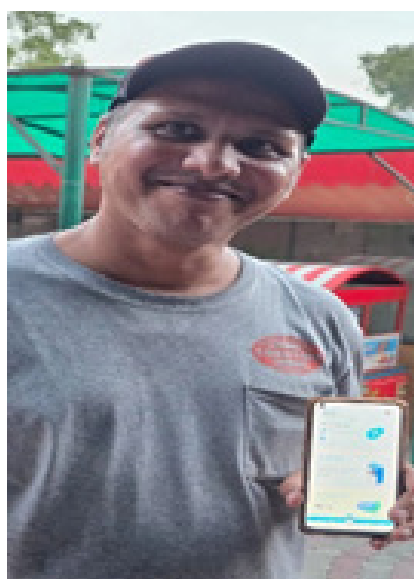


Future Plans

Expand the RVM network to additional strategic campus points. Introduce recycling programs for students. Integrate collected data into the university dashboard for continuous monitoring and Green Metrics reporting.

Conclusion

The Reverse Vending Machine initiative represents a meaningful step toward UCP's green campus transformation. By aligning campus practices with multiple SDGs, the university strengthens its leadership role in promoting sustainability and environmental stewardship in Pakistan's higher education sector.



ISP's First RVM Launched on Pakistan Independence Day

On Pakistan Independence Day, ISP Environmental Solutions and its partners inaugurated their first Reverse Vending Machine (RVM) at the University of Central Punjab. This initiative enables individuals to recycle plastic bottles for reward points under the Punjab Green Credit Program, offering Rs. 1,000 per kilogram, to create a win-win situation that benefits both the environment and individuals.

Reverse Vending Machine Installation





SDG 13:

Climate Action

Presented a joint proposal: A team led by Dr. Hafiza Rizwana Kausar, Dean of FOST, presented a joint proposal. While the specific details of the proposal are not fully elaborated in the provided snippet, its placement within an SDG report suggests a focus on sustainable development or environmental action.

Journal Article:

Resilience-focused approach:

Exploring practices of Pakistani journalists in covering flood risk: This study by Dr. Atif Ashraf examines the communication patterns of climate change by Pakistani journalists, highlighting media's crucial role in raising awareness and promoting climate action and resilience in the face of environmental disasters.

Media Talk:

Climate Change and Agriculture of Punjab:

Social Media Engagement of Small Farmers:

This research investigates the role of social media in enhancing the resilience of small farmers in Punjab to climate change impacts, promoting climate adaptation strategies through effective communication and knowledge sharing.

PERIDOT Project:

This project, covering SDG 7 and SDG 13, explicitly analyzes provisions related to environmental protection (e.g., CO2 emissions) in trade agreements. It aims to determine the degree to which different types of clauses are helpful in mitigating pollution, directly contributing to climate action and policy recommendations.

13.1 Activity: Advertising s PR (BS FYP) Title: Kaaghaz s Co.

Date: July 2024

Name of the Faculty Member: Dr Sadaf Zahr

Brief Description: Kaaghaz C Co. is a sustainable paper brand dedicated to transforming waste into valuable, eco-friendly products. Our mission is to create paper with a purpose, contributing to environmental conservation and sustainable development.



SDG Title and Number: Climate Action (13)





13.2 Activity: Advertising s PR (BS FYP) Title: Ecoware

Feb 2025

Name of the Faculty Member: Dr. Sadaf Zahra

Brief Description: Swap the Plastic Habit” - Ecoware’s bold initiative revolutionizes the way we live and dine, empowering individuals to make sustainable choices with every meal.



SDG Title and Number: Climate Action (13)
Name of the Faculty Member: Dr. Sadaf Zahra

13.3 Activity: M.Phil. Thesis (Research Track)

Date: June, 2025

Title: Influence of Social Media Advertisements on Buying Behavior of Young Adults: A Case of Eco-Friendly Products

Brief Description: The purpose of this study was to look into how young individuals' purchasing decisions for eco-friendly items are affected by social media advertisement.



SDG Title and Number: Responsible Consumption (12) s Climate Action (13)



13.4 Activity: Media Symposium on Climate Change Title of Project

International Day of Climate Action 2024 Brief Description:

Name of the Faculty Member: Dr. Fahad Ais

On October 28, 2024, the Faculty of Media and Mass Communication (FMMC) at UCP, in collaboration with the Pak Mission Society (PMS), organized a vibrant symposium titled "International Day of Climate Action 2024." The event brought together climate experts, youth leaders, and academics to foster dialogue on sustainable practices and community-led climate resilience. Keynote addresses, panel discussions, and interactive competitions—including poster design, video messages, model-making, and speeches—highlighted the role of young people in driving climate solutions. The initiative underscored FMMC's ongoing commitment to climate awareness, SDGs, and collaborative action for a greener future.



SDG Title and Number: Climate Action (13)

13.5 Activity: Documentary Screening s Review (BSMC-F22-A)

Title of Documentary: Invisible Avalanche | K2 Expedition | Allied Bank

Date: April 2025

Name of the Faculty Member: Mian Muhammad Nasir Mazher

Brief Description: The documentary was about rising temperatures, melting glaciers, and rampant pollution are having a devastating impact on our home. In response, Allied Bank embarked on a journey to the K2 Base Camp not just as a climb, but as a powerful call to action for a greener tomorrow. Their 14-member team undertook this challenging expedition to K2 and raised awareness about the urgent need for environmental preservation. Together, we aim to inspire collective action.

Mil kar lagaye gay jaan, Ho ga saaf Pakistan



SDG Title and Number: Climate Action (13)



13.6 Project: Circular Economy: A Tool for Climate Mitigation and Sustainable Consumption

SDG Goal: Climate Action 13

Name of the Faculty Member: Dr. Fahad Anis

Title of Activity: Guest Lecture

Brief Description: The students of BS (Hons) having specialization in Advertising and PR arranged a special lecture as part of their Final Year project titled "Circular Economy: A Tool for Climate Mitigation and Sustainable Consumption" on 24th June 2025. The session featured Waleed Hameed, Director of Business Development at Five Star Polymer, a seasoned sustainability and circular economy expert with over 20 years of experience in plastic waste management solutions. The event aimed to highlight the role of circular economy practices in achieving climate action and promoting sustainable consumption.



SDG Goal: Climate Action 13

13.3 Activity: "Evaluating the Application of Climate Change Communication Principles in the Leading Newspapers of Pakistan"

Date: 04 March 2025

Brief Description: This is PhD thesis in which the research is looking for climate change related communication in mainstream print media in Pakistan.



SDG Title and Number: Climate Change, SDG NO 13



13.8 Role of women in driving climate action

March 21, 2025

The Environmental Protection Society (EPS) is proud to collaborate with the Prime Minister's Youth Climate Forum to highlight the vital role of women in driving climate action. Women are at the forefront of sustainability efforts, leading change, and shaping a greener tomorrow.

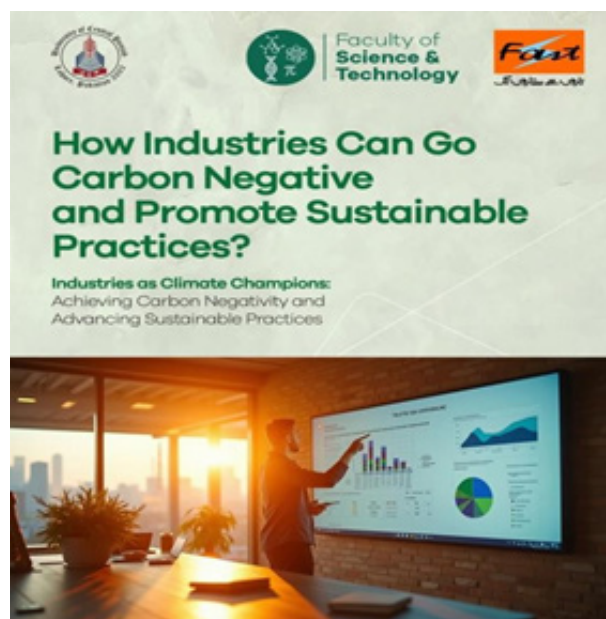


Role of Women in driving Climate Action

13.9 How Industries Can Go Carbon Negative And Promote Sustainability Practices?

Date: April 10, 2025

Faculty of Science and Technology, UCP, Fast Cables Limited, and Environmental Protection Society bring you a panel discussion titled 'Solutions for a Carbon-Negative Future: Industrial Strategies for Sustainability and Impact'.



