CPD Activities Calendar for Year 2022

PEB Name:	Ghulam Ishaq Khan Institute of Engineering Sciences and Technology (GIKI)							
PEB Reg. #:	PEB-K-GIKIES-0042							
Name of PEB Coordinator:	Dr. Nisar Ahmed							
Sr. #	CPD Title	CPD Category - Type	Location	Dates	Collaboration	Recourse Person	CPD Credit Points	Fee (Rs)
1	**Design and Analysis of Optoelectronic Devices**	C – Workshop	GIK Institute	24 February, 2022	-	Engr. Dr. Muhammad Usman	0.5	N/A
2	**Hands on introductory workshop on MSC ADAMS**	C – Workshop	GIK Institute	22 February, 2022	-	Dr. Sohail Malik	0.5	N/A
3	**Laser based fabrication of microfluidic devices for lab on chip applications**	C – Workshop	GIK Institute	14 September 2021	-	Dr. Ali Turab Jafry	0.5	N/A
4	**One Day Workshop on Internet of Things Architectures and Research Challenges**	C – Workshop	GIK Institute	09 September, 2021	-	Dr. Ghulam Abbas	01	N/A
5	**One day Workshop on Photolithography**	C – Workshop	GIK Institute	14 November 2021	-	Dr. Tahseen Amin khan Qasuria	01	N/A
6	**1–Day Workshop on Machine Learning Applications in Mitigating GLOFs Hazard**	C – Workshop	GIK Institute	21 December 2022	-	Dr. Khawar Rehman	01	N/A

7	**Key Enabling Technologies and challenges for 5G (and beyond)**	C – Workshop	GIK Institute	25 November 2022	-	Engr. Dr. Usman Habib	01	N/A
8	**Professional Resume Writing Workshop**	C – Workshop	GIK Institute	September 01,	-	Dr. Hadeed Ahmed Sher	0.5	N/A
9	**Workshop on Thesis Writing in LaTeX**	C – Workshop	GIK Institute	August 01, 2022		Dr. Hadeed Ahmed Sher	0.5	N/A
10	**Writing research papers for scientific journals**	C – Workshop	GIK Institute	December 01, 2020	-	Dr. Hadeed Ahmed Sher	01	N/A
11	**Design of Nano Machinery**	C – Workshop	GIK Institute	14 September 2022	-	Dr. Muhammad Bilal Khan	01	N/A
12	**Electric Power Engineering and Multiphysics Simulations**	C – Workshop	GIK Institute	14 September 2022	-	Dr. Shahid Alam	0.5	N/A
13	**1/2 - day Workshop on Photonic sensors and Instrumentation**	C – Workshop	GIK Institute	November 01, 2022	-	Dr. Adnan Noor	01	N/A
14	**1-day workshop on Mathematica and its applications in Electromagnetic**	C – Workshop	GIK Institute	November 12, 2022	-	Dr. Husnul Maab	0.5	N/A
15	**Best teaching practices for faculty and Engineers in OBE system**	C – Workshop	GIK Institute	August 31, 2022	-	Dr. Memoon Sajid	0.5	N/A
16	**Hardware design on FPGAs and How chips are made**	C – Workshop	GIK Institute	July 06, 2022	-	Dr. Muhammad Irfan	0.5	N/A

17	Understanding insulators Contamination Problems of HV Transmission Lines in Pakistan for Anti-contamination Design	C – Workshop	GIK Institute	October 01, 2022	-	Prof. Dr. Mohammad Akbar	01	N/A

Contents of CPD Activities as per Calendar-2021

	PAKISTAN ENGINEERING COUNCIL	

Activity No.1

CPD Title:	**Design and Analysis of Optoelectronic Devices**
Main Contents:	*As a pioneer in numerical simulation and modeling of GaN-based devices in Pakistan, we aim to share and enhance the knowledge of interested academia and industry in the area. The device engineering challenges and approaches would help in optimizing and tailoring the device design to improve the device performance.* ***COURSE SUMMARY*** *Following are the salient aims of this professional education* • *Role of optoelectronic materials and devices* • *Role of numerical simulation and modeling in optoelectronic device engineering* • *Efficiency challenges* o *Methods and approaches to address the efficiency challenge* ***LEARNING OBJECTIVES AND OUTCOMES*** *By successful completion of this course, participants should be able:* • *Understanding the significance of optoelectronic materials and their influence on device performance.* • *Tailoring microstructures to maximize the device performance.* • *Hands-on learning on the device design.*

