



SDGIKI NEWSLETTER

Volume 03

2023 - 2024

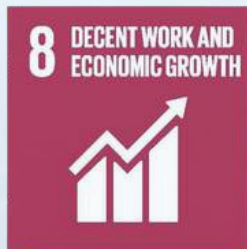


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INTRODUCTION



Welcome to the third volume of SDGIKI, the Institute's annual newsletter showcasing our unwavering commitment to the United Nations Sustainable Development Goals (SDGs). This edition covers the Fall 2023 and Spring 2024 semesters, highlighting our community's dedicated efforts towards creating a more sustainable and equitable future.

The SDGs, adopted by all United Nations Member States in 2015, provide a shared blueprint for peace and prosperity for people and the planet, now and into the future. At GIK Institute, we have aligned our initiatives and programs with several key SDGs, focusing on specific targets and indicators to measure our progress and impact. In this edition, we primarily focus on the following SDGs and their respective targets:

- 1. SDG 4: Quality Education**
- 2. SDG 5: Gender Equality**
- 3. SDG 7: Affordable and Clean Energy**
- 4. SDG 8: Decent Work and Economic Growth**
- 5. SDG 9: Industry, Innovation and Infrastructure**
- 6. SDG 13: Climate Action**
- 7. SDG 17: Partnerships for the Goals**

Throughout this newsletter, you will discover how GIK Institute has made significant strides in addressing these SDGs through various initiatives, collaborations, and innovative projects. We believe that as an institution of higher learning, we have a crucial role to play in shaping a sustainable future. By integrating the SDGs into our curriculum, research, and operations, we are not only preparing our students to be responsible global citizens but also contributing directly to the achievement of these global goals.





SDG ALIGNMENT OVERVIEW

SDG 4: Quality Education Targets: 4.3, 4.4, 4.7 Indicators: 4.3.1, 4.4.1

- MoU signed with Ministry of Federal Education and Professional Training for IT Training Center in Islamabad
- Industrial Open House 2024 showcasing innovative student projects
- Career Fair 2024 connecting students with over 160 companies
- Workshops on cutting-edge technologies:
 - 5G/6G-Enabling Technologies & Applications
 - Open-Source Processor Design 2024
- MS Engineering Management program collaboration with Manchester Metropolitan University
- International Science & Youth Symposium
- SOFTCOM software summit
- Physics Olympics
- Workshops on coding, design, and research writing

SDG 5: Gender Equality Target: 5.5

- International Women's Day celebration at GIK Institute
- Inauguration of New Girls' Hostel
- Meeting with female employees and faculty

SDG 7: Affordable and Clean Energy Targets: 7.2, 7.a Indicator: 7.2.1

- Groundbreaking of prototype Solar-Hydrogen energy storage system
- Partnership with OGDCL for clean energy research
- Installation of 1MW Solar Power Project, increasing total capacity to over 2MW

SDG 8: Decent Work and Economic Growth Targets: 8.2, 8.6 Indicator: 8.6.1

- Career Fair 2024 with over 160 national and international companies
- Collaboration with Atlas Honda for electric mobility innovation
- Partnership with Plus W Inc for IT upskilling initiatives
- Career development and professional grooming lecture by Total PARCO

SDG 9: Industry, Innovation and Infrastructure Target: 9.5 Indicator: 9.5.1

- Development of affordable food quality assurance device by FME
- GIK Institute and Ashar Aziz Foundation Partner DNN Advance AI Bootcamp
- Submission of two chip designs for tapeout
- MoU with OGDCL for specialized Chemical Engineering program
- MoU with ATS for Digital IC Design and Verification
- Collaboration with OGDCL in science, technology, energy, and AI
- SUAS 2023 competition participation

SDG 13: Climate Action Target: 13.3 Indicator: 13.3.1

- Plantation drive to plant 10,000 trees
- AIChE Spectrum event addressing climate change issues
- Clean GIK Drive - (contributing to sustainable communities)

SDG 17: Partnerships for the Goals Target: 17.16 Indicator: 17.16.1

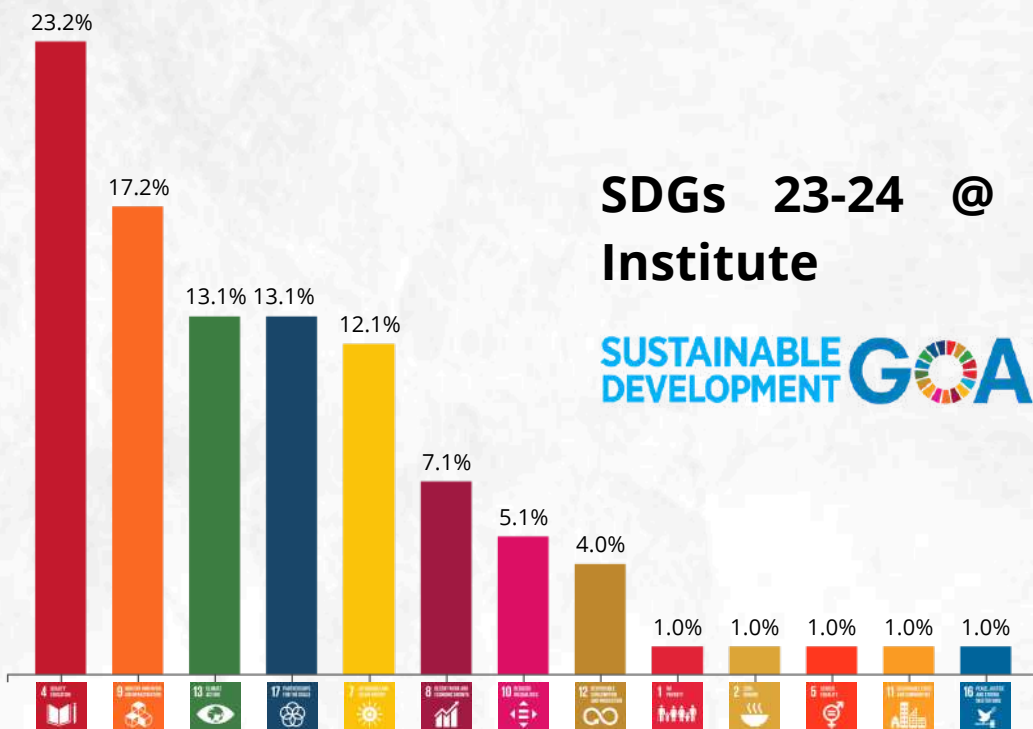
- Collaboration with Atlas Honda for electric mobility innovation
- Partnership with Sharif University of Technology for research and exchange programs
- MoU signings with:
 - Ministry of Federal Education and Professional Training
 - NUTECH and NED University
- Collaboration with China-Pakistan Joint Research Center on Earth Sciences
- Participation in 3rd China Pakistan Technology Transfer Workshop

SDGIKI COMMITTEE MEETING UPDATES

The SDGiki Committee has been actively working to advance sustainable development initiatives at GIK Institute through a series of productive meetings. Here are the key highlights:

1. Establishment of Objectives: The committee has set clear objectives, including conducting awareness campaigns, implementing SDGs across faculties, submitting regular reports, providing data for rankings, and publishing the SDGiki Newsletter.
2. Strategic Planning:
 - Development of a sustainability strategy document with mappings for key performance indicators.
 - Identification of priority SDGs and creation of outcome-based strategies for each.
 - Plans to create an SDG awareness booklet for students.
3. Student Engagement:
 - Student societies will be assigned to target at least one SDG for their events.
 - Emphasis on arranging awareness campaigns and collaborations with other universities and organizations to strengthen GIKI's position in SDG 17: Partnership for Goals.
4. Policy Development:
 - Drafting of policies aligned with priority SDGs, focusing on ranking criteria.
 - Review and approval process for these policies is underway.
5. Event Alignment:
 - Efforts to align institute events and activities with relevant SDGs on the website and social media platforms.
 - Plans for improved documentation and showcasing of sustainability efforts.
6. Collaborations and Outreach:
 - Emphasis on engaging with national and provincial SDG and sustainability bodies.
 - Plans to establish a formal mechanism for community service activities contributing to SDGs.
7. Rankings and Reporting:
 - Preparation for upcoming applications to sustainability rankings, including UI Green Metric.
 - Ongoing efforts to improve data collection and reporting for various ranking metrics.