How Industries Can Go Carbon Negative And Promote Sustainability Practices?



13.10 International Training & Collaboration for Space Exploration and Safe Research

Jan 2024- 2025 till date

International Collaboration among University of Central Punjab, SUPARCO Pakistan, China International Corporation, the Chinese Academy of Science, and the China Manned Space Agency working on a series of advanced space science experiments alongside Pakistani scientists. This partnership aims to push the boundaries of space research and technology & to develop sustainable models for research on earth by evaluating the effect of microgravity on immunity against future pandemics like COVID-19.

Among the notable projects, the research initiative "Effect of Microgravity on Lactobacillus acidophilus for Human Immunity Fortification against COVID-19" led by Ms. Sadia Zia has received approval from both SUPARCO Pakistan and the China Manned Space Agency.

This project will be a significant part of the upcoming joint space mission, showcasing the collaborative efforts between the two nations. And efforts of upper space climate action strategies.



International Training & Collaboration for Space Exploration and Safe Research



13.8 Session on Environmental Law for Faculty in August

As per the first goal of the 3rd Strategic Pillar (Strengthen Industry Linkages), first session for the faculty members was successfully conducted on 29th August, 2024 titled “Environmental laws in Pakistan: A Panoramic view” by Dr. Pervez Hassan, Senior Advocate of Supreme Court of Pakistan. The session aimed to provide a broad understanding of the legal framework governing environmental protection in the country, highlighting challenges. The speaker highlighted the growing relevance of environmental law in the face of global climate change. The Pictures of the event are attached below:



Session on Environmental Law for Faculty in August







SDG 14:

Life Below Water

14.1 Activity: Floods (2022) in Pakistan

Name of the Faculty Member: Dr. Ayesha Sadiqa

Date: April 9, 2025

Brief Description: It was an assignment where focus was on flood of 2022 in Pakistan. Climate action and land on earth was also discussed.

SDG Title and Number: Climate action (SDG 13), Life below water (SDG 14), Life on land (SDG 15)



Floods in 2022 in Pakistan: World moot on climate in Geneva pledged \$10.98bn for post-floods, reconstruction, rehabilitation



Ms. Sadia Zia was invited as Consultant in Meeting arranged by PODA & Water AID Pakistan for development of Legal policy framework and promoting Women's Leadership in WASH.



SDG 15:

Life on Land



15.1 Journal Article: Resilience-focused approach:

Exploring practices of Pakistani journalists in covering flood risk: This article by Dr. Atif Ashraf is linked to Life on Land, in addition to Climate Action, as floods can significantly impact terrestrial ecosystems, including biodiversity and land degradation. Understanding and reporting on these impacts contribute to informed land management.

Name of Faculty Member: Dr Atif Ashraf

Title of Activity: Journal Article

Title of Article: Resilience-focused approach: Exploring practices of Pakistani journalists in covering flood risk.

Brief Description: This study was based on the communication patterns of climate change by Pakistani Journalists.

Date: March 2024

SDG Title and Number: Climate Action, Life on Land (13, 15)

- Faltoo Sey Paltoo, Special Needs Shelter March 19th 2025



Team paws and claws got to experience a day with the lovely paltoos of FSP who met us with so much warmth and unconditional love that we fell head over heels in love with all the babies. This was the first time that some of our members were interacting with dogs one on one. They not only got to overcome their fear, but were also sensitised towards how beautiful and worthy they are of love and compassion. They were amazed to see cats and dogs coexisting in the same environment, full of energy and great spirits.





SDG 16:

Peace, Justice, and Strong Institutions

International Conference on Contemporary Challenges for Democracy (IC3D-2025): The core theme of this conference is "Peace, Justice, and Strong Institutions." It served as a vital international platform for researchers and scholars to discuss contemporary challenges for democracy and its culture, covering critical themes such as populism, democracy, security, human rights, and the role of media in democracies.

- **Sessions and Themes**

The conference included dedicated sessions on: "Populism: A Challenge to Democracy?", "Democracy, Security, and Human Rights," and "The Role of Traditional and Social Media in Democracies." These topics directly contribute to understanding and strengthening peaceful and just societies.

- **Keynote Speeches and Policy Dialogue**

Featuring discussions with eminent political analysts, ambassadors, and former ministers, the conference aimed to strengthen democratic practices, foster good governance, and promote stability.

- **Recommendations for Improving Governance**

Discussions at the conference highlighted critical areas for action, including strengthening institutional capacity, promoting the rule of law, and improving fiscal management to address governance challenges in Pakistan, thereby building stronger and more accountable institutions.

- **FMMC Programs:**

The "Persian Show" by FMMC is linked to Peace, Justice, and Strong Institutions, indicating media's role in promoting cultural understanding, dialogue, and harmony, which are foundations for peaceful societies.

- **Publications:**

A completed thesis titled "Implementation of International Laws and Norms Regarding Women's Rights in Pakistan (2000-2024)" directly addresses the legal frameworks and institutional efforts to ensure justice and protect human rights within Pakistan.

16.1 Project

Name of the Faculty Member: Ms. Yakhshi Saleem

Title of Activity: Final Project for the course of Mobile Technologies and Journalism Practices

Title of Project: News Package on newly renovated shrine of Bibi Pak Daman

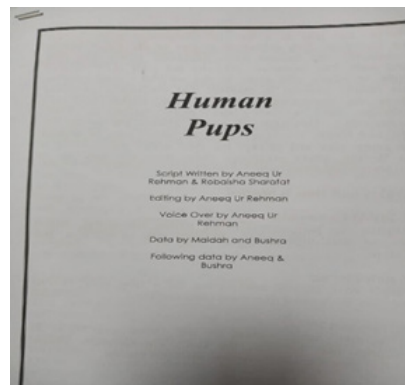
SDG Goal 16: Peace, justice, and strong institutions

Brief Description: The students made a News Package by capturing and editing with their mobile on News Package on News Package on newly renovated shrine of Bibi Pak Daman at Lahore.

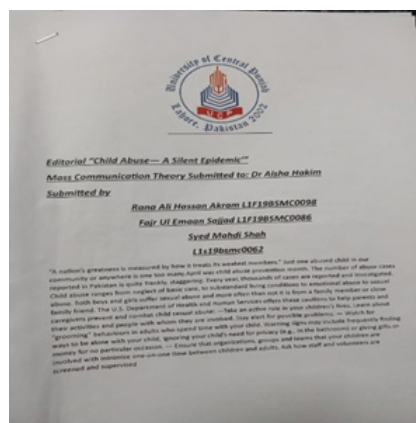


Title of Activity: Final Class Project

Title of Project: Editorial Writing



SDG 16: Peace, Justice and Strong Institutions



16.2 FMMC Film Festival 2024 (as team lead)

Name of the Faculty Member: Muhammad Kamran Butt

SDG Goal: Gender Equality 5, Peace, Justice and Strong Institutions 16,

Brief Description: The aim of the festival was to promote the art of filmmaking whilst encouraging creativity and maintain high standards in storytelling. This festival also enabled the unique opportunity to the future filmmakers with maximum visibility and networking accesses to some of the most renowned and influential film makers and script writers. Themes included human relations, social issues, history, literature etc.



Activity: Rising Tensions Between Pakistan and India: A Regional Security Crisis

Date: 16 April 2025

Brief Description: The focus of this assignment was importance of peace between Pakistan and India.

SDG Title and Number: Peace, justice, and strong institutions (SDG 16)

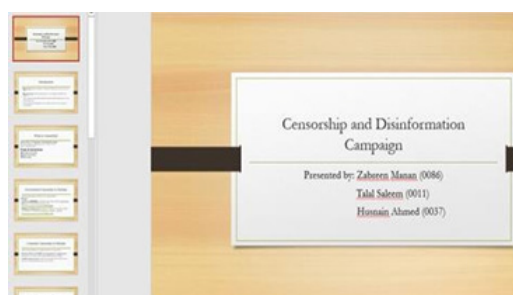


16.4 Activity: Censorship and Disinformation

Date: 15 April 2025

Brief Description. The main theme of this ppt was to emphasize on strong institutions to curb disinformation and bring accurate information.