	WHO SHOULD ATTEND? • _Anybody in the industry and academia aiming to learn and work in optoelectronic device engineering._ **WHAT WILL YOU LEARN?** • _Role and applications of optoelectronic materials and devices_ • _Device engineering approaches for performance enhancement_ _Current and future trends in device design and engineering_
Target Participants:	• _Undergraduates_ • _Graduates_ • _Faculty_ • _Registered and Professional Engineers_
Duration:	_One Day_

CPD Title:	**Hands on introductory workshop on MSC ADAMS**
Main Contents:	• _Introductory to MSC ADAMS software_ • _Simulation of multibody Dynamics including mechanisms, linkages, automobiles and robotics._
Target Participants:	• _Undergraduates_ • _Graduates_ • _Registered and Professional Engineers_ • _Biomedical/Biotechnology related students and professionals_
Duration:	_03 hours_

CPD Title:	**Laser based fabrication of microfluidic devices for lab on chip applications**
Main Contents:	• _Laser cutting and engraving_ • _Application on soft materials_ • _Fabrication of Microfluidic Chips_ • _Fabrication of Control Valves_

	• *Fabrication of Heating elements using CO2 Laser Engraving* • *Hands on experience on CO2 Laser based etching for Microfluidic Chip Design and Fabrication*
Target Participants:	• *Undergraduates* • *Graduates* • *Registered and Professional Engineers* • *Biomedical/Biotechnology related students and professionals*
Duration:	*03 hours*

Activity No.4

CPD Title:	**One Day Workshop on Internet of Things Architectures and Research Challenges**
Main Contents:	• *Introduction to the IoT Landscape: origins and enablers, impact and Opportunities,* • *Components in IoT Systems* • *IoT Architectures,* • *Physical and logical designs,* • *IoT communication models,* • *IoT levels and deployment templates* • *Layer-wise technologies, standards, protocols and research challenges*
Target Participants:	• *Undergrad* • *Graduates* • *Faculty* • *Registered and Professional Engineers*
Duration:	*One Day*

Activity No.5

CPD Title:	**One day Workshop on Photolithography**
Main Contents:	• *Introduction to Semiconductor Technology* • *Types of Semiconductor Device Fabrication* • *Focus on Photolithography*

	- *Process of Photolithography* - *New Trends in Semiconductor Industry* - *Hands on MJB3 Photolithography Setup*
Target Participants:	- *Undergrad* - *Graduates* - *Faculty* - *Registered and Professional Engineers*
Duration:	*One day*

Activity No.6

CPD Title	**1 – Day Workshop on Machine Learning Applications in Mitigating GLOFs Hazard**
Main Contents	- *Remote sensing and machine learning applications in formation and detection of glacial lakes.* - *Early warning system for GLOFs* - *Risk assessment of GLOFs*
Target Participants	- *Concerned Local and Federal Government bodies' representatives.* - *Undergrad students* - *Graduate students* - *Faculty* - *Registered and Professional Engineers*
Duration	*One Day*

Activity No.7

CPD Title	**Key Enabling Technologies and challenges for 5G (and beyond)**
Main Contents	- *5G (and beyond) network architecture* - *What 5G/6G Field Trials have taught us so far?* - *Challenges in Research, development and Implementation of 5G networks* - *Fronthaul Transmission – Analog or Digital? RAN – Centralized or Distributed?* - *Use of millimeter-wave, is it a reality?* - *Practical use cases for IoT, FWA, M2M and D2D*

	• *Experimental demonstration of a backhaul optical transmission network to RAU and wireless transmission*
Target Participants	• *Undergrad* • *Graduates* • *Faculty* • *Registered and Professional Engineers*
Duration	*One Day*