The SDGiki Committee continues to meet regularly to review progress and plan future initiatives. These efforts demonstrate GIK Institute's commitment to embedding sustainability across all aspects of university life and contributing to the global sustainable development agenda.



SDGs 23-24 @ GIK Institute



YOUNGS INITIATIVE UPDATES

4 DAY ONLINE TRAINING SESSION WITH THE YOUNGS AMBASSADORS

From August 8th to 13th, 2024, a series of Youth Universities Network on Sustainable Development Goals (YoUNGS) Trainings focused on the Sustainable Development Goals (SDGs) was conducted via Zoom. This initiative was organized by the YoUNGS Ambassadors Training Agenda on SDGs, in collaboration with the SDGs Section of the Ministry of Planning, Development, and Special Initiatives and UNICEF. The agenda was consistent across all 17 training sessions and included various key components aimed at enhancing understanding and engagement with the SDGs.

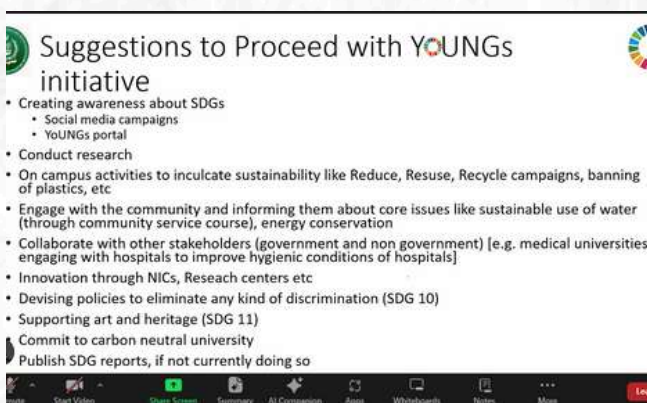
The agenda consisted of an Opening Address, followed by an introduction to the SDGs, a Youngs Presentation, and goal-wise presentations. Participants then engaged in Breakout Sessions, allowing for more in-depth discussions. The sessions concluded with presentations from student or ambassador groups and Closing Remarks, reinforcing the session's key takeaways. Notably, the sessions were attended by the GIK Institute SDGs ambassadors and focal person, Haseeb Ahsan, Lecturer, School of Management Sciences.

On the first day, Muhammad Ali Kemal led discussions on critical topics including No Poverty, Reduced Inequalities, and Partnerships for the Goals. His approach facilitated an exploration of the significance of collaboration in addressing poverty and inequality. The following day, M. Zeeshan Mangi presented on Zero Hunger, Good Health and Wellbeing, and Quality Education, emphasizing the interconnections among these goals and the necessity for a comprehensive development strategy.

On August 10th, Mahjabeen Cheema addressed Gender Equality, Clean Water and Sanitation, and Peace, Justice, and Strong Institutions. Her presentation highlighted the essential role of gender equality in fostering peaceful societies. Wajeeh Ul Hassan concluded the day with a focus on Sustainable Cities and Communities, advocating for urban environments that prioritize both human and ecological well-being.

The training resumed on August 12th with Azhar Iqbal Malik, who discussed Affordable and Clean Energy, Decent Work and Economic Growth, and Industry, Innovation, and Infrastructure. His insights underscored the importance of sustainable energy solutions and innovative practices. Aiman Amjad then addressed Responsible Consumption and Production and Climate Action, encouraging participants to consider their environmental impact.

On the final day, Aiman Amjad returned to discuss Life Below Water and Life on Land. His narrative emphasized the significance of biodiversity and conservation, motivating participants to engage in local conservation efforts. The event concluded with remarks that celebrated the knowledge gained and reaffirmed the commitment to the Sustainable Development Goals, reinforcing the idea that informed individuals can drive meaningful change toward a more sustainable and equitable future.



YOUNGS INITIATIVE UPDATE

The Youth Universities Network on Sustainable Development Goals (YoUNGS) initiative continues to make strides in engaging academia to advance the Sustainable Development Goals (SDGs). Recently, a meeting of YoUNGS Focal Persons with the Chief SDG Planning was held at the SDG Section, Ministry of Planning, Development and Special Initiatives in Islamabad.

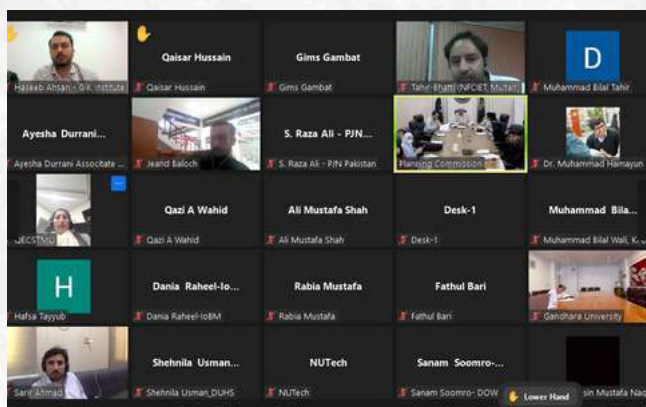
Key points from the meeting:

1. Objectives: The YoUNGS initiative focuses on awareness, advocacy, and innovation for sustainable development.
2. Structure: Each participating university will appoint 17 YoUNGS ambassadors, one for each SDG.
3. University Role: Higher education institutions play a crucial part in implementing SDGs through research, innovation, partnerships, and sustainable campus operations.
4. Mutual Benefits: The SDGs provide universities with a framework for demonstrating impact, while universities contribute knowledge and solutions to achieve the goals.
5. Action Items: Suggestions for universities include curriculum updates, awareness campaigns, community engagement, and on-campus sustainability initiatives.
6. Collaboration: The initiative emphasizes partnerships with various stakeholders, including government and non-government organizations.

The meeting highlighted the ongoing commitment to the University Engagement program, which began in 2018, predating the YoUNGS initiative launched in January 2023. This underscores the long-term dedication to fostering sustainable development through academic collaboration.

GIK Institute was represented at the meeting by Haseeb Ahsan, Lecturer in Management Sciences, demonstrating the institute's active participation in this important national initiative.

As the YoUNGS initiative progresses, it continues to strengthen the role of academia in achieving the Sustainable Development Goals, creating a more sustainable future for Pakistan.