SDG Title and Number: Peace, justice, and strong institutions (SDG 16)





16.5 **Activity:** Misinformation, Media Literacy, and Fake News: How to Verify Facts.

Date: March 25, 2025

Brief Description: The session was conducted by Ms. Benazir Shah, Editor of Geo Fact

Check, Jang Group. The workshop aimed to enhance the understanding of faculty, staff, and students on fake news, fact-checking techniques and tools, and misinformation detection. The session concluded with an engaging Q&A segment, where participants posed insightful questions.

SDG Title and Number: Peace, justice, and strong institutions



16.6 **Anti-Narcotics Laws Session By UCP Law Society**

This session highlighted the UCP Law Society's commitment to promoting legal knowledge and awareness among its members. It was a successful event that left a lasting impact on the attendees.

Participation in the 14th National Youth Peace Festival 2024

Volunteers from the Volunteers in Service (VIS) Department and the UCP Welfare Society proudly represented the **University of Central Punjab** at the **14th National Youth Peace Festival 2024**. Over the two-day event, UCP volunteers actively participated in thought-provoking discussions focused on **youth empowerment and leadership**. They engaged in interactive sessions with distinguished speakers and raised meaningful questions about the role of youth in shaping a sustainable and peaceful future. A major highlight of the festival was their inspiring interaction with **Ms. Kristin K. Hawkins, U.S. Consul General**, which made the experience both enriching and memorable.







SDG 17:

Partnerships for The Goals



17.1 Global Volunteering Standards Toolkit by VSO and Bargad:

Volunteers in Service (VIS) department was invited to a discussion on Global Volunteering Standards Toolkit being prepared by Volunteer Service Overseas (VSO International) and Bargad.

Ms. Sabiha Shaheen (Executive Director, Bargad) and Mr. Iqbal Hussain Butt (Program Advisor, Bargad) shared the Global Volunteering Standards Toolkit draft as UCP-VIS department is a pioneer in promotion of volunteering at higher education level. Mr. Muhammad Hammad Ur Rehman (Head VIS) appreciated the efforts put in by VSO International and Bargad.

Ms. Sabiha Shaheen also shared that UCP-VIS has been added to the toolkit as Case Study and its success has been appreciated.



17.2 Project Report: Collaboration with University of Salford UK

Project Title: Transnational Education Collaborative Partnership: Clinical Legal Education Project

Collaborating Institutions: University of Central Punjab FoL and University of Salford UK

Project Duration: November to February 2024

Report Date: Oct 10, 2024

Overview

The collaborative project between the University of Central Punjab-FoL and University of Salford -UK aims to foster international collaboration and knowledge exchange and deliver an enriched experiential learning experience for our students. It will bring together Law students from the University of Salford and the University of Central Punjab to explore and research critical legal topics, culminating in a shared group presentation. This project exemplifies the transformative potential of international cooperation in legal education and underscores the importance of building bridges across borders to address complex societal issues.



Objectives:

The program's objective is to foster international collaboration on critical legal topics while enhancing practical skills and teamwork across diverse cultural backgrounds.

Through a shared learning community facilitated on Microsoft Teams, students will collaborate across borders to deepen their understanding of global legal issues pertaining to Environmental Justice, Equality and Diversity, and Artificial Intelligence and the Law. By working collaboratively, students will not only gain diverse perspectives but also develop valuable cross-cultural communication, teamwork skills and critical thinking while deepening their understanding of global legal challenges.

Progress and Achievements-Initial Planning:

There has been successful completion of the project's initial phase, including detailed planning sessions that involved both institutions. Regular virtual meetings have kept the team aligned and motivated.

The Collaborative Online International Learning (COIL) project will be a 16-week program, beginning on Monday, 4th November 2024. With 16 weeks total, this includes 4 weeks of research time and 12 weeks of scheduled delivery. It will engage approximately 15 students each from the University of Central Punjab (UCP) and the University of Salford (UoS), creating a total of 30 participants. The 3 tutors, Ammara Siddiqui, Shaista Anwar, Saba Shahzadi from the University of Central Punjab will work with the specialism leads at the University of Salford.

Student Involvement:

Twelve to fifteen students from each University will be selected to make up three groups of 4-5 students. Students from both universities in collaborative projects will enhance their learning experiences and exposure to international research methodologies.

Each student selected will be enrolled onto a dedicated shared learning space on a Microsoft Teams site and each group will be allocated to a channel. There will be three channels which act as virtual project spaces and students allocated to each of the three projects outlined below will be allocated to these channels respectively.

Collaboration Mechanisms and Communication:

Students should engage regularly synchronously and asynchronously, bearing in mind the time difference between the two jurisdictions (Lahore, GMT+5):

Use Microsoft Teams as a collaborative platform for communication, document-sharing, and virtual meetings.

Maintain regular virtual discussions to exchange ideas, share research findings, and collaborate on project tasks.

Foster a supportive and inclusive learning environment where students from both universities can contribute their unique insights and perspectives.

Encourage interdisciplinary collaboration by inviting guest speakers and experts from relevant fields to share their knowledge and expertise.

**Output:**

Joint presentation by each respective team from their jurisdiction's perspective – followed by wider collaborative discussion to aid in reflecting on the comparative analysis.

Support from Administration:

Both universities have provided significant administrative support, ensuring that necessary resources are allocated effectively.

Conclusion:

The collaboration with the University of Salford has been a significant success thus far. Both institutions have benefitted from shared knowledge and resources, and we anticipate continued positive outcomes as the project progresses.

Summary of Key Elements:

Three project topics: Environmental Justice, Equality and Diversity, AI and the Law.

16 weeks total with 4 weeks of research time and 12 weeks of scheduled delivery.

Students will engage synchronously and asynchronously via Microsoft Teams.

Deliverables: A final presentation for each group, critiqued by external professionals.

This structure ensures students from UCP and UoS will collaboratively work through legal research, learning, and cross-cultural collaboration to tackle critical global legal challenge

**17.3 National Conference on Recent Advances in Materials (NCRAM-2024):**

This conference fosters collaboration among researchers, academicians, and institutions in materials science, promoting knowledge sharing and partnerships for scientific advancement.

PERIDOT Research Program:

The "PERIDOT Project" is a prime example of international collaboration, being a joint research project with France under the Pak-France PERIDOT Research Program Phase VIII. This partnership strengthens research capacity, facilitates cross-border knowledge exchange, and promotes shared goals in sustainable energy and environmental protection. MOU UCP with Deaf Reach

Family Educational Services Foundation Pakistan: This Memorandum of Understanding signifies a crucial partnership for inclusive education and community development, benefiting marginalized groups.



Initiatives & Contributions by VIS:

- **Collaborative Networks:** Takhleeq has established MOUs with 5+ ecosystem partners including organizations from the corporate sector.

Cross-Sector Collaborations: Takhleeq has partnered with academia, NGOs, and private enterprises for fostering mentor relationships and sharing resources.

- **Alumni Network:** Building a thriving alumni community for shared learning and co-investment opportunities.
- **Policy Dialogue:** Engaging in public discourse to shape entrepreneurship policies and ecosystem development on an internal level.

Impact Metrics:

- MoUs signed with 3 organizations in Quarter 3 including,
- Dysol Global Pvt Ltd
- Pakistan Games Collective
- Pakistan Agile Education Lahore

Conclusion & Next Steps

Takhleeq Problem Solving Institute remains committed to nurturing responsible innovation and inclusive growth. Our roadmap for the upcoming cycle includes:

- Create an Alumni-Led Mentorship Circle
- Objective: Leverage alumni expertise to support new founders.
- Target: Build a 100-member alumni mentor network by the end of 2026.

Foster 50 New Cross-Sector Partnerships

- Objective: Scale the impact through collaboration.
- Target: Sign 30+ MoUs with government, industry, NGOs, and academia by 2027.

Introduce Green Innovation Track

- Objective: Promote climate-conscious entrepreneurship.
- Target: Incubate 10+ green-tech or sustainability startups by 2027.

Outreach to Local Communities

- Objective: Expanding outreach to rural and underrepresented communities.
- Target: To upskill local communities in education and entrepreneurship.

18 Final Year Projects 2025

Department of Civil Engineering – University of Central Punjab

Project Title: Smart Speed Breaker Using Non-Newtonian Fluid

Abstract:

This project presents the design and development of an innovative speed breaker using shear-thickening fluids (STFs) such as Oobleck and PEG-400. The proposed smart speed breaker aims to address inefficiencies of conventional speed breakers by adapting its hardness according to vehicle speed. It remains soft at low speeds for comfort and becomes rigid at high speeds to ensure safety, without the need for electronics or sensors.