Activity No.8

CPD Title	**Professional Resume Writing Workshop**
Main Contents	**Professional Resume Writing Workshop**
Target Participants	• *Undergrad* • *Graduates* • *Faculty* • *Registered and Professional Engineers*
Duration	*03 hours*

Activity No.9

CPD Title	**Workshop on Thesis Writing in LaTeX**
Main Contents	• **Workshop on Thesis Writing in LaTeX**
Target Participants	• *Undergrad* • *Graduates* • *Faculty* • *Registered and Professional Engineers*
Duration	*03 hours*

Activity No.10

CPD Title	**Writing research papers for scientific journals**

Main Contents	a) *Why to write a research paper* b) *Classification of research papers* c) *Paper Structure* d) *Dos and Donts* e) *Graphic Designing* f) *Proof reading* g) *Journal finder* h) *Review process* i) *Rebuttal preparation* j) *Final Submission*
Target Participants	• *Undergrad* • *Graduates* • *Faculty* • *Registered and Professional Engineers*
Duration	*03 hours*

Activity No.11

CPD Title	**Design of Nano Machinery**
Main Contents	• *Introduction to nano machinery* • *Design techniques* • *Developed nano devices* • *Limitation and challenges* • *Future of nano machinery*
Target Participants	• *Undergrad* • *Graduates* • *Faculty* *Registered and Professional Engineers*

Duration	*One Day*

Activity No.12

CPD Title	**Electric Power Engineering and Multiphysics Simulations**
Main Contents	• *High Voltage Technology and Power System Components* • *Introduction to Comsol Multiphysics (Finite Element-based Software)* • *AC/DC Modeling* • *Hands-on Exercises* •
Target Participants	• *Undergrad (Final Year Students Only)* • *Graduates* • *Faculty* *Registered and Professional Engineers*
Duration	*3 hours*

Activity No.13

CPD Title	**1/2 - day Workshop on Photonic sensors and Instrumentation**
Main Contents	• Introduction to Photonic Measurement Systems • Types of Photonic Instruments • Spectroscopy • Displacement and Dimension Measurements • Laser sources • Photonic Detectors
Target Participants	• *Undergrad* • *Graduates* • *Faculty* *Registered and Professional Engineers*

Duration	*1/2 Day*

Activity No.14

CPD Title	1-day workshop on Mathematica and its applications in Electromagnetic
Main Contents	• *How to reduce Maxwell equations into first order Matrix differential equation* • *Boundary value problems and its solution using Mathematica*
Target Participants	*Undergrad* *Graduates* *Faculty* *Registered and Professional Engineers*
Duration	*03 hours*

Activity No.15

CPD Title	Best teaching practices for faculty and Engineers in OBE system
Main Contents	*1. Introduction to OBE system* *2. Lecture Preparation* *3. Lecture Delivery* *4. Class Environment* *5. Interaction with Students* *6. Office hours* *7. Exams and Assessment* *8. Grading*
Target Participants	*1. Lab Engineers* *2. Graduate Students* *3. Faculty Members*
Duration	*03 hours*

Activity No.16

CPD Title	Hardware design on FPGAs and How chips are made
Main Contents	*We will discuss about digital systems design and its optimization techniques on field programmable gate arrays (FPGAs). The language in which the FPGAs are programmed will be discussed in this event. Integrated circuits consist of millions and billions of transistors. How these transistors are combined to form such powerful ICs and what complex processes are involved in the whole design and fabrication cycle.*

Target Participants	*Undergrad* *Graduates* *Faculty* *Registered and Professional Engineers*
Duration	*03 hours*

Activity No.17

CPD Title	**Understanding insulators Contamination Problems of HV Transmission Lines in Pakistan for Anti-contamination Design**
Main Contents	***Understanding insulators Contamination Problems of HV Transmission Lines in Pakistan for Anti-contamination Design***
Target Participants	*Graduates* *Faculty* *Registered and Professional Engineers*
Duration	*One Day*