Aim of the YoUNGS Initiative

- **OBJECTIVES: Awareness, Advocacy and Innovation.**
- instrumental in **sensitizing the masses** about sustainable development and its relevance to the life practices.
- 17 YoUNGS ambassadors (one for each SDG) from every university in Pakistan as youth ambassadors of SDG

Universities play a crucial role in contributing to the implementation

- Research
- Innovation
- Partnerships and Collaboration
- Capacity Building
- Inculcate Sustainability in Campus Operations and Management
- Data Collection and Analysis

Suggestions - Proceed with YoUNGS initiative

- Change the curriculum
- Creating awareness about SDGs - Social media campaigns, YoUNGS portal
- Conduct research
- Projects to improve vicinity - inside and outside university - Business model or community led would ensure sustainability
- On campus activities to inculcate sustainability like Reduce, Reuse, Recycle campaigns, banning of plastics, etc
- Engage with the community and informing them about core issues like sustainable use of water (through community service course), energy conservation
- Collaborate with other stakeholders (government and non government) [e.g. medical universities engaging with hospitals to improve hygienic conditions of hospitals]
- Innovation through NICs, Research centers etc
- Play a lead role in strengthening the science-policy interface
- Serve as platforms for cross-sectoral dialogue
- Devising policies to eliminate any kind of discrimination (SDG 10)
- Supporting art and heritage (SDG 11)
- Commit to carbon neutral university (Net zero)
- Publish Sustainability reports



SPOTLIGHT ON SUSTAINABLE INITIATIVES

➤➤➤ SOLAR-HYDROGEN ENERGY STORAGE SYSTEM

Solar-Hydrogen Energy Storage System In a groundbreaking move towards sustainable energy solutions, GIK Institute, in collaboration with the Oil & Gas Development Company Limited (OGDCL), initiated Pakistan's first prototype Solar-Hydrogen energy storage system. This innovative project, housed in the newly established OGDCL Clean Energy Research Center at the Institute, represents a significant leap in addressing Pakistan's growing energy demands while reducing carbon emissions. By combining solar power with hydrogen storage technology, this system promises to provide a reliable and eco-friendly energy solution, potentially revolutionizing the country's energy landscape.

➤➤➤ SOLAR POWER EXPANSION

Solar Power Expansion Building on its commitment to renewable energy, GIK Institute installed an additional 1MW Solar Power Project, boosting its total solar power capacity to over 2MW. This expansion not only significantly reduces the Institute's carbon footprint but also serves as a model for large-scale institutions transitioning to clean energy. The project demonstrates GIK's leadership in sustainable practices and provides hands-on learning opportunities for students in renewable energy technologies.

➤➤➤ IT TRAINING CENTER IN ISLAMABAD

The Memorandum of Understanding signed between GIK Institute and the Ministry of Federal Education and Professional Training marks a significant step in bridging the skills gap in Pakistan's IT sector. This collaboration will establish a new IT Training Center in Islamabad, offering comprehensive programs in cutting-edge information technology skills. By focusing on high-demand areas, this initiative aims to prepare young individuals for competitive roles in the global job market, contributing to both economic growth and technological advancement in Pakistan.

➤➤➤ PLANTATION DRIVE 23,24

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➤➤➤ GIK X ASHAR AZIZ FOUNDATION: ADVANCED AI BOOTCAMP ON DNNs

The GIK Institute in collaboration with Ashar Aziz Foundation is offering an advanced AI bootcamp focused on Deep Neural Networks (DNNs). This 280-hour program aims to equip fresh graduates with the skills and knowledge needed to become internationally competitive in the field of AI. Participants will receive hands-on training and mentorship from industry leaders, covering topics such as machine learning, deep learning, and natural language processing.



➤➤➤ ELECTRIC MOBILITY INNOVATION

The partnership between GIK Institute and Atlas Honda to advance research in Pakistan's electric mobility sector represents a forward-thinking approach to sustainable transportation. This collaboration aims to develop innovative solutions for electric vehicles, addressing both technological challenges and market needs specific to Pakistan. By focusing on this emerging field, GIK is positioning itself at the forefront of sustainable transportation research, potentially influencing the future of mobility in the country.



➤➤➤ VENTURE CAPITAL FUND FOR STARTUPS

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➤➤➤ AI IN HEALTHCARE WORKSHOP

The 1st National Workshop on AI in Healthcare, Drug Discovery, and Allied Sciences (AI-H2D) showcased GIK Institute's commitment to leveraging cutting-edge technologies for societal benefit. This event brought together experts, researchers, and students to explore the transformative potential of artificial intelligence in critical health sectors. By focusing on AI applications in healthcare and drug discovery, GIK is contributing to the development of innovative solutions that could significantly improve healthcare outcomes and accessibility in Pakistan.



➤➤➤ INTERNATIONAL COLLABORATIONS

GIK Institute's partnerships with international institutions like Sharif University of Technology and Manchester Metropolitan University underscore its global outlook on sustainable development. These collaborations facilitate knowledge exchange, joint research projects, and student mobility programs. By engaging in these international partnerships, GIK not only enhances its academic offerings but also contributes to the global dialogue on sustainable development, bringing diverse perspectives to tackle shared challenges.



»»» INDUSTRY-ACADEMIA LINKAGES

The Industrial Open House 2024 and Career Fair 2024, featuring over 160 national and international companies, highlight GIK Institute's strong industry connections. These events go beyond traditional job fairs, serving as platforms for knowledge exchange between academia and industry. By fostering these relationships, GIK ensures that its educational programs remain relevant to industry needs, while also providing students with invaluable networking opportunities and exposure to real-world applications of their studies.

»»» AR/VR IN EDUCATION

GIK Institute, as part of a consortium of seven universities, has secured a prestigious €800,000 Erasmus+ grant from the European Union to enhance the capacity of universities in utilizing Augmented Reality (AR) and Virtual Reality (VR) for graduate engineering education. This project, which employs a novel approach called Digital Twinning, aligns with SDG 4 (Quality Education) and SDG 9 (Industry, Innovation and Infrastructure). The initiative aims to revolutionize engineering education by integrating cutting-edge AR/VR technologies, providing students with immersive learning experiences and preparing them for the future of industry and technology. This project not only enhances the quality of education at GIK Institute but also fosters international collaboration and knowledge exchange with partner institutions across Pakistan and Europe.

»»» WORKSHOP ON 5G/6G-ENABLING TECHNOLOGIES & APPLICATIONS

GIK Institute organized a workshop on 5G/6G-Enabling Technologies & Applications, demonstrating its commitment to staying at the forefront of technological advancements. This initiative aligns with SDG 9 (Industry, Innovation and Infrastructure) and SDG 4 (Quality Education). The workshop brought together experts, researchers, and students to explore the latest developments in mobile communication technologies and their potential applications. By focusing on next-generation wireless technologies, GIK Institute is preparing its students and faculty for the future of connectivity, which will play a crucial role in various aspects of sustainable development, including smart cities, remote healthcare, and efficient energy management systems.