Problem Statement:

Traditional speed breakers often cause discomfort to passengers, vehicle damage, increased fuel consumption, and environmental impact. There is a need for a sustainable and efficient alternative that improves traffic safety without these drawbacks.



Introduction:

Conventional speed breakers fail to adapt to varying traffic conditions and impose unnecessary strain on vehicles. This project introduces a smart, speed-sensitive speed breaker utilizing shear-thickening non-Newtonian fluids to dynamically respond to vehicle speed, offering a comfortable yet safe driving experience.

Key Features:

- Utilizes shear-thickening fluids (Oobleck, PEG-400, and silica) as smart materials.
- Adaptive behavior without electronics or sensors.
- Reduces fuel consumption, vehicle wear, and emissions.
- Modular, scalable, and easy to install.
- Environmentally friendly and sustainable design.

Applications:

- School zones
- Hospitals
- Residential streets
- Temporary installations (construction sites & events)
- Smart city infrastructure

Conclusion:

The project demonstrates a novel solution for adaptive speed control, enhancing road safety while reducing environmental impact and maintenance costs. This fluid-based approach offers significant sustainability benefits for modern infrastructure.

Prototype Highlights:

Three prototypes were fabricated with lengths of 3 ft, 4 ft, and 8 ft. The speed breaker's layered structure consists of a conveyor belt, PVC hose, and rubber top to provide adaptive hardness.

Group Members:

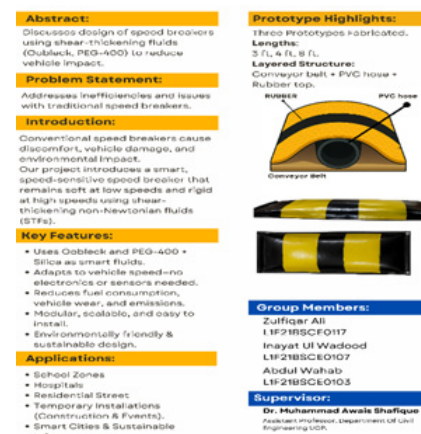
- Zulfiqar Ali (L1F21BSCE0117)
- Inayat Ul Wadood (L1F21BSCE0107)
- Abdul Wahab (L1F21BSCE0103)

Supervisor:

Dr. Muhammad Awais Shafique
Assistant Professor, Department of Civil Engineering, UCP

Location:

University of Central Punjab,
Khayaban-e-Jinnah Road,
Johar Town, Lahore, Pakistan





Linked SDGs:

- **SDG 9 (Industry, Innovation & Infrastructure)** → Because it introduces an innovative, smart, and sustainable road infrastructure solution.
- **SDG 11 (Sustainable Cities & Communities)** → As it improves urban safety, reduces emissions, and supports smart city concepts.
- **SDG 13 (Climate Action)** → Since it minimizes fuel consumption and lowers environmental impact.

Conclusion: This project directly promotes innovative infrastructure while ensuring safer, greener, and more sustainable urban transport.

Faculty of Engineering – Department of Civil Engineering University of Central Punjab

Project Title: Reuse of Treated Wastewater in Self-Healing Concrete

Project Overview:

This project tackles two pressing issues in modern construction — durability and water scarcity — by developing self-healing concrete that uses *Bacillus subtilis* bacteria and treated wastewater. The innovative approach not only improves concrete strength by approximately 28% compared to conventional concrete, but also promotes autonomous crack healing through calcium carbonate formation. This proves that treated wastewater can be safely reused, presenting a sustainable pathway for long-lasting infrastructure.

Problem Statement:

Concrete production traditionally relies heavily on potable water, a resource becoming increasingly scarce. In addition, cracking in concrete compromises durability and increases maintenance costs. While bacterial self-healing offers a promising solution, its compatibility with treated wastewater has not been fully explored. This project addresses that gap to promote sustainable and durable construction practices.

Methodology:

Four concrete mix types were prepared for experimental testing:

1. Controlled Concrete (CC)
2. Treated Wastewater Concrete (TWW)
3. Bacterial Controlled Concrete (CCB)
4. Bacterial Treated Wastewater Concrete (TWWB)

Tests conducted included:

- Compressive Strength (7 & 28 days)
- Ultrasonic Pulse Velocity (UPV)
- Water Permeability (via sorptivity)
- Crack Healing Observation (up to 30 days)
- SEM/EDX Microstructural Analysis

Key Details:

- *Bacillus subtilis* bacteria encapsulated in sodium alginate beads were added at 0.5% by cement weight.
- Treated municipal wastewater was used after chemical suitability confirmation.

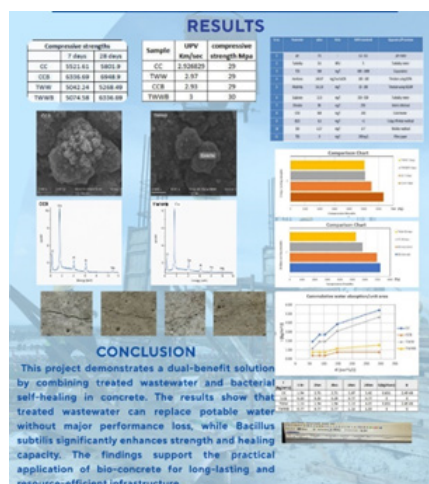
**Results:**

Sample	Compressive Strength (7 days, MPa)	Compressive Strength (28 days, MPa)	UPV (Km/sec)
CC	5521.61	5801.9	2.926
TWW	6336.69	6948.9	2.97
CCB	5042.24	5268.49	2.93
TWWB	5074.58	6336.69	—

Key findings: Treated wastewater concrete performed comparably to controlled mixes, while bacterial addition significantly improved healing capacity and strength.

Conclusion:

This study demonstrates a dual-benefit solution for sustainable construction: treated wastewater can replace potable water in concrete mixing without major performance loss, and bacterial self-healing significantly enhances concrete durability. The findings support the practical application of bio-concrete for resource-efficient and long-lasting infrastructure, aligning with sustainable development goals.



Supervisor: Engr. Farhan Arooj

Co-Supervisor: Dr. Mohsin Gulzar Burg

Group Members:

- L1F21BSCE0091
- L1F21BSCE0099

Linked SDGs:

- SDG 6 (Clean Water & Sanitation)
- SDG 9 (Industry, Innovation & Infrastructure)

Conclusion: The project proves that treated wastewater can safely replace fresh water in bio-concrete, creating stronger and self-healing infrastructure while conserving vital water resources.



DEPARTMENT OF CIVIL ENGINEERING
UNIVERSITY OF CENTRAL PUINJAB, LAHORE

In this study, two structural models of a five-story building were created using ETABS to analyze the prefabricated construction system accurately. The models incorporated key parameters such as material properties, structural sections, load assignments, and

relevant load combinations aligned with U.S. design codes for both concrete and steel. These ETABS models enabled a detailed assessment of structural behavior, ensuring that prefabricated elements like precast walls, hollowcore slabs, and beams met design criteria effectively.

Following the structural analysis, a comprehensive cost estimation was performed using Excel. The estimation compared the prefabricated building, costing approximately Rs. 5.3 crore, with a conventional building costing around Rs. 6 crore for the same five-story structure. Both estimates meticulously accounted for quantities, unit rates, and material specifications to reflect realistic construction scenarios.

The results demonstrate that prefabrication offers approximately an 11.7% cost saving over conventional construction. This efficiency is largely due to the factory-controlled production process in prefabrication, which minimizes material waste, reduces labor requirements, and accelerates construction schedules. The use of ETABS models ensured optimized design and reliable structural performance, while the Excel-based estimation confirmed the economic benefits of prefabrication.

Moreover, prefabrication contributes to sustainability by reducing construction waste and lowering onsite emissions, thanks to streamlined off-site manufacturing. The integration of ETABS modeling with detailed cost analysis provides a robust framework, clearly validating prefabrication as a cost-effective, timely, and environmentally friendly alternative to conventional building methods, particularly for multi-story projects.



