KALINGA UNIVERSITY
RAIPUR|INDIA

NAAC GRADE B+ Accredited University | nirf RANKING 2022 Ranked in Top 101-150 Universities | Azadi ka Amrit Mahotsav

INTERNSHIP PROGRAM IN

INTERNET OF THINGS

Faculty of Information Technology and Department of Computer Science

Date: 23rd May to 6th July 2023

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Mission

Kalinga University aims to be an outstanding institution for Talent Development and Knowledge Creation for a vibrant and inclusive society.

Our **University**

Kalinga University, Raipur is a NAAC accredited University with Grade B+ and the Only Private University in Chhattisgarh ranked in Top 101-150 Universities in NIRF Ranking 2022 and has emerged as a centre of excellence of higher education in Central India. Strategically located in the Smart City of New Raipur, this University has started carving a niche for itself in the education domain and is rising as a shining star on the horizon of quality education.

Infrastructure – Kalinga offers World Class Infrastructure and student facilities with student centric approach. Highest attention is paid to hands on learning approach and students are encouraged to come up with innovative ideas for projects and practical's. The University has more than 90 laboratories and workshops, all well equipped with the latest, state of the art apparatus and tools. Special emphasis is given to the development of communication skills through the language lab. More than 1000 computers are available for the use of the students.

Establishment – Established in 2013, this University has been able to win the confidence of over 8000 students. Meritorious students from all over the country and various foreign countries like Afghanistan, Angola, Bangladesh, Cameroon, Gambia, Ivory Coast, Kenya, Lesotho, Liberia, Malawi, Namibia, Nepal, Nigeria, Papua New Guinea, South Sudan, Swaziland, Tanzania, Uganda, Zambia, Zimbabwe, etc have chosen this University for their education and career.

Schools of Excellence – Currently the University is serving the student community through various UG and PG programs namely Engineering, Law, Pharmacy, Arts & Humanities, Science, Commerce & Management, Biotechnology, Information Technology, Library Science, Fashion Design & Interior Design.

About **Internship Program**

- IoT internship program is a unique and innovative model built with the intention of enriching the knowledge seeker student from an academic skill development programme merged along with an industry-oriented approach by deploying best practices in terms of practical projects and development life cycles adopted in the industry to achieve the best out of the learnings.
- The programme is echoed with hardware and software in the early stage of students' life to make them aware of industry prospects, learning and paving a strong way to a suitable career path.
- Another unique value addition to this Internship program is the combination of knowledge sharing from Veterans of the IT industry spanning across the Business of IoT, Technology leaders in Embedded / RTOS / IoT which will help all the internship aspirants to get the best out of everything surrounding the IoT space.

Advantages

- It helps the students develop skills and employability competencies.
- It provides an opportunity for students to apply theoretical knowledge acquired in the classroom with the practical application of knowledge required to perform a task.
- It gives them a feel of how their work environment will be when they get employed. Industrial training also gives exposure to students to the tools used in the Industry.
- Development of in-hand training in IoT devices and technical skills to enable students to better understand and perform during interviews. As practical skilled knowledge is the most important aspect of technology-driven science.
- Internships provide students with numerous perks: They gain experience, develop skills, make connections, strengthen their resumes, learn about a field, assess their interests & abilities and land up in desired jobs.

Who Should **Attend**

Beneficial For - Students of UG/PG Programs & Research Scholars of Information Technology and Computer Science, etc.

Resource Persons

Mr. Omprakash Dewangan
HoD incharge,
Dept. of Computer Science &
Faculty of Information Technology

Ms. Akanksha Mishra,
Assistant Professor,
Dept. of Computer Science

Program Details

Duration : 45 Days
Date: 23rd May to 6th July 2023
Monday to Saturday
Time: 10:00 am to 4:00 pm
VENUE: Kalinga University

PROGRAM FEE

RS 10,000/-

NOTE -

1. Accommodation facility is available on a chargeable basis: Rs 6,500/- for 45 days inclusive of Food (Air Cooled Room- 4 Students/Room, 3 Meals per day & other amenities).
2. Transport Facility available from common pickup point (Free).

