CPD Activities Calendar for the Year 2023								
PEB Name:	COMSATS University Islamabad, Lahore Campus							
PEB Reg. #:	PEB-P-CIITLH-0012							
Name of PEB Coordinator:	Engr. MIAN AHMED YASER							
Sr.#	**CPD Title (with Contents and objectives as enclosures)**	**CPD Category/Type (as per CPD Byelaws-2008)**	**Location**	**Dates**	**Collaboration**	**Resources Person**	**CPD CreditPoints**	**Fee (Rs)**
1	MACHINE LEARNING PART 1: REGRESSION	Workshop	CUI Lahore	10-11 April 2023	ECE Department CUI Lahore and ERC	Dr Muhammad Jawad	1	2000
2	MACHINE LEARNING PART 2: CLASSIFICATION	Workshop	CUI Lahore	12-13 April 2023	ECE Department CUI Lahore and ERC	Dr Muhammad Jawad	1	2000
3	MACHINE LEARNING PART 3: NURAL NETWORKS	Workshop	CUI Lahore	17-18 April 2023	ECE Department CUI Lahore and ERC	Dr Muhammad Jawad	1	2000
4.	Entrepreneurship-Business Opportunities and way forward for Engineers	Seminar	CUI Lahore	16 May 2023	ECE Department CUI Lahore With DSG Solar (Pvt) Limited Lahore	Dr Yaqoob Javaid ECE CUI Lahore, Mr denial Siddiqui	0.5	Rs 500 (Free for UG students)
5.	Workshop on Solar PV system installation for Engineers	Workshop	CUI Lahore	24 May 2023	ECE Department CUI Lahore	Dr Yaqoob Javaid ECE CUI Lahore, Ms Nazifa	0.5	2000 Free for UG

					DSG Solar (Pvt) Limited Lahore			
6.	SCADA based Energy metering, MDI and Energy Audit	Seminar	CUI Lahore	25 May 2023	ECE Department CUI Lahore and I-Tec Group/CIRCUITOR	Dr Naeem Shahzad	1.0	3000 (Free for UG students) Free
7.	HOMER professional software for Sizing and economical operation of Hybrid systems	Workshop	CUI Lahore	30 May 2023	1. ECE Department CUI Lahore 2. ERC (Energy Research center) CUI Lahore	Dr Fawad Azeem (ERC CUI Lahore)	1.0	3000 (Free for UG students)
8.	COMSOL Multi-physics, GAMS, Pinch Analysis, MATLAB (see **Annex-VII**)	Workshop	Chemical Engg. Dept., CUI Lahore	18th July 2023	CUILhr and PEC	Engr Dr Ibrar, Dr. Aqeel Ahmad Bazmi, Dr Asim Laeeq Khan	1.0	3000 (Free for UG students)
9	Corrosion-Analysis and Mitigation	Seminar	Chemical Engg. Dept., CUI Lahore	25th July 2023	CUILhr and PEC	Engr Dr Ibrar, Dr. Aqeel Ahmad Bazmi, Dr Asim Laeeq Khan	1.0	3000 (Free for UG students)
10	Inventive Problem Solving	Seminar	CUI Lahore	07 October 2023	ECE Department CUI Lahore	Dr Zaid Ahmad	1.0	2000

11.	Seminar on PV system design using Helioscope	Seminar	CUI Lahore	11 October 2023	ECE Department With DSG Solar (Pvt) Limited Lahore	Dr Yaqoob Javaid ECE CUI Lahore, Ms Nazifa	0.5	Rs 1000 (Free for UG students)
12.	LATEX for research papers, Theses and Report Writing	Workshop	CUI Lahore and Online	16 November 2023	ECE Dept CUI Lahore	Dr Farooq e Azam and Dr Usman Iqbal	1.0	2000 (Free for UG students)
13.	Advantages of Wind Power generation-Challenges and opportunities	Seminar	CUI Lahore	November 2022	ECE Department CUI Lahore	Dr Aamer Bilal Asghar	1	1000 (Free for UG students)
14.	LINUX (see **Annex-I)**	Workshop	ECE Dept., CUI Lahore	20 December 2023	CUI Lhr and PEC	Dr. Farooq e Azam	0.5	500 and Rs 300 online
15.	Renewable Energy Systems-Seminar-1	Seminar	CUI Lahore	April 2023	ECE Department and ERC	Dr Sobia Baig	0.5	Rs 2000 (Free for UG students)

16.	Renewable Energy Systems-Seminar-2	Seminar	CUI Lahore	May 2023	ECE Department and ERC	Dr Sobia Baig	0.5	Rs 2000 (Free for UG students)
17.	Renewable Energy Systems-Seminar-3	Seminar	CUI Lahore	June 2023	ECE Department and ERC	Dr Sobia Baig	0.5	Rs 2000 (Free for UG students)
18.	Renewable Energy Systems-Seminar-4	Seminar	CUI Lahore	July 2023	ECE Department and ERC	Dr Sobia Baig	0.5	Rs 2000 (Free for UG students)
Name & Signature of PEB Coordinator			Engr. Mian Ahmed Yaser					

Annex 1

MACHINE LEARNING PART-1: REGRESSION

Why to Attend?