PREFAB AND CONVENTIONAL BUILDING CONVENTIONAL BUILDING PREFABRICATION BUILDING

Linked SDGs:

- SDG 9 (Industry, Innovation & Infrastructure)
- SDG 11 (Sustainable Cities & Communities)



Conclusion: The study highlights prefabrication as an innovative and sustainable construction method that reduces costs, saves time, and minimizes waste, making it a practical solution for modern urban infrastructure.

Faculty of Engineering – Department of Mechanical Engineering
Smart Mechanical Cleaner with Intelligent Automation Technology

Abstract

This project introduces a compact and intelligent floor-cleaning robot designed to minimize human exposure to harmful cleaning chemicals and reduce the physical effort of manual cleaning. Initially envisioned as a UV-C and mecanum wheel-based design, the project evolved into a more practical prototype combining dry vacuuming and wet mopping modes.

Equipped with ultrasonic and infrared sensors, the robot can autonomously navigate, detect obstacles, and ensure safe operation. Controlled through a mobile application, it provides an efficient, user-friendly solution for household and workplace hygiene. The modular design and practical approach transformed engineering challenges into opportunities, resulting in a working prototype that demonstrates real-world impact.

Objectives

- Develop a compact robot capable of both dry vacuuming and wet mopping.
- Ensure user-friendly operation with smart navigation and safety-focused sensors.
- Minimize human contact with dust and cleaning chemicals.
- Provide an automated, cost-effective solution for household and workspace cleaning.

Scope of the Project

- Automates cleaning on smooth indoor surfaces such as tiles and marble.
- Supports small offices by reducing manual cleaning efforts.
- Enhances hygiene in hotels, offering quick cleaning between guest check-ins.
- Useful in healthcare and retail spaces for regular surface-level cleaning.

Design Parameters

- Shape: Circular (disc-shaped design)
- Dimensions (L × W × H): 350 × 350 × 100 mm
- Battery Type: Lithium-ion battery
- Net Weight: 5.5 kg
- Side Brushes: Two
- Water Tank Capacity: 250 ml

Key Components:

- Arduino Mega
- L298 Motor Controller
- Ultrasonic Sensors
- IR Sensors
- Fan Assembly
- Side Brushes
- Wheels
- Baseboard with modular assembly



Limitations

- Not suitable for heavy waste, sticky residues, or large food items.
- Limited to light wet mopping; cannot handle major liquid spills.
- Ineffective on carpeted surfaces (optimized for smooth floors).
- Small dustbin and water tank require frequent manual maintenance.

Limitations

- Not suitable for heavy waste, sticky residues, or large food items.
- Limited to light wet mopping; cannot handle major liquid spills.
- Ineffective on carpeted surfaces (optimized for smooth floors).
- Small dustbin and water tank require frequent manual maintenance.

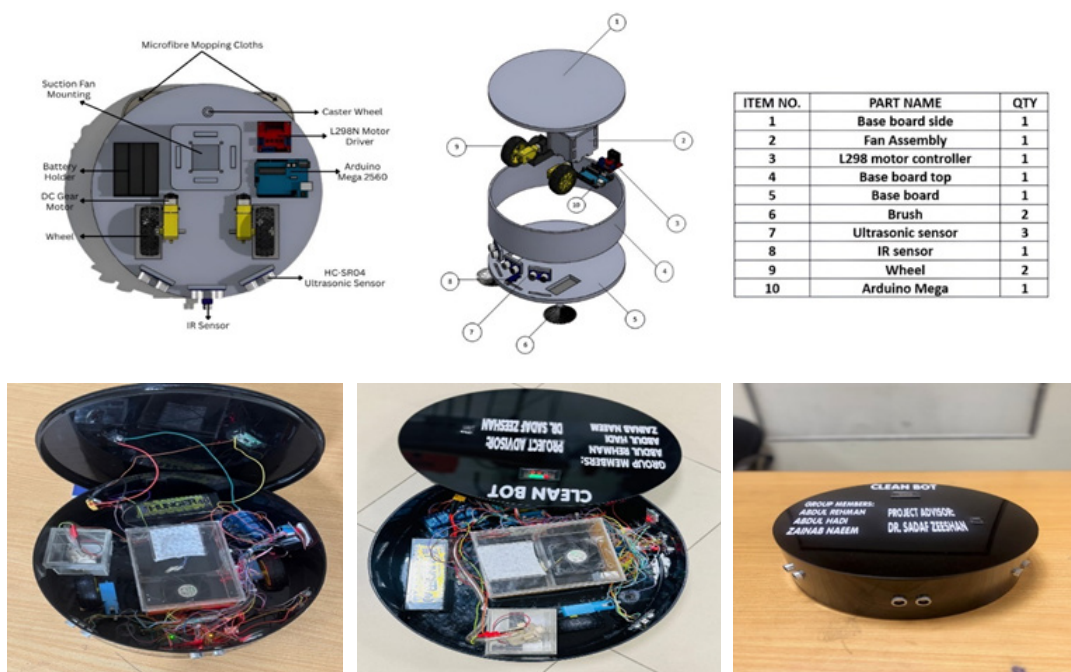
Conclusion

The Smart Mechanical Cleaner demonstrates a safe, app-driven, and autonomous cleaning solution, combining ultrasonic and IR sensor navigation with dual cleaning modes. Testing confirms its ability to reliably remove dust, crumbs, and light stains without over-wetting. While limited to light-duty cleaning, the design establishes a strong foundation for future enhancements, including larger capacity, carpet compatibility, and advanced automation for broader applications.

Team Members

- Abdul Rehman (L1F21BSME0017)
- Abdul Hadi (L1F21BSME0084)
- Zainab Naeem (L1F21BSME0098)

Project Advisor: Dr. Sadaf Zeeshan



**Linked SDGs:**

- SDG 3 (Good Health & Well-being)
- SDG 9 (Industry, Innovation & Infrastructure)

Conclusion: The project delivers a smart cleaning robot that reduces human contact with harmful chemicals, promotes hygiene, and showcases innovation in automation for healthier and more efficient living spaces.

Faculty of Engineering – Department of Mechanical Engineering
Design, Analysis, and Development of an Electric Bike (Drive Smoothly and Softly Control Abstract

This project focuses on the design and development of a cost-effective, eco-friendly Electric Bike (E-Bike) tailored for urban commuting. Powered by a 350-Watt Brushless DC (BLDC) motor and a 48V lithium-ion battery, the E-Bike offers zero-emission travel, reduced operating costs, and sustainable mobility. It aims to provide a clean and efficient alternative to conventional fuel-based transport, combining comfort, safety, and modern energy-efficient features.

Objectives

- Design and develop an efficient and eco-friendly electric bike.
- Provide a sustainable alternative to traditional motorbikes and vehicles.
- Minimize urban transport emissions and reduce fuel dependency.
- Ensure low maintenance and cost-effective mobility for users.

Key Features

- Eco-Friendly: Zero emissions ensure environmental sustainability.
- Efficient Motor: High-performance 350W BLDC motor.
- Rechargeable Battery: 48V lithium-ion battery with fast charging.
- Regenerative Braking: Recovers and stores energy during braking.
- Lightweight Frame: Durable and easy to handle.
- Digital Display: Shows speed, battery status, and distance tracking.
- Multiple Modes: Pedal assist, throttle mode, and manual paddling.

Methodology

1. Conceptual Design Development
2. Component Selection (motor, battery, frame, and controller)
3. System Integration of electrical and mechanical components
4. Circuit Design & Wiring
5. Prototype Testing & Performance Optimization
6. Final Evaluation of efficiency, reliability, and comfort

Applications

- Urban Commuting: Ideal for daily city travel.
- Campus Transportation: Efficient for students and faculty.
- Delivery Services: Cost-effective for short-range goods delivery.
- Tourism & Recreation: Eco-friendly choice for sightseeing and leisure rides.
- Last-Mile Connectivity: Complements public transportation networks.



Conclusion

The Electric Bike project demonstrates how sustainable engineering solutions can reshape urban mobility. With its low operational cost, energy efficiency, and eco-friendly design, the prototype shows strong potential for addressing challenges in transportation, climate change, and rising fuel prices. This E-Bike contributes to the vision of green, smart, and future-ready mobility.

Project Advisor: Engr. Qasim Goraya

Group Members:

- Zulqarnain Sajjad
- Hassan Nawaz
- Raza Ali Khan

Linked SDGs:

- SDG 11 (Sustainable Cities & Communities)
- SDG 13 (Climate Action)

Conclusion: The E-Bike provides a clean, cost-effective, and zero-emission transport option, supporting sustainable urban mobility while actively reducing fuel dependency and carbon emissions.