Steps For **Registration**

STEP 1: Participants have to make payment on the given bank details

Account Name: Kalinga University

Bank Name: ICICI Bank

A/c No.: 390701000010

IFSC Code No.: ICIC0003907

SWIFT CODE: ICICINBBCTS

STEP 2: Take a screenshot of the payment & send it to omprakash.dewangan@kalingauniversity.ac.in

STEP 3: Fill out the registration form with all the necessary information.

SCAN TO PAY

REGISTER HERE

CONTACT DETAILS

+91-7024133429 | omprakash.dewangan@kalingauniversity.ac.in

Program **Schedule**

Module-I
Introduction to Internet of Things

S.No.	Topics	Duration
1.	Definition and characteristics of IoT	5 days
2.	Physical design of IoT, Logical design of IoT	
3.	IoT enabling technologies	
4.	IoT levels and deployment	
5.	Domain specific IoTs	

Module-II
IoT AND M2M

S.No.	Topics	Duration
1.	Introduction, M2M, difference between IoT and M2M	5 days
2.	Software defined networking (SDN) and network function virtualization (NFV) for IoT	
3.	Basics and Need for IoT System Management	
4.	IoT System Management with NETCONF-YANG-I	
5.	IoT System Management with NETCONF-YANG-II	

Module-III
IoT Platforms Design Methodology

S.No.	Topics	Duration
1.	IoT Architecture	5 days
2.	Architecture reference model Introduction, reference model and architecture, IoT reference model	
3.	Logical design using Python: Installing Python, Python data types and data structures	
4.	Control flow, functions	
5.	Python: Modules, packages, file handling	

Module-IV
Sensors

S.No.	Topics	Duration
1.	Sensor: Light sensor, temperature sensor with thermistor, voltage sensor	5 days
2.	Sensor: ADC and DAC, Temperature and Humidity Sensor DHT11	
3.	Sensor: Motion Detection Sensors, Wireless Bluetooth Sensors,	
4.	Sensor: Level Sensors, USB Sensors, Embedded Sensors,	
5.	Sensor: Distance Measurement with ultrasound sensor	

Module-V
IoT Physical Servers and Cloud Offerings

S.No.	Topics	Duration
1.	Introduction to Cloud Storage models and communication	5 days
2.	APIs Web Server	
3.	Web server for IoT	
4.	Cloud for IoT	
5.	Python web application framework Designing a RESTful web API	

Module-VI
IoT Communication Protocols & Cloud

S.No.	Topics	Duration
1.	Wired and Wireless Communication Protocols, IP- IPv4 vs IPv6	5 days
2.	Application Protocols – MQTT, CoAP, HTTP, AMQ, Transport layer protocols – TCP vs UDP	
3.	Concept & Architecture of Cloud, Public cloud vs Private cloud	
4.	Different Services in cloud (IAAS / PAAS / SAAS), Importance of Cloud Computing in IoT	
5.	Leveraging different Cloud platforms.	

Module-VII
IoT Physical Devices and Endpoints

S.No.	Topics	Duration
1.	Introduction to Raspberry Pi interfaces (Serial, SPI, I2C),	5 days
2.	Programming Raspberry PI with Python	
3.	Programming Raspberry PI with Python	
4.	Other IoT devices	
5.	Other IoT devices	

Module-VIII
IoT Applications and IoT Design

S.No.	Topics	Duration
1.	IoT applications for industry: Future Factory Concepts, Brownfield IoT	10 days
2.	IoT applications for industry : Smart Objects, Smart Applications	
3.	Study of existing IoT platforms /middleware, IoT- A, Hydra etc.	
4.	Case studies illustrating IoT design- home automation	
5.	Case studies illustrating IoT design- Smart cities	
6.	Case studies illustrating IoT design-Smart environment	
7.	Case studies illustrating IoT + Arduino: Bluetooth Module LED Controller	
8.	Case studies illustrating IoT + Arduino: Controlling Home Light Using Bluetooth	
9.	Case studies illustrating IoT + Arduino: Controlling Light using NodeMCU Relay WiFi	
10.	Presentation on IoT Working Model	

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Kotni, Near Mantralaya, Naya Raipur,
Chhattisgarh - 492101, India

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