»»» WORKSHOP ON OPEN-SOURCE PROCESSOR DESIGN 2024

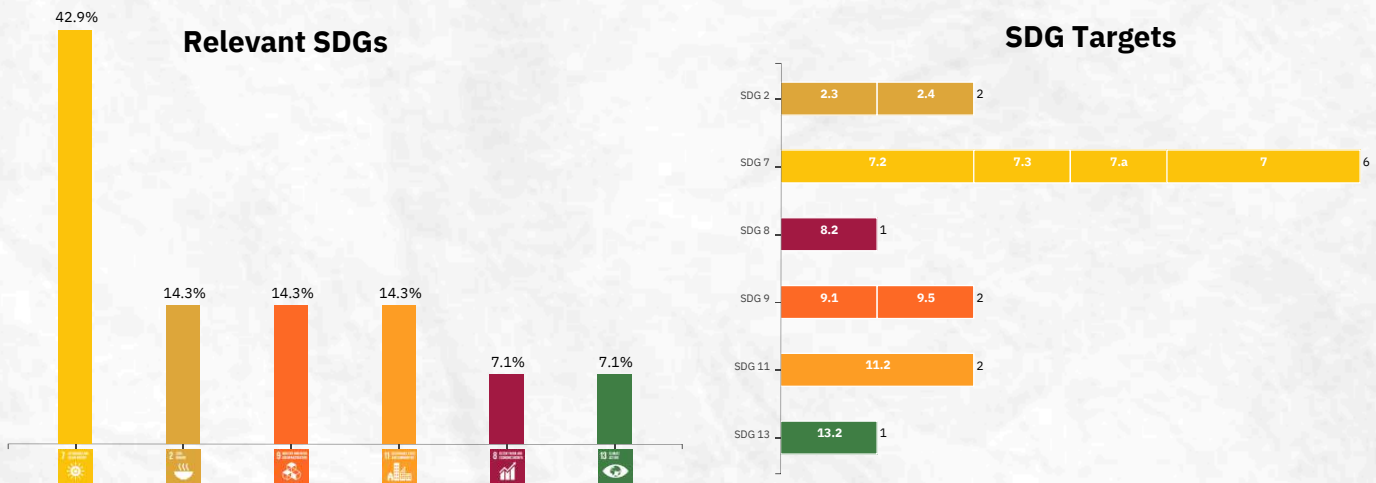
The Workshop on Open-Source Processor Design 2024 organized by GIK Institute showcases the institute's dedication to promoting open-source technologies and fostering innovation in hardware design. This initiative aligns with SDG 9 (Industry, Innovation and Infrastructure) and SDG 4 (Quality Education). The workshop provided a platform for students, researchers, and industry professionals to explore the latest trends in open-source processor design, which has the potential to democratize access to advanced computing technologies. By promoting open-source hardware, GIK Institute is contributing to the development of more affordable and accessible technologies, which can have far-reaching impacts on various sustainable development goals, including education, healthcare, and economic growth in developing regions.





SDGS ORIENTED FINAL YEAR PROJECTS

➤➤➤ FACULTY OF ELECTRICAL ENGINEERING (FEE)



Energy and Environment

- Design and Development of a Potentiostat: Develops a device for measuring electrochemical reactions, contributing to clean energy research and development (SDGs 3, 4, 6, 9, 12, 15, 17).
- State of Health Estimation of Lithium Ion Cells: Improves battery performance and lifespan, promoting sustainable energy solutions (SDGs 7, 9, 12, 13, 17).
- Development of IoT based Smart Standing E-Bike with indigenous BLDC Motor: Creates a sustainable transportation option with added health benefits (SDGs 3, 7, 9, 11, 12, 13, 15).
- Solar Micro Inverter: Enhances solar energy efficiency and accessibility (SDGs 1, 2).
- Laser Weeding System: Promotes sustainable agriculture by reducing herbicide use (SDGs 2, 3, 12, 13, 14, 15).
- Agricopter: Protecting crops from above with disease detection drones: Improves agricultural productivity and sustainability (All SDGs except 5-7, 11, 14, 16).
- Design Analysis and Assembly of BLDC Motors: Contributes to the development of efficient electric motors for various applications (SDGs 7, 9, 11).
- E-Bicycle Charging Station: Supports electric transportation infrastructure and reduces carbon emissions (SDGs 7, 9, 11, 13, 17).

Technology and Innovation

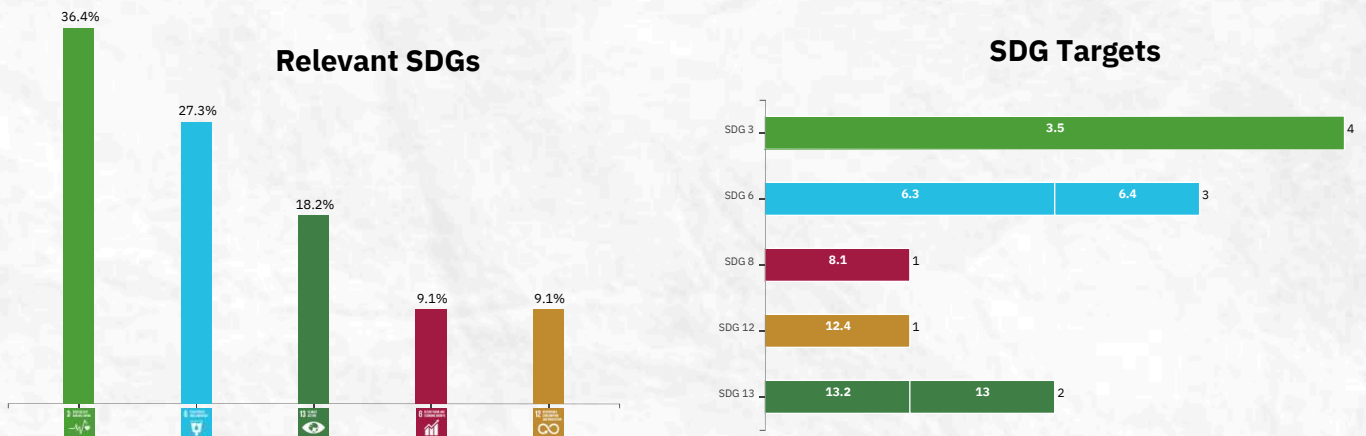
- Electrowise: Augmented Reality for Electrical Circuits: Improves electrical circuit learning and understanding (SDGs 4, 9, 10, 11, 12).
- Voice Activated Robotic Arm for Visually Impaired: Enhances independence and quality of life for visually impaired individuals (All SDGs except 14, 15).
- Smart Sign Language Glove for Mute and Deaf People: Facilitates communication for people with hearing and speech impairments (SDGs 1, 8, 9, 10).
- A.I. Enhanced Drone for HV Insulator Surface Condition Monitoring: Improves power grid reliability and safety (SDGs 3, 7, 8, 9).
- A.I. based self driving robot using hybrid energy sources: Advances autonomous technology and sustainable energy integration (SDGs 3, 7, 9, 11).
- Automated Vending Machine: Improves efficiency and accessibility in retail (All SDGs except 4, 14-16).
- Design and Implementation of Electric Bike Cruise Control System: Enhances electric bike user experience and safety (SDGs 7, 8, 9, 13).
- Smart Assistant for Visually Impaired: Provides support and information to visually impaired individuals (SDGs 8, 9, 10).
- Design and development of Coordinated V2X Communication: Improves road safety and traffic efficiency (All SDGs except 2, 4, 14).

Robotic Palletizing Solution with intelligence for Automating Logistics: Increases efficiency and safety in logistics (SDGs 8, 9, 12).

Social Impact

- Smart Mobility: Voice enabled wheelchair: Enhances mobility and independence for people with disabilities (SDGs 3, 8, 9).
- Autonomous Vehicle: Has potential to improve transportation safety and efficiency (SDGs to be determined based on specific implementation).
- Fire Alarm Enable Autonomous Fire Fighting System: Protects lives and property from fire hazards (SDGs 11, 12, 13, 15).

