The Department of Electronics and Communication Engineering is organizing a very specialized and highly demanded summer training program on "IoT and Embedded Systems" from **8th May. to 30th Oct 2023.**

ABOUT THE INSTITUTE

KIET Group of Institutions as NAAC 'A+' accredited and all its eligible programs are NBA accredited. The effort of the institute in imparting technical education has been recognized in terms of achieving 187th rank for Engineering discipline and 97th rank in Pharmacy category in National Institutional Ranking Framework (NIRF) - India Ranking 2022 released by Ministry of Education, GOI. The Institute has a well-established Technology Business Incubator (TBI-KIET) in association with the Department of Science & Technology, GOI. With a rich alumni base of 20000+ students, 390+ highly qualified full-time faculty to nurture our students with 100% Placement & Internship assistance.

We have also been awarded UPTU Excellence Award by UP Technical University for quality education and excellent infrastructure and other facilities. Department of ECE grooms the students to excel in the field of technology. Our students are trained in software and hardware skills and basic inputs are provided to make them self-confident to work in industry and get encouragement for higher studies and research. The department also contributes to the society by accomplishing technical projects that caters to the various requirements of the present day world. The department has qualified and dedicated faculty members to provide good technical support to all the students. The department of ECE has a vision to become a centre of excellence in the field of Electronics and Communication Engineering. All our faculty and students are dedicated to achieve this goal with full vigor, enthusiasm and good ethical values. Department is running B.Tech. (ECE) and M.Tech. (ECE) programs Department is involved in high quality research on several domains like Optical Integrated Circuits, Signal Processing and

Communication, Semiconductor Device Characterization and Integration, Advanced Microwave Techniques, and other emerging fields in Electronics and Communication Engineering.

ABOUT THE COURSE

Course information:

The course will introduce the state-of-the-art IoT technologies and applications. Programming with IoT devices such as Arduino board, Node MCU, ESP 32, STM 32, MSP 32 will be covered in detail. This course includes both theory and hands-on exercises. The participants will be taught interfacing different sensors and actuators using IoT hardware like Node MCU. There will be hands-on sessions on connecting these devices to cloud services and controlling them remotely via smart phone and web browser. The interplay between IoT and machine learning will be covered which is vital for applications such as decision making, predictive maintenance and forecasting.

We will be covering microcontrollers from the AVR family, the architecture and pin diagram of microcontrollers, and a program in embedded C to control the microcontroller. covering ESP-32 and Arduino Uno controller boards to design an autonomous system.

The hands-on session will consist of designing a fully autonomous system with the help of sensors, actuators, and controllers from the AVR family. Projects like intelligent parking systems, home automation, detection of weather, autonomous ignition systems using android, and controlling of electromechanical switches (relays) using android , Android-controlled robot.

Knowledge of free online simulation tool to design and simulate autonomous systems.

Importantly participants will be provided the hands on experience and will build an IoT device that will be controlled by a smart phone. Course pedagogy: This is a course that will be taught directly through hands-on experiments. Each group will be provided with an IoT and Robotics training kit. As participants are taught the concepts, they will be asked to validate those concepts through experimentation. The training will include: a) IoT concepts and devices such as Arduino board, Node MCU, Raspberry pi. b) Demonstration of some of these concepts in some typical applications in smart grid, consumer electronics and health care. c) Hands-on exercises on IoT development board including simulation on virtual hardware platform. d) Assignments and short quizzes on topics covered in the lectures and hands-on sessions. e) Development of IoT enabled mobile robot for surveillance and conditioning monitoring of target area. Introduction to Robotics with Python Language integrated with ML and DL.

COURSE CONTENTS
Digital system design using VHDL
- **Introduction**
- **Basic Electronics**
- **Analog Circuit Design**
- **Arduino(on bord controller unit)**
- **Raspberry Pi(on bord computer)**
- **Node MCU(Microcontroller)**
- **ESP 8266(Microcontroller)**
- **ESP 32(Microcontroller)**
- **STM 32(Microcontroller)**
- **Amazon AWS**
- **Google Cloud**
- **Robotics**
- **Python**
- **Machine Learning**
- **Deep Learning**

Patron

Dr. Amik Garg
(Director)
Dr Manoj Goel
(Joint Director)

Chairperson

Dr. Vibhav Kumar Sachan
HOD, ECE department

Boot Camp Coordinator

Dr. Shubham Shukla(9773947416)
Mr. Atul Kumar (8377905662)

Resource Persons

Prof. CK Dwivedi
Sr. Scientist NASI
Expert in Embedded
Systems and Microcontrollers
EX Head Electronics Dept.
University of Allahabad

Prof Umesh Ghanekar
Expert in Image Processing
Sr. Professor at NIT Kurukshetra

Prof Ranjith Nair
Expert in Robotics
Assistant Professor at IIIT Pune

Venue:
NI LAB VIEW ECE KIET GROUP OF INSTITUTIONS GHAZIABAD, DELHI NCR
Room no- (B-106)

Eligibility

B.TECH. 1st, 2nd and 3rd year students of EC / EI / EE/CS/Mech branch.

Seats Available

Total Students- 40
(Selection on First Come First Serve Basis)

Program Schedule

Registration open: 28th March to 10th April. 2023Duration: 8th May to 30th Oct. 2023

Scheduled Dates for Classes
May 2023: 13th, 27th
July 2023: 8th, 22nd, 29th
Aug 2023: 12th & 26th
Sept 2023: 9th ,23rd, 30th
Oct 2023 : 14th 28th

Timing:
9AM to 05:00 PM (8 Hours)(All even Saturdays till Oct)

Program Fee:
Rupees 5000/- per participant

Registration Link:
https://forms.gle/VZAX6dzoPEVzRVE58

For Registration and any query, please contact

Dr. Shubham Shukla *(9773947416)*
shubham.shukla@kiet.edu

BOOT CAMP

ON

(ROBOTICS & AI)

8th May to 30^{th}Oct.2023

KIET Group of Institutions, Ghaziabad
ECE Department

Organized by
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
KIET Group of Institutions
(NAAC 'A+' Grade, NBA Accredited &ISO 9001-2000)
13-Km Stone, Ghaziabad-Meerut Road, Ghaziabad-201206,
UP, INDIA

REGISTRATION FORM

Name: ……………………….

Institute: …………………….

Branch: ……………………….

Email: ………………………..

Phone no: ……………………..

Payment Details: ……………

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