

# Proposed List of Projects for session 2021-22

## STRUCTURAL AND MATERIALS ENGG. (22)

### Prof Dr. Asad-ur-Rehman Khan and Dr Shamsoon Fareed

- 1) Behaviour of Ultra High Strength Concrete
- 2) Impact Resistance of Reinforced Concrete Slabs
- 3) Impact Resistance of Reinforced Concrete beams
- 4) Structural Health Monitoring of Reinforced Concrete Girders
- 5) Structural Health Monitoring of Reinforced Concrete Slabs
- 6) Numerical Investigation of Pre-stressed RC Girders
- 7) Numerical Investigation of Pre-stressed RC Slabs
- 8) Recycled Aggregates concrete under torsional

### Dr. Tehmina Ayub

- 1) Durability Investigation of Recycled aggregate based Engineered Cementitious Composite
- 2) Surveying and Mapping of Potential Clay Reserved in KPK Region (Exclusively for students from Northern Pakistan or KPK)
- 3) Design of marquee structure



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## STRUCTURAL AND MATERIALS ENGG

### **Dr. Syed Salman Mobeen**

- 1) Study of developing Low Cost Housing Units using Pre-cast Slabs Reinforced with Synthetic Fiber Fabrics.
- 2) Experimental and Analytical study of the behavior and Durability of Pre-cast thin slabs with Synthetic and Steel Mesh  
Design of marquee structure

### **Dr. Aslam Faqeer Muhammad**

- 1) Creating Digital Model of Steel Building using TEKLA Structures and Integration with ETABS
- 2) Comparative analysis of Conventional and Performance based design of RC Building Structure
- 3) Numerical Simulation for Residual Capacity of Post-Fire RC Beams

### **Dr. Aslam Bhutto**

- 1) Glass Fiber Reinforced Plastics as a replacement of Rebars
- 2) Carbon Fibers as a repair and replacement of Rebars
- 3) Corrosion in Concrete; latest trends

### **Dr. Fawwad Masood**

- 1) Comparative study of experimental and modelling results of thin plate structures
- 2) Study of flexural behaviour FRP strengthened members
- 3) Behaviour of fibre reinforced Ferrocement members

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## SUSTAINABLE CONSTRUCTION ENGG. & MANAGEMENT (26)

### Dr. Rizwan U. Farooqui

- 1) Impact of Pandemic on the Construction Industry of Pakistan
- 2) Ethical Dilemmas in the Construction Industry of Pakistan
- 3) Benchmarking Studies of Construction Engineering & Management Practices in Pakistan – The Past, The Present & The Future
- 4) Development of Entrepreneurial Business Model for BIM Services
- 5) Improving Safety on Construction Worksites in Pakistan using ICT
- 6) BIM for Specialized Fields - Oil & Gas Sector/ Airports (with co-faculty and External)
- 7) nD BIM Modelling for High-rise Building in Karachi (with co-faculty and ABAD)
- 8) Achieving Low Cost Building Construction via Material and Technology Innovation (with co-faculty and ABAD)
- 9) Artificial Intelligence for Construction Projects Delay Risk Prediction (with co-faculty and External)
- 10) Artificial Intelligence Prediction for Construction Site Safety Monitoring (with co-faculty and External)

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## SUSTAINABLE CONSTRUCTION ENGG. & MANAGEMENT

### Dr. Rizwan U. Farooqui

- 11) Artificial Intelligence Model for the Prediction of Labor Productivity (with co-faculty and External)
- 12) Integrating Construction Process Simulation in BIM (with co-faculty and External)
- 13) Construction Risk Management through BIM (with co-faculty and External)
- 14) City and Building Information Models for Solar Energy Optimization in Buildings (with co-faculty and External)
- 15) Crime Prevention through Environmental Design (with co-faculty and External)
- 16) Smart Contracts (with co-faculty and External)

### Engr. Muhammad Saqib

- 1) Energy Optimization of a Building using BIM and Structural Equation Modeling
- 2) Multi Objective Optimization of Energy Efficiency and Thermal Comfort in an Existing Institutional Building

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## SUSTAINABLE CONSTRUCTION ENGG. & MANAGEMENT

### Dr. Farrukh Arif

- 1) Energy Efficiency of houses (Related to HEC project)
- 2) Augmented Reality for construction projects (related to MoST Project - NED VR Center)
- 3) Artificial intelligence for infrastructure risk management (related to ASRB Project/Industry Project).
- 4) UAVs/VR for infrastructure management (related to MoST funded/Anticipated HEC project)
- 5) Design of Full scale robotic 3D Concrete Printer (Interdisciplinary - NED VR - HAPTICS Center)

### Dr. Rab Nawaz

- 1) Waste estimation and recycling potential at the construction worksites of academic institutions.
- 2) Evaluating stakeholder's attitudes towards construction waste management in the Pakistani construction industry.
- 3) Exploring construction waste management infrastructure in Pakistan - Key issues and way forward.