Statistical Interpolation and Spatial Mapping of Geotechnical Soil Parameters of South Punjab by Using GIS

ABSTRACT

Rapid infrastructure development in Southern Punjab has created a strong demand for reliable subsurface geotechnical data to support planning, construction, and policymaking. Conventional soil exploration data are often inconsistent and limited in coverage. This study applies Geographic Information Systems (GIS) with Inverse Distance Weighting (IDW) interpolation to prepare spatial maps of Standard Penetration Test (SPT-N) values and soil classifications. Data from 253 boreholes across Multan, Muzaffargarh, Khanewal, Rajanpur, Bahawalnagar, and Rahim Yar Khan were analyzed at four depths (5ft, 10ft, 15ft, and 20ft). Results identified three geotechnical zones: weak soils ($N=2-7$), medium-strength soils ($N=8-13$), and strong soils ($N>13$). The study provides a spatially distributed geotechnical framework to support sustainable infrastructure development in Southern Punjab.

RESEARCH OBJECTIVES

1. To develop a GIS-based spatial framework for geotechnical zonation using borehole data.
2. To interpolate and visualize soil strength parameters using IDW and assess spatial reliability.
3. To examine the relationship between soil depth and strength using regression and ANOVA.

PROBLEM STATEMENT

Southern Punjab is experiencing rapid urbanization and infrastructure growth. However, reliable and consistent geotechnical data remain limited. Without proper soil strength information, infrastructure projects face risks in design and implementation. This research addresses the gap by using GIS to generate spatially reliable geotechnical maps of soil strength and classifications.



METHODOLOGY

- **Data Collection:** Borehole records from 253 soil investigation reports.
- **Data Preparation:** Compilation of soil classifications and SPT-N values at depths of 5ft, 10ft, 15ft, and 20ft.
- **Statistical Analysis:** Descriptive statistics, variance, and ANOVA tests applied.
- **GIS Mapping:** ArcGIS 10.7.1 with IDW interpolation used to prepare multi-depth zonation maps.
- **Validation:** Regression analysis to assess reliability of soil strength distribution.

RESULTS & DISCUSSION

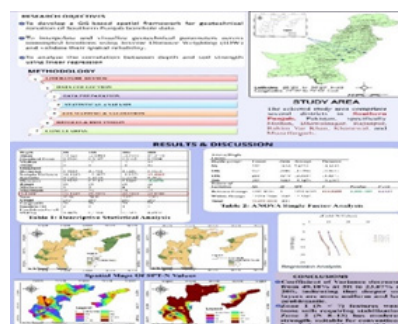
- Average SPT-N values increase with depth (7.65 at 5ft → 15.35 at 20ft).
- Coefficient of Variation decreases from 49.18% at 5ft to 23.87% at 20ft, showing deeper soils are more uniform.
- Three Zones Identified:
 - Zone 1 (N < 7): Weak, loose soils requiring stabilization.
 - Zone 2 (N = 8–13): Medium-strength soils suitable for conventional foundations with treatment.
 - Zone 3 (N > 13): Strong soils suitable for heavy foundations.
- ANOVA confirmed significant differences between depths ($F=213.92$, $p<0.05$).

CONCLUSIONS

- GIS-based IDW interpolation is effective for visualizing soil strength distribution across Southern Punjab.
- Soil strength improves with depth, making deeper layers more reliable for infrastructure development.
- The study delivers practical geotechnical maps that can guide engineers, urban planners, and policymakers.
- Future research should expand the dataset to enhance accuracy and resolution of geotechnical mapping.

CONCLUSIONS

- GIS-based IDW interpolation is effective for visualizing soil strength distribution across Southern Punjab.
- Soil strength improves with depth, making deeper layers more reliable for infrastructure development.
- The study delivers practical geotechnical maps that can guide engineers, urban planners, and policymakers.
- Future research should expand the dataset to enhance accuracy and resolution of geotechnical mapping.



**Linked SDGs:**

- **SDG 9 (Industry, Innovation & Infrastructure)**
- **SDG 11 (Sustainable Cities & Communities)**

Conclusion: The study provides GIS-based geotechnical maps that improve infrastructure planning and safety in Southern Punjab, supporting sustainable urban development through reliable sub-surface.

Comparative Analysis of Conventional and Green Residential Building Using LEED for Homes Rating System

ABSTRACT

Pakistan's rapidly growing population and increasing energy demands highlight the urgent need for sustainable housing solutions. This study presents a comparative analysis of green and conventional building materials using the LEED for Homes rating system. A 12 Marla residential unit was modeled in Revit software to ensure accurate quantity estimation. The focus was placed on the Materials and Resources (MR) category. Results show that although green materials may cost 19% more upfront, they provide significant long-term benefits, including reduced energy and water consumption, lower operational and maintenance costs, and compliance with LEED sustainability standards.

PROBLEM STATEMENT

Conventional construction practices in Pakistan consume large quantities of natural resources and contribute to environmental degradation. These methods are unsustainable in the long term. There is a pressing need for green and sustainable building solutions that not only meet infrastructure demands but also reduce ecological impact, save energy, and ensure healthier living environments.

OBJECTIVES

- To use LEED (MR category) for the selection of green materials.
- To estimate costs using Revit software.
- To compare the cost of green and conventional materials.
- To evaluate the availability of green construction materials in the local market.

METHODOLOGY

1. Selection of materials based on LEED MR category.
2. Market survey for cost estimation.
3. Manual and Revit-based quantity estimation.
4. Cost comparison between conventional and green materials.

BENEFITS OF GREEN BUILDING

- Energy consumption reduced by **25% – 40%**
- Water usage reduced by **20% – 50%**
- Operational costs decreased by **10% – 15%**
- Maintenance costs reduced by **15% – 30%**



RESULTS

- Clay Brick vs Fly Ash Brick → Fly Ash Brick is eco-friendly but costs slightly more.
- Solid Wood vs Mix Fiber Wood → Fiber Wood is cheaper and sustainable.
- Blended Cement & RCA Aggregates → Comparable cost, with reduced environmental impact.
- Thermocol vs Jamblone Sheet → Higher cost for green, but better thermal efficiency.
- Low VOC Paint vs Conventional Paint → Lower emissions, healthier environment.
- Ceramic Tiles vs Green Tiles → Higher upfront cost, but greater durability and sustainability.

Total Price:

- Conventional Materials = PKR 1,883,064
 - Green Materials = PKR 2,245,961
- (≈19.3% higher for green materials)

CONCLUSION

- Green materials cost 19.3% more upfront.
- Despite higher initial costs, green construction offers greater long-term value.
- Benefits include reduced environmental impacts, energy savings, and alignment with sustainability goals.
- Green building is a smart and future-oriented choice for Pakistan.

OBSERVATIONS AND CALCULATIONS

Figure 1: 3D View

Figure 2: Floor Elevation of 63 Mtr² House

RESULTS

Conventional Materials	Green Materials	Conventional materials rate (pkd)	Green materials rate (pkd)	Quantity	Price for Conventional Materials (pkd)	Price for Green Materials (pkd)
Clay Brick	Fly ash brick	36/brick	39/brick	15783 Nos	568,578	621,887
Wood (Solid)	Mix Fiber Wood	2400/cft	950/cft	28 cft	67,200	26,600
Cement	Blended Cement	1450/bag	1,315/bag	327 bags	478,150	429,405
Aggregates	Aggregates (RCA)	115/cft	95/cft	823 cft	94,645	78,147
Thermocol Sheet	Jamblone Sheet	310/cft	332/cft	104 sheets	32,240	34,528
Water proofing Coating	Water Proof Coating	-	350	100 liter	35,000	35,345
Paint	Low VOC Paint	400/liter	1,954/liter	10 buckets	40,000	19,540
Tiles	Ceramic Tiles	40/cft	150/cft	816 sqft	32,640	123,900
Total Price	Total (Green)				1,883,064	2,245,961

Linked SDGs:

- **SDG 11 (Sustainable Cities & Communities)**
- **SDG 12 (Responsible Consumption & Production)**

Conclusion: The study proves that although green materials cost more initially, they ensure long-term savings, reduced environmental impact, and healthier living spaces, making them a sustainable choice for Pakistan's housing sector.