DEPARTMENT OF CHEMICAL ENGINEERING (DCHE)



Environmental Sustainability

- Adsorption efficiency of PET plastic char in removing Lead and Chromium from wastewater: Addresses water pollution and waste management by developing a sustainable method for wastewater treatment (SDGs 3, 6, 12, 13, 14, 15).
- Design and fabrication of atmospheric water generator: Provides a solution to water scarcity, especially in arid regions (SDGs 6, 7, 9, 11).
- Production of Limestone Clay Calcined Cement LC3 and mitigating CO₂ emissions: Develops a more sustainable cement alternative to reduce carbon emissions (SDGs 11, 12, 13).
- CO₂ Capture from Post-Combustion Gases for Graphene Production: Addresses climate change by capturing carbon dioxide and utilizing it for valuable product creation (SDGs 9, 12, 13, 15).

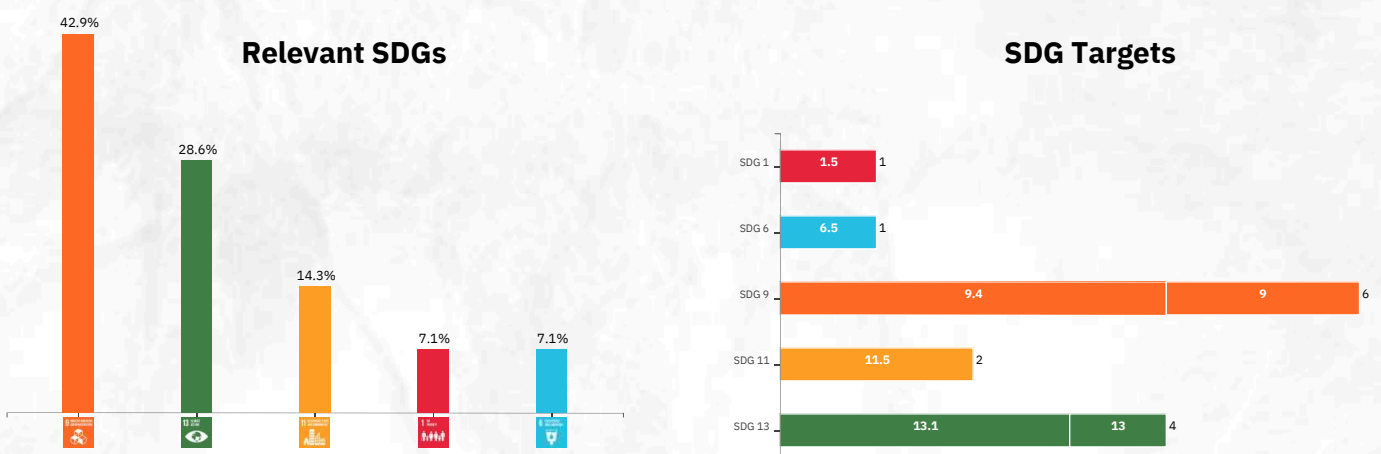
Industry, Innovation, and Infrastructure

- Extraction of Metallurgical Grade Silicon from Quartz Crystals: Supports industrial development and technological advancement (SDGs 8, 9).
- Design and Techno-Economic Assessment of a Diethylamine Production Facility, to Enhance Performance: Contributes to industrial efficiency and economic growth (SDGs 7, 8, 9, 13).

Health and Well-being

- Extraction of Cannabis Oil from Cannabis Leaves: Potential medicinal applications and economic opportunities, although subject to legal and ethical considerations (SDGs 3, 7, 8, 9, 12, 13).

DEPARTMENT OF CIVIL ENGINEERING (DCVE)



Infrastructure and Innovation

- Evaluating sustainable solutions of additive manufacturing in geopolymers concrete: Explores environmentally friendly construction methods (SDGs 9, 11).
- Intelligent Bridge Health Monitoring: A Fusion of AI and Finite Element Modeling for Damage Detection: Leverages technology for infrastructure maintenance (SDG 9).
- Artificial Intelligence (AI) and Finite Element Modeling (FEM) integrated Interface for Seismic Performance: Improves building resilience to natural disasters (SDG 9).
- Numerical Investigation on the effect of shallow foundation stiffness on foundation performance under dynamic loading: Contributes to improved infrastructure design (SDGs 9, 11).
- Landslide Susceptibility Mapping along River Swat using Extreme Learning Machine: Supports disaster risk reduction and management (SDGs 9, 11).
- Evaluation of Climate Resilient Urban Street Retrofit: Addresses climate change impacts on urban infrastructure (SDGs 7, 9, 11).
- Implementing Computer Vision based Safety protocols in modern Two-Point Suspension Scaffolds: Enhances construction site safety (SDGs 9, 11).

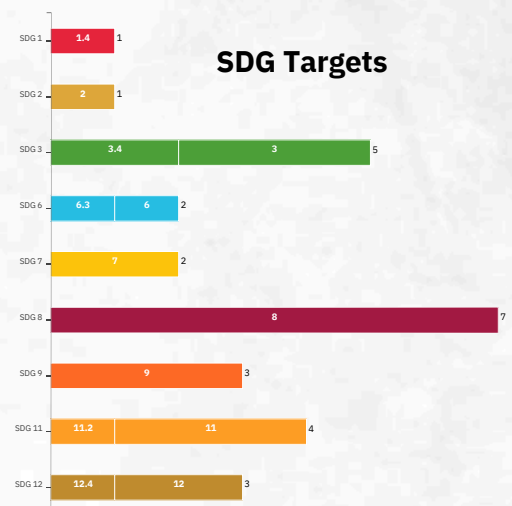
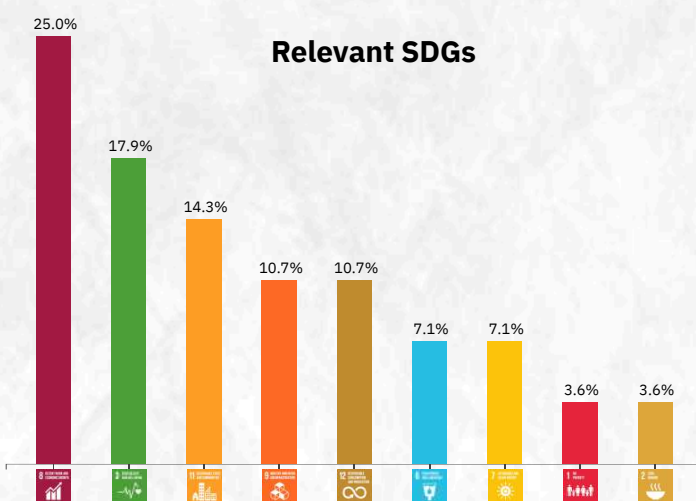
Environment and Sustainability

- Assessment of best Management Practices on Hydrology and Sediment Yield at watershed scale using SWAT: Contributes to water resource management and soil conservation (SDGs 13, 6, 15).
- Land use and land cover change of district Mansehra and future risk assessment: Supports land management and disaster preparedness (SDGs 11, 12, 13).

Social and Economic

- REAL-Time monitoring of labours, machinery and bidirectional early warning and safety management during tunnel operations by digital Twin: Improves worker safety and efficiency in the construction industry (SDGs 11, 13).
- Assessment of flood impacts on vehicular mobility along road network in Pakistan: Supports disaster response and recovery efforts (SDGs 11, 13).
- Preventing falls from horizontal openings in construction sites using Augmented Reality (AR): Enhances worker safety in the construction industry (SDGs 3, 8, 9, 11).