Machine learning is a trendy topic in this age of Artificial Intelligence. The fields of computer vision and Natural Language Processing (NLP) are making breakthroughs that no one could've predicted. The machine learning is preferred to be implemented on python because Python code is understandable by humans, which makes it easierto build models for machine learning. Since Python is a general-purpose language, it can do a set of complex machine learning tasks and enable you to build prototypes quickly that allow you to test your product for machine learning purposes.

Course Objective:

The course is bringing a new learning experience. We know how difficult it is to carve out a career track so we're introducing the machine learning skill track to guarantee your way to success. This course provides structured curriculum for in-demand machine learning skills.

Cource Contents:

- Python Installation and Basics
- Data Preprocessing
- Regression: (Simple Linear Regression, Multiple Linear Regression, Polynomial Regression, Support Vector Machine (SVM), Decision Tree Regression, Random Forest Regression)
- Classification: (k-NN, SVM, Kernel SVM, Naïve Bayes, Decision Tree, Random Forest)
- Clustering (K-mean and Hierarchical)
- Introduction to ANN and CNN
- Dimensionality Reduction (PCA, Kernel PCA, and LDA)
- Model Selection (k-fold cross validation and Grid Search) and Boosting (XGBoost)

Target Audiance:

1. Data Scientist
2. Electrical and Computer Engineering students
3. Computer Science Students
4. Research Students

Registration Fee:

1. 6000 for Professionals
2. 3000 for Students

Fee Submission:

Account Title:
HBL CIIT: CPD FUND
2305-70000826-03

Vanue: COMSATS University Lhr Campus

Annex II

MACHINE LEARNING PART 2: CLASSIFICATION

Why to Attend?

Machine learning is a trendy topic in this age of Artificial Intelligence. The fields of computer vision and Natural Language Processing (NLP) are making breakthroughs that no one could've predicted. The machine learning is preferred to be implemented on python because Python code is understandable by humans, which makes it easierto build models for machine learning. Since Python is a general-purpose language, it can do a set of complex machine learning tasks and enable you to build prototypes quickly that allow you to test your product for machine learning purposes.

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- Python Installation and Basics
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- Regression: (Simple Linear Regression, Multiple Linear Regression, Polynomial Regression, Support Vector Machine (SVM), Decision Tree Regression, Random Forest Regression)
- Classification: (k-NN, SVM, Kernel SVM, Naïve Bayes, Decision Tree, Random Forest)
- Clustering (K-mean and Hierarchical)
- Introduction to ANN and CNN
- Dimensionality Reduction (PCA, Kernel PCA, and LDA)
- Model Selection (k-fold cross validation and Grid Search) and Boosting (XGBoost)

Target Audiance:

1. Data Scientist
2. Electrical and Computer Engineering students
3. Computer Science Students
4. Research Students

Registration Fee:

1. 6000 for Professionals
2. 3000 for Students

Fee Submission:

Account Title:
HBL CIIT: CPD FUND
2305-70000826-03

Vanue: COMSATS University Lhr Campus

Annex III

MACHINE LEARNING PART 3: NURAL NETWORKS

Why to Attend?

Machine learning is a trendy topic in this age of Artificial Intelligence. The fields of computer vision and Natural Language Processing (NLP) are making breakthroughs that no one could've predicted. The machine learning is preferred to be implemented on python because Python code is understandable by humans, which makes it easierto build models for machine learning. Since Python is a general-purpose language, it can do a set of complex machine learning tasks and enable you to build prototypes quickly that allow you to test your product for machine learning purposes.

Course Objective:

The course is bringing a new learning experience. We know how difficult it is to carve out a career track so we're introducing the machine learning skill track to guarantee your way to success. This course provides structured curriculum for in-demand machine learning skills.

