

# Additional information for Best Practices

## **AKGEC-KUKA INDUSTRIAL ROBOTICS TRAINING CENTRE**

AKGEC jointly with KUKA Robotics (India), has set up India's first Industrial Robotics Training Centre for Educational Institutions at AKGEC, Ghaziabad. The AKGEC-KUKA Training Centre aims to train young engineering graduates and diploma students of all engineering disciplines up to the Industry expectations and foster research in applied robotics field. The Centre offers Basic, Advance and Expert level training on Industrial Robotics for Engineering and Polytechnic students. The participants receive internationally recognized joint certification by KUKA Roboter, Germany and AKGEC. The manpower trained under these programs will help the Indian Manufacturing industry to adopt latest technologies to improve quality and Productivity.

## **AKGEC-NI LABVIEW ACADEMY**

AKGEC jointly with National Instruments (India) has set up UP's first AKGEC-NI LabVIEW Academy for Educational Institutions. The academy offers courses for all levels of LabVIEW proficiency and on various hardware platforms. These courses are intended for B.Tech students of all disciplines and provide them the opportunity to obtain three-part NI LabVIEW certification named as CLAD, CLD & CLA. These Certifications indicate a broad working knowledge of the LabVIEW environment and validate their skills at a professional level. To make the certifications and training at par with NI International standards, the training contents and course material is kept the same as used by NI-Labview Academy Community globally.

## **AKGEC – SIEMENS PLM COE**

To develop engineering professionals equipped with next-generation technologies, AKGEC jointly with SIEMENS Industry Software, has setup PLM Centre of Excellence at AKGEC campus. This COE provides education to the next generation of designers/engineers on state of art softwares such as SOLID EDGE, NX; CAD/CAM/CAE: for digital product engineering, Temcentre for digital lifecycle management and Technomatix for digital manufacturing This COE address diverse industry segments like automotive, industrial machinery, Industrial automation, aerospace and shipbuilding etc.

## **AKGEC-BOSCH REXROTH CENTRE OF COMPETENCE IN AUTOMATION TECHNOLOGIES**

AKGEC Ghaziabad has established the Centre of Competence in Automation Technologies in collaboration with Bosch Rexroth AG, Germany. The Centre has world class infrastructure with state of the art technologies, equipments, training kits, hardware, software and teaching aids with excellent faculty trained by Rexroth Germany. The center has six laboratories at par

with international standard on Hydraulics, Pneumatics, Sensorics, PLCs, Drives & Control and Mechatronics. The centre aims to provide training to undergraduate and postgraduate students of engineering to meet industry requirements.

### **AKGEC-AIA CENTER FOR INTEGRATED AUTOMATION**

AKGEC, to promote Industry oriented teaching learning, has setup Center for Integrated Automation in association with the Automation Industry Association. This initiative of AIA is intended to share global quality learning processes from its vast pool of member companies with chosen Engineering Colleges of our country. Industry Partners namely Siemens, Pepperel + Fuchs, Festo and B&R, have taken the lead among all industry members of AIA to support the initiative. Main objective of this Centre is to encourage engineering students to take up this multidisciplinary field as a choice of their career and have hands-on experience with latest state of art integrated automation technologies as per industry expectation.

### **AKGEC-JANATICS INDUSTRIAL PNEUMATICS**

This initiative of Janatics' contribute towards producing skilled workforce in the field of Industrial Pneumatics which will help manufacturing sector to adopt to changes related to automation in substantive way. This is the first Centre in India exclusively focused on Industrial Pneumatics field to teach and train young engineering graduates to meet industry expectations. The centre has developed various low cost automation solutions for SMEs. The IPKC also functions as National Small Industries Corporation (NSIC) Training-cum-Incubation Centre (TIC). The primary objective of TIC is to provide an opportunity to first generation entrepreneurs to acquire necessary skills for enterprise building and also incubate them to become successful small business owners. This is the first TIC in the state of Uttar Pradesh at AKGEC.

### **AKGEC-FRONIUS ADVANCE WELDING TECHNOLOGY AND RESEARCH CENTER**

Ajay Kumar Garg Engineering College, jointly with Fronius International GmbH has set up India's first "Advanced Welding Technology and Research centre (AWTRC)" in the state of Uttar Pradesh. AWTRC has been established with an aim of developing state of art infrastructure for becoming a globally recognized source of a competitive workforce and cost-effective, superior-performing welding technologies by conducting training, research and development in the field of welding science, engineering and automation technology.