➤➤➤ SCHOOL OF MANAGEMENT SCIENCES (SMGS)



Wellbeing and Work

- The impact of mindfulness on employee wellbeing: Promotes mental health and well-being in the workplace (SDG 3).
- The effect of job demands on flow at work: Investigates factors affecting employee satisfaction and engagement (SDG 3).
- Effect of leader humility on employee deviance: Explores leadership styles that reduce negative employee behavior (SDG 8).
- The Role of Self-undermining in Employee Burnout: A Perspective from Job-Demands: Examines the impact of self-criticism on employee well-being (SDG 3).

Business and Economics

- Effects of Raw Materials Shortage on supply chain. A case study of FMCG: Snackcity: Analyzes supply chain vulnerabilities in the face of resource scarcity (SDG 12).
- Enhancing Customer experience in intercity bus services: A study of Intercity bus services in Pakistan: Aims to improve public transportation experiences (SDG 11).
- Rising Interest Rates in Pakistan – How Relevant Are They?: Investigates the effectiveness of economic policies in controlling inflation (SDG 8, 10).
- Does shareholding structure influence the financial resilience of Pakistani companies during the COVID-19 pandemic?: Analyzes how ownership structures impact business stability (SDG 8, 10).
- Looping Logistics-Mapping Reverse Logistics in Pakistan’s Auto Industry: Examines sustainable waste management practices in the automotive sector (SDG 9, 12).
- A case study of challenges and strategies for entrepreneur in Pakistan: Explores the challenges faced by new businesses and potential solutions (SDG 8).
- From Browsing to Buying: Understanding Customer Purchase Choices and Intention on Daraz.pk: Analyzes online consumer behavior for informed marketing strategies (SDG 8).
- An Analysis of Supply Chain Hurdles of Cooking Oil Sector: A Case Study of Salva Oil and General Industries Pvt. Ltd: Identifies bottlenecks within the cooking oil supply chain for improvement (SDG 2, 12).
- Strategic Enhancements in Pakistan’s Textile Industry: Integrating IT and Supply Chain for Competitive Performance: Promotes the use of technology to increase efficiency in the textile industry (SDG 9, 12).
- Challenges of Lather Industry in Pakistan: Analyzes the issues faced by the soap and detergent industry (SDG 8).

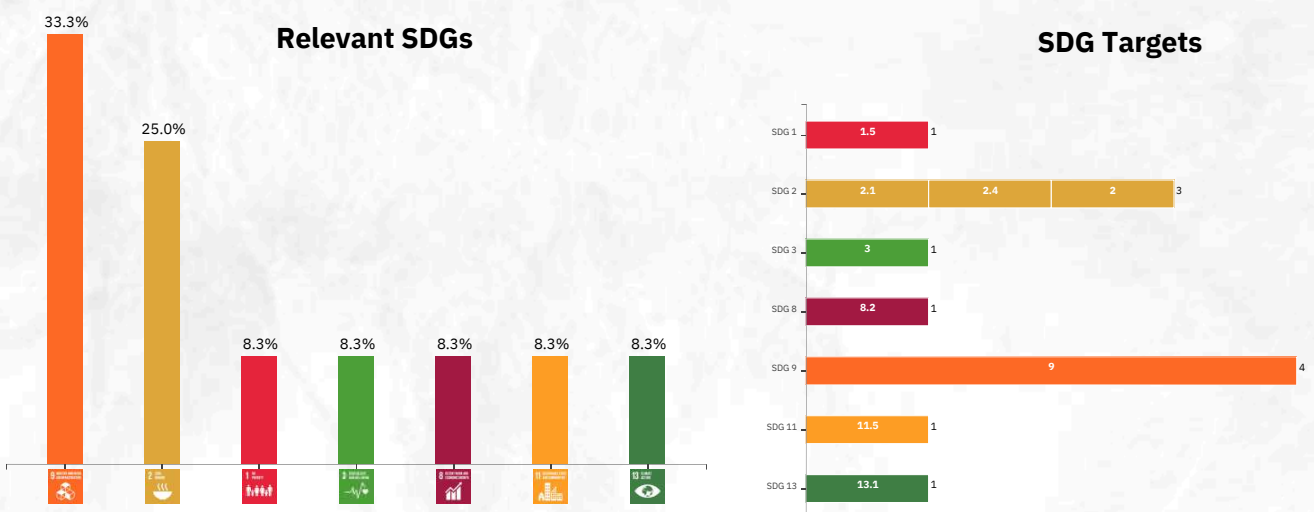
Environment and Sustainability

- Enhancing sustainability in Pakistan Oil and Gas Industry: Investigates ways to reduce environmental impact in the oil and gas sector (SDG 7, 9).
- The Impact of Green Supply Chain Practices On the Environmental Performance of Homeappliances Industry in Pakistan: Examines how sustainable practices affect the environmental footprint (SDG 7, 12, 13).
- Cotton sourcing and its impact on textile supply chain of Pakistan: Analyzes the environmental and social sustainability of cotton sourcing practices (SDG 12, 15).
- Decoding operational challenges faced by Asia’s largest water filtration RO plant located at Mithi, Tharparkar: Identifies and addresses challenges in clean water provision (SDG 6, 11).
- Sustainable Real Estate Investment in Pakistan: Promotes environmentally friendly practices in the construction industry (SDG 11).

Technology and Society

- Implementation of Joint Equity Participation in the Pakistani Real Estate Market: Exploring Regulatory and Social Barriers: Examines regulations and social factors affecting access to property ownership (SDG 11).
- Blockchain Adoption in Supply Chain of Pakistan – An Empirical Study of main drivers.: Investigates the use of blockchain technology for greater transparency in supply chains (SDG 9).
- Adoption Intentions of Immersive Technologies in Tourism Industry: A Case of Advanced Tourism in Pakistan: Explores the adoption of virtual reality and augmented reality in tourism (SDG 8, 9).

➤➤➤ FACULTY OF ENGINEERING SCIENCES (FES)