Cource Contents:

- Python Installation and Basics
- Data Preprocessing
- Regression: (Simple Linear Regression, Multiple Linear Regression, Polynomial Regression, Support Vector Machine (SVM), Decision Tree Regression, Random Forest Regression)
- Classification: (k-NN, SVM, Kernel SVM, Naïve Bayes, Decision Tree, Random Forest)
- Clustering (K-mean and Hierarchical)
- Introduction to ANN and CNN
- Dimensionality Reduction (PCA, Kernel PCA, and LDA)
- Model Selection (k-fold cross validation and Grid Search) and Boosting (XGBoost)

Target Audiance:

1. Data Scientist
2. Electrical and Computer Engineering students
3. Computer Science Students
4. Research Students

Registration Fee:

1. 6000 for Professionals
2. 3000 for Students

Fee Submission:

Account Title:
HBL CIIT: CPD FUND
2305-70000826-03

Vanue: COMSATS University Lhr Campus

Annex IV

ENTRPRENEURSHIP-BUSINESS OPPORTUNITIES FOR ENGINEERS

A Seminar by an Electrical Engineer who is a successful Entrepreneur.

1. **What are the opportunities for Engineers?**
2. **What are the Challenges and Opportunities for starting one's own business in Engineering?**
3. **What is the way forward?**

Annex V

WORKSHOP ON SOLAR PV INSTALLATION FOR ENGINEERS

1. **Installation standards for Solar PV systems in domestic and Industrial setups.**
2. **Key techniques**
3. **Errors to avoid**
4. **Standard organizations**
5. **Installation Standards for Net metering**
6. **Categories of Solar PV setups**

Annex VI

SCADA based Energy metering, MDI and Energy Audit

1. SCADA based Centralized Energy Management system and its benefits.

2. How to perform Energy Audit & Power Quality Analysis by using Portable Power Quality Analyzer with practical demonstration.

3. SCADA based Prepaid Metering System and its applications with benefits.

4. Maximum power indicator and load management to avoid MDI penalty. What are the benefits of implantation of MDI control.

5. PF correction & Harmonics filter designing based on Energy Audit Reports.

Annex VII

HOMER Pro software for sizing and economic analysis of Hybrid Power Systems

Annex VIII

COMSOL Multi-physics, GAMS, Pinch Analysis, MATLAB

Introduction:

COMSOL is a modelling and simulation software which covers broad range of engineering disciplines including, chemical, electrical, mechanical engineering and their several sub-domains. It is an ideal modelling and simulation tool equally good for the engineers finding their ways into process and design industries and for the academics.

Annex IX

CORROSION-ANALYSIS and MITIGATION

Detailed analysis of Corrosion in Chemical plants

Methods to avoid Corrosion and mitigation methods

Annex-X

INVENTIVE PROBLEM SOLVING

Introduction to Innovation Engineering

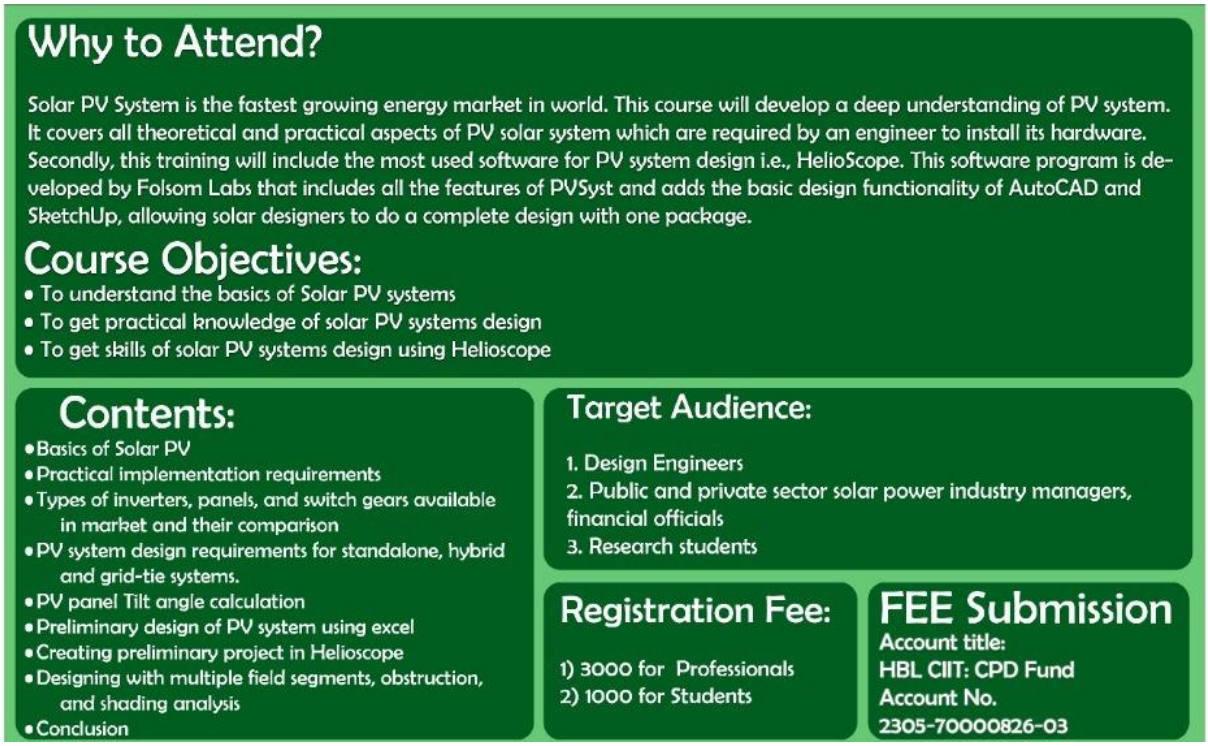
Introduction to Russian approach to solving new problems