Sustainability Comparison Report of VTOL UAV

1. Introduction

With the growing global emphasis on environmental conservation and energy efficiency, the aerospace industry is shifting toward sustainable innovations. Our project, a Vertical Take-Off and Landing Unmanned Aerial Vehicle (VTOL UAV), represents an important step in this transition. This report evaluates the sustainability of our UAV compared to conventional aircraft such as fixed-wing planes and traditional multirotor drones. The comparison focuses on energy efficiency, environmental footprint, noise pollution, material usage, and lifecycle sustainability.

2. Energy Efficiency and Emission Reduction

- **Electric Propulsion:** The VTOL UAV uses electric motors powered by batteries, resulting in zero in-flight emissions.
- **Efficient Hybrid Design:** Unlike fixed-wing aircraft that burn fossil fuels and multirotor drones that consume constant hovering power, our VTOL combines vertical lift for takeoff/landing with efficient forward flight.
- **Sustainability Impact:** This hybrid design reduces overall power consumption, making it more efficient for long-range missions while lowering the carbon footprint.

3. Reduced Infrastructure and Operational Footprint

- **No Runways Required:** Traditional aircraft demand large airports and extensive infrastructure, which carry significant environmental costs.
- **Compact Deployment:** Our UAV can operate in urban, rural, and ecologically sensitive areas with minimal disturbance.
- **Operational Advantage:** Compared to standard drones, the VTOL UAV provides greater range, adaptability, and reduced land use impact.

4. Material Usage and Eco-Friendly Manufacturing

- **Lightweight & Recyclable Materials:** Construction utilizes carbon fiber composites and recyclable polymers, reducing weight and energy usage during flight.
- **Durability & Longevity:** Designed for long-term use, minimizing waste compared to plastic-based drones with short lifespans.
- **Comparison:** Conventional aircraft rely on heavy metals and energy-intensive processes, making them less sustainable than our UAV.

5. Minimal Noise Pollution

- **Quiet Operation:** Electric motors and optimized aerodynamics enable low-noise performance.
- **Urban & Wildlife Applications:** This makes the UAV suitable for urban delivery, surveillance, and environmental monitoring.
- **Advantage:** Compared to the loud engines of fixed-wing aircraft and the constant buzzing of quadcopters, our UAV maintains a much lower acoustic profile.

6. Lifecycle Sustainability and Maintenance

- **Extended Lifecycle:** The UAV supports easy maintenance, modular components, and repairability.
- **Renewable Charging:** Batteries can be recharged using solar or other renewable energy stations.

- Comparison: Fixed-wing aircraft require high-cost, energy-intensive maintenance, while many small drones are not durable and add to electronic waste.
- Circular Design: Our UAV minimizes waste and ensures sustainability from manufacturing to end-of-life.

7. Conclusion

The VTOL UAV demonstrates a highly sustainable alternative to conventional aviation technologies. Its advantages include:

- Zero in-flight emissions.
- Reduced infrastructure requirements.
- Lightweight and eco-friendly materials.
- Low noise pollution.
- Extended lifecycle with modular, repairable components.



Fabricated model of our VTOL UAV

By integrating multiple sustainable features, our UAV aligns with global green aviation goals and supports applications such as surveillance, disaster response, environmental monitoring, and urban logistics. This project represents a meaningful step toward the future of sustainable aerospace engineering.

Linked SDGs

1. SDG 13 – Climate Action

Because the UAV uses electric propulsion with zero in-flight emissions and reduces overall carbon footprint compared to fossil fuel aircraft.

2. SDG 9 – Industry, Innovation & Infrastructure

Because it represents an innovative aerospace solution with recyclable materials, modular design, and reduced need for traditional runways/infrastructure.

Department of Mechanical Engineering

Project Title: Design and Fabrication of a Smart Photocatalytic Air Purifier

Project Advisor: Dr. Gulraiz Ahmad

Group Members:

- Talha Areeb (L1F19BSME0039)
- Zohaib Saleh (L1F21BSME0085)
- M. Asjad Rizwan (L1F21BSME0047)



Abstract & Objective

This project presents the design and fabrication of a Smart Photocatalytic Air Purifier that integrates zinc oxide-based photocatalysis with real-time air quality monitoring. The purifier incorporates a four-stage filtration system—nylon mesh (washable), HEPA filter, activated carbon layer, and a UV-activated photocatalytic chamber—for effective pollutant removal.

An MQ-135 gas sensor continuously monitors indoor pollutants (CO_2 , NH_3 , VOCs), while an Arduino microcontroller automates fan speed and UV lamp activation based on real-time air quality. The system is optimized for continuous operation, low energy consumption, and minimal maintenance, ensuring long-term efficiency.

Design Methodology

1. Problem Identification & Requirement Analysis
 - o Defined air quality issues and user expectations to set design objectives.
2. Research & Concept Development
 - o Explored air purification technologies and selected a four-stage automated approach.
3. Component Selection
 - o Chose filters, UV lamp, fan, and electronics based on efficiency and integration needs.
4. System Design & CAD Modeling
 - o Developed 3D CAD models to optimize airflow, space utilization, and structural fit.
5. Fabrication & Assembly
 - o Constructed purifier using lightweight acrylic body, 3D-printed components, and embedded electronics.
6. Control Logic Programming
 - o Programmed Arduino to regulate fan speed and UV lamp based on air quality index (AQI) readings.
7. Testing & Optimization
 - o Conducted AQI performance testing, refined airflow system, and improved efficiency.

Key Features

- Four-Stage Filtration: Nylon pre-filter, HEPA filter, activated carbon layer, and photocatalytic UV filter.
- Smart Control System: Automated fan and UV control through Arduino and MQ-135 sensor.
- Eco-Friendly & Low-Cost: Energy-efficient, washable, and scalable design.
- Compact & Lightweight: Acrylic body with portable design for homes and offices.

Applications

- Indoor Air Quality Improvement: Removes dust, allergens, VOCs, and harmful gases in homes, offices, and classrooms.
- Healthcare Environments: Reduces airborne pathogens using UV sterilization and photocatalytic oxidation.
- Industrial Applications: Filters fumes, smoke, and chemical pollutants in laboratories and factories.

Final Prototype

The developed Smart Photocatalytic Air Purifier successfully integrates real-time air monitoring with multi-stage filtration to deliver a cost-effective, reliable, and scalable indoor air purification system.



Linked SDGs

1. SDG 3 – Good Health & Well-being

Because the purifier directly improves indoor air quality, reduces pollutants, allergens, and pathogens, protecting human health in homes, schools, and healthcare settings.

2. SDG 11 – Sustainable Cities & Communities

Because it contributes to clean, safe, and sustainable indoor environments, especially in urban and industrial areas facing air pollution challenges.

Faculty of Engineering

Department of Electrical Engineering

Project Title: Automatic Coil Winding Machine using PLC and HMI

Project Advisor: Dr. Ali Ahmed

Group Members:

- Abrar Ali (L1F20BSEE0058)
- Asad Mehmood (L1F21BSEE0019)
- Abubakar Rashid (L1F20BSEE0006)

Linked SDGs

1. SDG 3 – Good Health & Well-being

Because the purifier directly improves indoor air quality, reduces pollutants, allergens, and pathogens, protecting human health in homes, schools, and healthcare settings.

2. SDG 11 – Sustainable Cities & Communities

Because it contributes to clean, safe, and sustainable indoor environments, especially in urban and industrial areas facing air pollution challenges.

Problem Statement

- Manual coil winding leads to low efficiency and inconsistent results.
- Commercial automatic machines are very costly, making them unsuitable for local industries.
- Achieving precision in coil manufacturing is a major challenge with manual processes.



Proposed Solution

- **PLC-Controlled Automation:** Ensures precise and repeatable winding.
- **HMI Interface:** Provides user-friendly configuration and monitoring.
- **Cost-Effective Design:** Affordable solution tailored for local industry needs.