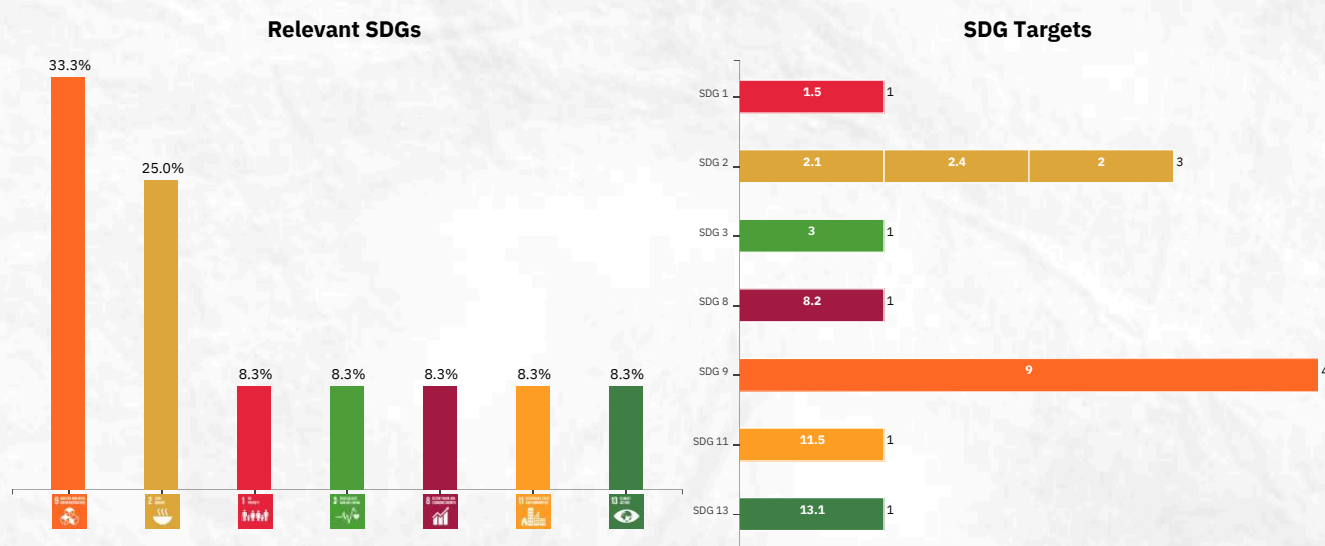
Technology and Innovation

- Early Earthquake Warning System Using Edge ML: Leverages technology for disaster risk reduction and management (SDG 9, 11).
- Performance Analysis of OFDM Based Optical Power Domain NOMA For Visible Light Communication: Advances communication technologies with potential applications in various fields (SDG 9).
- Mineral Detection From Hyperspectral Unmixing Using Deep Learning: Supports resource exploration and management (SDG 9, 12).
- Compensation Through Pilot Tones for Non-Linear Distortions in an OFDM based Radio-over-Fiber Network: Improves communication network efficiency and reliability (SDG 9).

Sustainability and Well-being

- Design and Fabrication of Glucose Meter Chip: Contributes to healthcare technology and disease management (SDG 3).
- FARMBOT: Vertical Farming Precision Agriculture Machine: Promotes sustainable agriculture and food security (SDG 2, 9, 11, 12).

➤➤➤ FACULTY OF MATERIALS AND CHEMICAL ENGINEERING (FMCE)



Manufacturing and Materials

- Microstructure based Finite Element Analysis: Experimentation and Modelling: Optimizes material properties for industrial applications (SDGs 8, 12).
- Development of Transition Metal sulphides and their composites for super-capattery device: Develops new materials for energy storage applications (SDG 7, 13).
- Exploring Interlayer Effects in Laser Welding of TC4 and High Strength Low Alloy Steel: Improves welding techniques and material compatibility (SDGs 9, 12, 13).
- Development and characterization of high entropy bulk metallic glasses: Develops new materials with potential applications in various fields (SDGs 4, 8, 9).
- Diffusion Bonding of Cp-Ti and Al-7075 for Aerospace Applications.: Improves material bonding for advanced aerospace applications (SDGs 9, 12, 13).

Sustainability and Environment

- "Green Silicate Pipeline Interior Coatings for Corrosion Prevention and Sustainable Water and Oil Transport": Develops eco-friendly pipeline coatings for safe water and oil transportation (SDGs 3, 4, 9, 11, 13, 15).
- Hydrophilic-Hydrophobic coatings on fog collectors used for water harvesting applications: Promotes water conservation through innovative collection methods (SDGs 6, 7, 13, 15).
- Development and Characterization of Self-Cleaning Coating for Automobile Wind Shield Screen Applications: Reduces water usage and improves environmental sustainability (SDG 13, 15).

Energy Storage and Efficiency

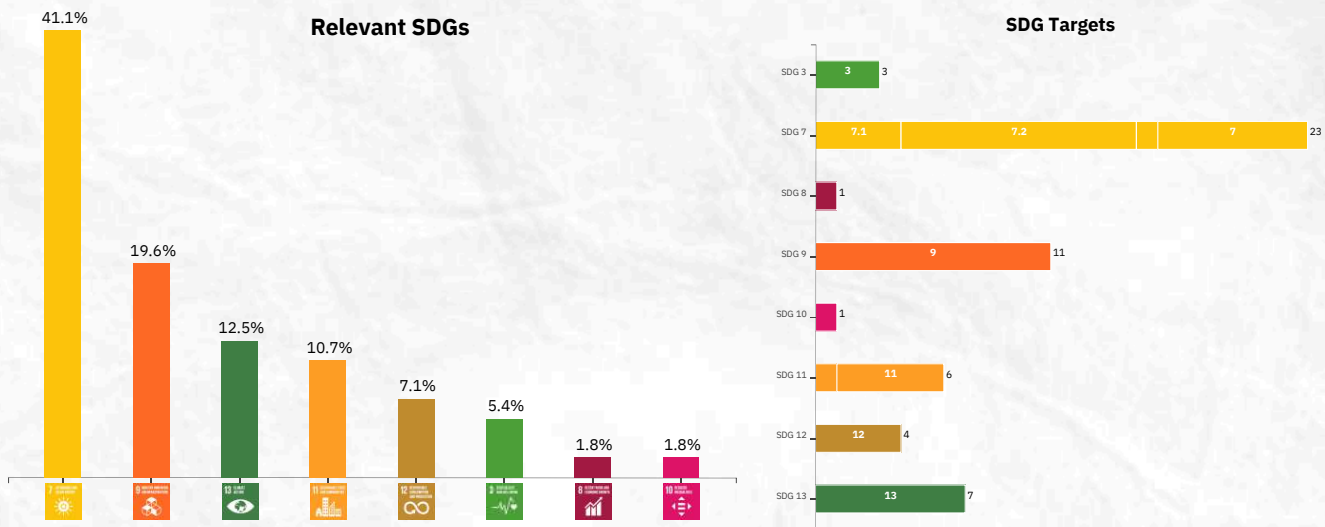
- Oxide based electrochromic coating for smart windows: Improves energy efficiency in buildings (SDGs 9, 11, 13).
- NiCoMn MOFs/f-SWCNTs/Ag-Citrate Nanocomposites for Supercapacitor Energy Storage Applications

- Develops new materials for efficient energy storage (SDGs 4, 7, 8, 9, 11, 13).
- NiCoMn Layered Double Hydroxide/PANI/Ag-citrate Nanocomposites for Energy Storage Applications: Develops new materials for efficient energy storage (SDGs 4, 7, 8, 9, 11, 13).

Health and Well-being

- Electrophoretic Deposition of Herb, Starch/Mesoporous Bioactive Glass Nanoparticles (MBGNs) on Ti-Cu Alloy for Orthopedic Implants: Develops advanced materials for improved medical implants (SDGs 3, 4, 8, 9, 15).
- High-Temperature Oxidation and Corrosion Study TiNiZr Shape Memory Alloy at Various Temperatures and Environments: Improves the performance and longevity of medical implants (SDG 15).

➤➤➤ FACULTY OF MECHANICAL ENGINEERING (FME)



Infrastructure and Innovation

- Operation of Collaborative Robot: Advances robotics technology for improved automation and productivity (SDG 9, SDG 8).
- Characterization of Selective Laser Jet Sintering Printer: Enhances 3D printing technology and manufacturing processes (SDG 9, SDG 12).
- Design and Development of Additively Manufactured Heat Sinks: Innovates cooling solutions and product efficiency (SDG 9, SDG 12).
- Balancing Hole in Impellers and Thermal Management of Bearing Housing: Improves centrifugal pump efficiency and reduces component reliance (SDG 9, SDG 12).
- Performance Enhancement of 3-D Stage for Metal Printing Using Laser Material Deposition: Advances metal 3D printing technology (SDG 9, SDG 12).
- Design and Development of a Permanent Magnet Linear Synchronous Motor: Advances motor technology for automation and efficient transportation (SDG 9, SDG 11).
- Design and Development of Autonomous Vehicle Using Deep Learning: Innovates in autonomous vehicle technology for improved transportation (SDG 9, SDG 11).
- Design and Development of Multi-Channel High Throughput Microfluidic Platform: Advances microfluidics technology for diagnostics and research (SDG 9, SDG 3).