TRIZ method of solving new problems

Systematic approach to Inventions

ANNEX-XI

Seminar on PV system design using Helioscope



Annex XII

WORKSHOP ON LATEX-RESEARCH PAPER, THESES and REPORT WRITING

1. **Basics of LATEX software**
2. **Structure of LATEX script**
3. **Hands on writing of a sample research paper**
4. **Hands on writing of Sample thesis and report**
5. **Bibliography in LATEX**
6. **Standard formats for research papers**

Annex XIII

Advantages and Challenges of Wind Energy

Wind energy has become a best alternate of traditional fossil fuel because of its better efficiency, cost and reliability. The wind blowing in all countries around the globe just waiting to be harvested and it is the fastest option we have to produce clean, sustainable and plentiful energy today. China is the world leader in wind energy, with total installed capacity of 221 GW, followed by US with 96.4 GW, Germany 59.3 GW, India 35 GW, Spain 23 GW, UK 20.7 GW, France 15.3 GW, Brazil 14.5 GW, Canada 12.8 GW and Italy 10.1 GW. The energy produced by wind is clean with no emission of greenhouse gasses which helps in reducing global warming and environmental pollution. Therefore, advanced control techniques have been applied to improve its performance.
Energy Research Centre continuing its efforts to promote conventional and renewable energy conducts symposiums and webinars to disseminate knowledge regarding latest proceedings in technologies. Pakistan is also moving towards Wind energy with a total installed capacity of 1000 MW and further wind power plants in construction. A symposium on wind energy from the Platform of ERC will educate students and researchers for problem identification and possible research avenues in the field of wind energy.
Program

Intelligent Control of Wind Turbine Parameters to Improve the Efficiency during its Operation

Speaker:

Dr. Aamer Bilal Asghar received PhD degree in Control Theory and Control Engineering from Dalian University of Technology, Dalian, P.R. China in December, 2018. He got M.S. degree in Electrical Engineering (Control Engineering) from Government College University Lahore, Pakistan in 2014 and B.S. degree in Electronic Engineering from The Islamia University of Bahawalpur, Pakistan in 2008. He has participated in several research projects under National natural Science Foundation of China. He has published several research papers in high impact international journals. He is a HEC approved PhD supervisor and serving as a faculty member in Department of Electrical and Computer Engineering at COMSATS University Islamabad, Lahore campus, Pakistan since 2014. He is teaching core courses of Electrical Engineering and has supervised many undergraduate and graduate students at COMSATS University Islamabad, Lahore campus. His research interests include wind energy harvesting, wind power systems, Power and renewable energy technologies, intelligent control, fuzzy logic control, neuro-fuzzy systems, artificial intelligence and machine learning.

Annex XIV

LINUX Workshop

Overview of Linux System and Network Administration

Unix based operating systems, such as Linux, are advanced operating systems which can be used for diverse range of applications. For example, these systems can be tailored and customized for office and desktop use and, on the other hand, these can be used to set up complex networks. It is due to their robustness, reliability and technically advanced features that these systems are used by major technology companies such as NASA, Google, IBM, Facebook, Twitter and similar organizations around the world. Moreover, 100% of the world's supercomputers are powered by Unix based systems. Due to its inherent stability and security, it is the Linux operating system which runs on International Space Station. It is notable that Apple's iOS, Android, Mac OSX and Linux are all derivatives of UNIX operating system.

The objective of this hands-on workshop and training session is to give an overview and introduction of various aspects of the Linux operating system to the participants. Starting from the demonstration for desktop use, the session will proceed to introduce advanced usage of the Linux operating system including system and network administration. Usage of both the graphical and terminal environments will be introduced in the session.