# Proposed List of Projects for session 2021-22

## GEOTECHNICAL ENGINEERING (12)

### **Prof. Dr. Amanullah Mari**

- 1) Effect of stabilizing agents on the dynamic properties of soil
- 2) Effect of reinforcing agents on the dynamic properties of soil.
- 3) Use of Geosynthetics as reinforced subgrade materials.
- 4) Soil reinforcement using natural and artificial fibres.
- 5) Soil stabilization using chemicals such as cement, lime, fly ash, ...
- 6) Use of Geosynthetics as drainage and filter materials.
- 7) Groundwater and Seepage modelling using DrainMod.
- 8) Modeling of Mechanical behaviour of reinforced soil.
- 9) Development of Soil Map for Karachi city.
- 10) Diagnosis and treatment of troubled soils such as swelling soils, collapsible soils.

### **Dr. Syeda Saria Bukhari**

- 1) Analyzing energy consumption of drinking water treatment operation
- 2) Analyzing energy consumption of wastewater treatment operation

# Proposed List of Projects for session 2021-22

## WATER RESOURCES & COASTAL ENGG & MANAGEMENT (9)

### **Prof. Dr. Muhammad Shafqat Ejaz**

- 1) Impact of Bahria Town Development on Langheji and Thaddo Streams
- 2) Watershed Monitoring in the MRB
- 3) Feasibility study of Sindh Dam
- 4) Reservoir Simulation for Hub Dam
- 5) Drainage Issues in Karachi
- 6) Water shops in Karachi and Monitoring of Groundwater

### **Dr Arjumend Masood**

- 1) Conversion of plastic waste into ploy fuel for its usage in construction industry

### **Engr. Haris Akram Bhatti**

- 1) Assessing adequacy of satellite rainfall data for watershed modeling
- 2) Estimating biasness in the satellite rainfall products

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## TRANSPORTATION & INFRASTRUCTURE ENGG (3)

**Engr. Sajjad Ali**

- 1) To Study Rutting Susceptibility of Asphalt Concrete with Recycled Aggregates using Wheel Tracking Device (WTD)
- 2) To Study the Health Monitoring Assessment of Reinforced Concrete Bridges
- 3) Investigating Drivers fatigue in Commercial Vehicle operators



# Proposed List of Projects for session 2021-22

## ENVIRONMENTAL ENGINEERING (11)

### **Dr. Atif Mustafa**

- 1) Assessment of Solid Waste Management Practices at NED University
- 2) Green Rooftops using Hydroponics and Recycled Water
- 3) Development of Portable Domestic Wastewater Treatment Plant

### **Dr. Sadia Khan**

- 1) Effectiveness of biowaste for the removal of oil from wastewater
- 2) Treatment of oil in wastewater by microorganisms

### **Dr. Mehmood Ali**

- 1) Application of biosorbents to remove organic and inorganic pollutants from wastewater

### **Dr. Abdul Ghaffar and Dr. Bhutto**

- 1) Plastic waste aggregate material
- 2) Sustainable waste management practices and implementation in Karachi
- 3) Solid waste management & waste disposal practices in Karachi
- 4) Water Quality Assessment of RO plants in streets of Karachi
- 5) Application of IoT in water quality monitoring

# Proposed List of Projects for session 2021-22

## Industry Projects

### CONSTRUCTION ENGG. & MANAGEMENT (5)

#### **Sindh Employees Social Security Institution (SESSI)**

- 1) Establishment of 10 Bedded Medical Centre (purchase/construction) at Islam Kot District Tharparker
- 2) Establishment of Social Security Directorate Dispensary and Circle offices at District Umer Kot
- 3) Establishment of Social Security Dispensary at Bhataiabad Gulistan-e-Johar, Karachi
- 4) Establishment of Social Security Dispensary at Mithi Tharparker
- 5) Establishment of Social Security Dispensary at Chonko District Khairpur

## **NOTE:**

**Internal Supervisor from the Department Faculty is mandatory.**