Environment and Sustainability

- Design and Development of Thermo Electric Generators for Energy Harvesting: Harvests waste heat for energy, contributing to energy efficiency and climate action (SDG 7, SDG 13).
- Design and Development of Solar Air Heater: Utilizes solar energy for heating, supporting renewable energy (SDG 7, SDG 13).
- Design and Development of Electricity Generation Using Footstep Tiles: Converts kinetic energy to electricity, providing renewable energy solutions (SDG 7, SDG 11).
- Design and Development of Hydrogen Kit for Clean Energy: Produces clean hydrogen fuel, promoting sustainable energy (SDG 7, SDG 13).

- Design and Development of a 2-DoF Bionic Ankle-Foot Prosthesis for Agile Walking on Uneven Terrains: Advances prosthetic technology for improved mobility (SDG 3, SDG 10).
- Design and Fabrication of Self-Balancing Electric Bike: Promotes sustainable transportation solutions (SDG 11, SDG 9).
- LOW RPM Generator for Efficient Energy Harnessing from a Two-Stage Wind Turbine: Efficient wind energy generation for climate action (SDG 7, SDG 13).
- Design and Development of Desiccant Wheel Maisotsenko Evaporative Cooler: Enhances cooling efficiency with renewable energy (SDG 7, SDG 13).

Social and Economic

- Development of Portable and Cost-Effective Digital Microfluidics Platform for Diagnostic Applications: Improves diagnostic capabilities and provides cost-effective medical technology (SDG 3, SDG 9).
- IoT Enabled Mobile Robot to Grasp Airport Runway Debris and Objects in Hazardous Environments (AI-Based): Enhances safety and automation in infrastructure maintenance (SDG 9, SDG 11).



SPOTLIGHT ON STUDENT & ALUMNI INITIATIVES

>>> PROJECT TOPI: MAKING A DIFFERENCE IN TOPI

Project Topi has been instrumental in improving the lives of individuals and communities in Topi. Through various initiatives, the project has aligned with several Sustainable Development Goals (SDGs) and achieved significant targets.

One such initiative, the **Bi-Monthly Program**, provides financial assistance to daily wage earners and financially burdened employees of GIK Institute. This program directly contributes to SDG 1: No Poverty by reducing poverty and inequality within the community.

Another noteworthy initiative is the **Mess Bill Aid Program**, which offers financial support to students struggling to meet their mess dues. This program aligns with SDG 4: Quality Education, as it ensures that students can focus on their studies without the burden of financial stress.

Project Topi has also been actively involved in promoting education and social development. The **Teach For Pakistan Info Session** aimed to inspire participants to contribute to educational initiatives, aligning with SDG 4: Quality Education. The **Youth Club Session** focused on personal growth and development, contributing to SDG 3: Good Health and Well-being.

In addition to these initiatives, Project Topi has organized various community outreach programs, such as the **Winter Cloth Donation Drive** and the **Kishware Haseen Shaad Baad (KHSB)** event. These programs have helped to address SDG 10: Reduced Inequalities and SDG 11: Sustainable Cities and Communities by providing essential support to vulnerable populations.





GIKI ALUMNI ASSOCIATION RAISES FUNDS FOR STUDENTS IN NEED

The GIKI Alumni Association (GAA) has made remarkable strides in supporting students through its Financial Assistance Program. Established in 2001, this initiative recognizes exceptional students and provides crucial financial aid to help them achieve their educational dreams.

In 2023, the GAA raised a record PKR 44.5 million, including a generous PKR 10 million endowment grant, exceeding its target by over 25%. This unprecedented support enables the GAA to assist a larger number of students, significantly impacting their lives.

The Financial Assistance Program aligns with several Sustainable Development Goals (SDGs), notably SDG 4: Quality Education, SDG 5: Gender Equality, and SDG 10: Reduced Inequalities. By targeting students from disadvantaged backgrounds who demonstrate academic excellence, the GAA is helping to break the cycle of poverty and foster a more equitable society.



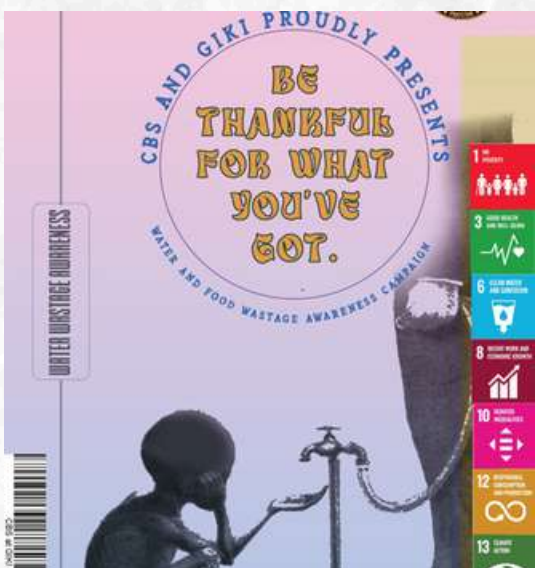
CHARACTER-BUILDING SOCIETY: FOSTERING INTEGRITY AND SOCIAL RESPONSIBILITY

The Character-Building Society (CBS) at GIKI has been actively working to promote ethical behavior, leadership, and social responsibility among students. Through various initiatives, the society has aligned with several Sustainable Development Goals (SDGs) and achieved significant targets. One such initiative is the participation in the KP Youth Integrity, Leadership, and Anti-Corruption Conference. This event aligned with SDG 16: Peace, Justice, and Strong Institutions by promoting good governance, the rule of law, and inclusive institutions.

The CBS has also organized several awareness campaigns, including the Anti-Narcotics Seminar, the Save Water, Save Life Campaign, and the Food Waste Campaign. These initiatives contributed to SDG 3: Good Health and Well-being by promoting health and well-being for all, as well as SDG 12: Responsible Consumption and Production by encouraging sustainable consumption and production patterns.

Additionally, the society has conducted Clean and Green Drives to promote environmental sustainability. This aligns with SDG 13: Climate Action by taking urgent action to combat climate change and its impacts.

Through these and other programs, the Character-Building Society has made a significant impact on the GIKI community by fostering a culture of integrity, leadership, and social responsibility.





LOOKING AHEAD

As we continue to strive towards achieving the SDGs, GIK Institute remains committed to fostering innovation, promoting sustainability, and contributing to societal well-being. Our future initiatives will focus on expanding our renewable energy projects, enhancing educational opportunities, and strengthening our international collaborations.

Upcoming Initiatives:

- Expansion of Solar and Renewable Energy Projects: Further increasing our renewable energy capacity to reduce our carbon footprint and serve as a model for other institutions.
- New Educational Programs and Workshops: Introducing programs in emerging fields such as artificial intelligence, data science, and sustainable engineering to equip our students with the skills needed for the future.
- Strengthening International Collaborations: Expanding our partnerships with leading global institutions to promote knowledge exchange and collaborative research on sustainable development challenges.
- Community Outreach and Development Projects: Continuing our support for local communities through education, health, and environmental initiatives, ensuring that our impact extends beyond the campus.

We invite all members of the GIK community to join us in these efforts. Together, we can make a significant impact on our world and contribute to a sustainable future for all.



Celebrating International Women's Day





GIKI has completed plantation drive of 10,000 trees.



PATRON

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