System Overview

Block Diagram: (Shows the integration of PLC, HMI, Servo/Stepper motors, and power system)

Programming Flowchart: (Represents winding process automation and feedback control)

Technical Specifications

Component Model

PLC DVP14SS211T

HMI TK6071iQ

Circuit Breaker CHNT NXB-63

Power Supply MW LRS-350-24

Servo Motor AEWL-0604JFB

Servo Driver AE5110-2R8A1B

Stepper Motor NEMA 24

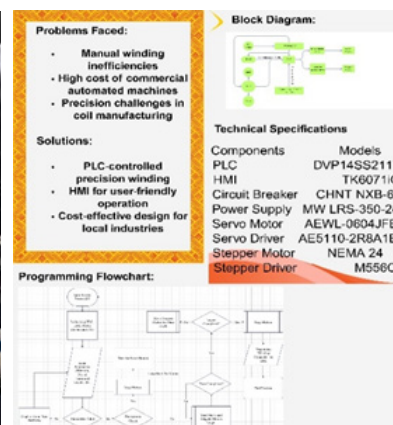
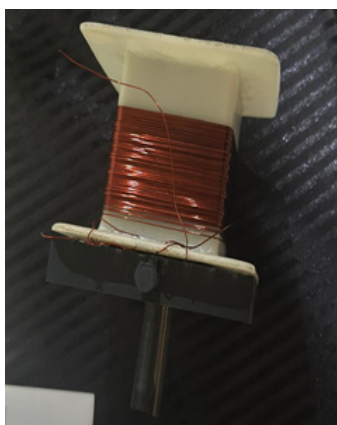
Stepper Driver M556C

Results & Achievements

- Successfully built a working automatic coil winding machine.
- Achieved precision winding with full configurability through PLC and HMI.
- Designed a low-cost and scalable solution, suitable for local manufacturing needs.
- Ensured the system is manufacturable, reliable, and efficient.

Conclusion

The project achieved all set objectives by developing an affordable, automated coil winding machine. It demonstrates the potential for industrial adoption in Pakistan, reducing reliance on expensive imported machines while improving precision, efficiency, and productivity.





Linked SDGs

1. SDG 9 – Industry, Innovation & Infrastructure

Because the project directly promotes industrial automation, innovation, and cost-effective manufacturing, supporting local industries with affordable technology.

2. SDG 8 – Decent Work & Economic Growth

Because it improves efficiency and productivity in coil manufacturing, reduces reliance on costly imports, and enables local industries to grow sustainably.

Department of Electrical Engineering

Final Year Project: Fast EV Charger with Battery Management System

Presenters:

- M. Zeeshan
- Duaa Tahir
- Awais Qadir

Supervisor: Dr. Ali Ahmad

Objective

To design and develop a 48V DC fast electric vehicle (EV) charger capable of safely charging lithium-ion batteries. The system uses a buck converter, 3A SMPS power supply, and an integrated Battery Management System (BMS) for real-time monitoring and protection.

Key Features

- Input: 220V AC → 311V DC (rectified and filtered)
- Output: 48V DC, 3A regulated charging current
- Converter: Buck Converter using
 - IRFP150N MOSFET
 - MBR60100 Diode
 - 2μH Inductor
 - 47μF Capacitor
- Controller: Arduino Mega for
 - PWM-based MOSFET control
 - Real-time monitoring and LCD display
- Battery Pack: 13S configuration (18650 lithium-ion cells)
- BMS Functions:
 - State of Charge (SoC) monitoring
 - Voltage, current, and temperature tracking
 - Overvoltage / undervoltage protection
- Software Tools:
 - Proteus for simulation
 - LCD for live voltage, current, power, and PWM% display

Working Principle

1. **AC–DC Conversion:** 220V AC is rectified and filtered to obtain a stable 311V DC supply.
2. **Buck Conversion:** Voltage is stepped down from ~66V DC to 48V DC.
3. **PWM Control:** Arduino adjusts MOSFET switching frequency to regulate charging current and voltage.
4. **Battery Management:** BMS continuously monitors parameters and ensures safe charging operation.

Advantages

- **Safe & Regulated Charging:** Stable 3A charging with BMS protection.
- **Low-Cost Design:** Utilizes locally available components.
- **Scalability:** Modular design for battery expansion.
- **Sustainability:** Supports eco-friendly transport aligned with SDGs 7, 9, 11, and 13.

Future Work

- Expand design for higher charging currents (up to 10A).
- Integrate high-quality branded lithium-ion cells (LG, Samsung).
- Implement IoT-enabled monitoring and smart CC–CV charging algorithms.
- Improve thermal management and replace SMPS with high-efficiency DC–DC converter.



Linked SDGs

1. SDG 7 – Affordable & Clean Energy

Because the project promotes clean energy adoption by designing a safe, efficient, and low-cost EV charging system.

2. SDG 11 – Sustainable Cities & Communities

Because EV charging infrastructure directly supports eco-friendly transport systems, reducing urban pollution and enabling sustainable mobility.

Department of Mechanical Engineering

Project Title: Design and Development of a Magnetic Sieve Agricultural Wheat Grinding Machine

Abstract / Objective

This project presents the design and fabrication of an innovative wheat grinding machine integrated with a magnetic separation system to address the serious issue of metal contamination in flour, a common food safety hazard in traditional grinding setups.

The machine is designed not only to enhance flour purity but also to improve operational efficiency, hygiene, and safety in small- to mid-scale food processing units.

Key Innovations

- **Magnetic Sieve:** Installed at the discharge outlet to capture coarse ferrous fragments.
- **Rotating Magnetic Rod:** Placed inside a cyclone separator to dynamically trap fine metallic particles during flour air separation.

Design & Development Process

1. **Problem Identification & Concept Development** – Studied contamination risks and user requirements.
2. **CAD Modeling** – Optimized design for durability and airflow efficiency.
3. **Component Selection:**
 - o **Blades:** High-carbon steel
 - o **Frame:** Mild steel
 - o **Cyclone separator:** Cast iron
4. **Fabrication & Assembly** – Locally manufactured using cost-effective materials.
5. **Testing & Optimization** – Results showed significant reduction in metal contamination compared to traditional systems.

Impact & Applications

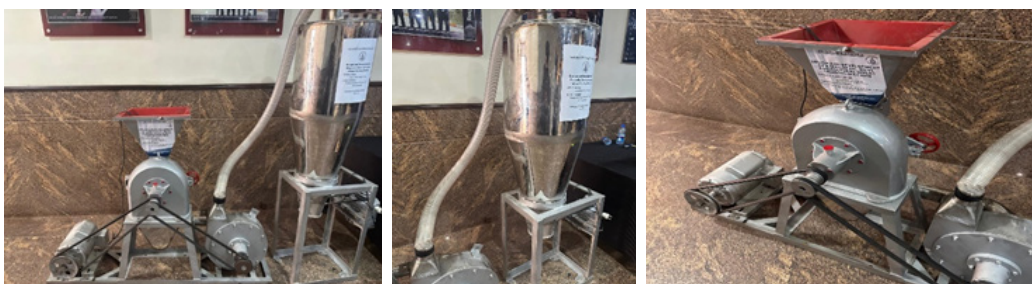
- **Public Health:** Provides safe, metal-free flour and reduces ingestion risks.
- **Agriculture & Food Industry:** Ideal for local flour mills, rural processing units, and small agro-industrial setups.
- **Economics:** Encourages local fabrication, lowering reliance on expensive imported machines.

Alignment with UN Sustainable Development Goals (SDGs)

- **SDG 3 – Good Health & Well-being:** Ensures safer food by reducing contamination risks.
- **SDG 9 – Industry, Innovation & Infrastructure:** Promotes innovative, safe, and efficient agro-industrial tools.
- **SDG 12 – Responsible Consumption & Production:** Enables clean, efficient, and sustainable food production practices.

Conclusion

The Magnetic Sieve Agricultural Wheat Grinding Machine addresses a critical food safety challenge while being cost-effective, durable, and scalable. By integrating magnetic separation with grinding technology, it not only improves flour quality but also supports global sustainability goals and strengthens local food processing industries.



1. SDG 3 – Good Health & Well-being

Because the machine ensures safe and contamination-free flour, directly protecting public health and reducing foodborne hazards.

2. SDG 9 – Industry, Innovation & Infrastructure

Because it promotes innovative agro-industrial technology, boosting efficiency, hygiene, and reliability in local food processing.







Follow Us



Instagram
@ucpofficial



Facebook
@UCPofficial



Twitter
@ucpofficial



Youtube
@UCP



LinkedIn
@University Of
Central Punjab

UNIVERSITY OF CENTRAL PUNJAB

080-000-827 | UCP.EDU.PK