### **AKGEC-SIEMENS ADVANCE MANUFACTURING CENTRE**

AKGEC, jointly with industry partners, has set up Advance Manufacturing Centre for SMEs and Educational Institutions at Ghaziabad. The AKGEC- Siemens Training Centre is setup to produce highly skilled technical manpower in the field of Advance Manufacturing. The trained manpower will help Indian Manufacturing Industry to adopt latest technologies to improve

  
Director  
Ajay Kumar Garg Engg. College  
Ghaziabad

quality. This collaborative effort of AKGEC and industry partners has the main objective to encourage young professionals to take up this cross disciplinary field as a career of their choice and acquaint them in the field of manufacturing and Reverse Engineering.

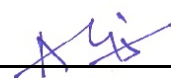
### AKGEC-FABLAB

A fab lab is an initiative of Prof. Neil Gershenfeld from MIT, USA which is typically equipped with an array of flexible computer-controlled tools that cover several different length scales and various materials, with the aim to make "almost anything". AKGEC has established Fab Lab in response to the need arising from students requiring a dedicated space and appropriate equipment to develop their projects. Since then it evolved from being just a product development center to a facility focussed on promoting innovation, imparting much-needed skills for innovators and help developing competency across different disciplines including mechanical, electronics and embedded development areas. This is done through providing access to tool, capabilities and knowledgeable trainers and gurus who can help anyone bring their ideas to reality. The center hosts rapid prototyping tools, training kits hardware and software which can be used to train on and fabricate using digital fabrication techniques. It aims to provide training to undergraduates, postgraduates, young kids and to engage with the local community of makers and innovators. These training and experience in digital fabrication techniques not only allows students to apply their theory in practice enhancing their learning of fundamental engineering but is also meant to cater to the need of the hour that is achieving self-sustainability through innovation and entrepreneurship.

| Centre                             | Industry partner        | Training program/workshops/ | Objective  | Duration          | Outcome  |
|------------------------------------|-------------------------|-----------------------------|--|-------------------|--|
| Advance Manufacturing Centre (AMC) | SIEMENS and Carl Zeiss. | Industrial Measurement      | To get all basic acquirement for the operations and programming of the Coordinate Measuring Machine. | One Week/ 40 Hrs. | <ul style="list-style-type: none"> <li>• Understand Engineering Drawing</li> <li>• Knowledge of Dimensional measurement tools.</li> <li>• Operation of CMM and Programming (Manual Mode &amp; CNC Mode)</li> <li>• Understand Reverse Engineering Concept</li> <li>• Able to use Inspection and Quality System in Manufacturing</li> </ul> |

  
 Director  
 Ajay Kumar Garg Engg. College  
 Ghaziabad

|                                    |                         |   |   |                                  |   |
|------------------------------------|-------------------------|---|---|----------------------------------|---|
| Advance Manufacturing Centre (AMC) | SIEMENS and Carl Zeiss. | Industrial Training Program-Computer Integrated Manufacturing | The objective of this training program is to impart holistic knowledge and skills of trainees in Manufacturing with latest Industrial Tools & Technologies and to develop their competency to the level of a professional Production Engineer.  | 6 Weeks Program   120 Hrs        | <ul style="list-style-type: none"> <li>• Understand Concepts of Computer Integrated Manufacturing</li> <li>• Able to implement GD &amp; T Parameters</li> <li>• Ability to work safely and understand health and safety issues</li> <li>• Able to do CNC machining and programming of critical components.</li> <li>• Create 3 D Models and generate CNC programs.</li> <li>• Setting of Machine and selection of proper material and tools for machining.</li> <li>• Carrying out Testing on Coordinate Measuring Machine (CMM)</li> </ul> |
| Advance Manufacturing Centre (AMC) | SIEMENS and Carl Zeiss. | Industrial Internship Program-Manufacturing And Inspection    | This Program is intended to develop technical competency and skills of candidates in line with industry requirements. Program offers a unique opportunity to learn best industry practices, quality standards, safety norms and hands-on experience using the latest tools, techniques and equipment related to their selected specialization domain. | Six Months   18 Weeks   540 Hrs. | <ul style="list-style-type: none"> <li>• Multidisciplinary knowledge for solving live industrial problems</li> <li>• Acquiring Global Certifications in the field of Manufacturing and Inspection Technologies</li> <li>• Development of Team Working Spirit for achieving Higher Professional Goals</li> <li>• Acquaintance of Best Industrial Practices and Safety Norms</li> <li>• Development of Personality and Presentation Skills</li> <li>• Understanding Work Ethics and Business Commitment</li> </ul>                            |
| Advance Manufacturing Centre (AMC) | SIEMENS and Carl Zeiss. | One Day Workshop On Advanced Manufacturing Technologies       |   | One Day   8 Hrs                  | <ul style="list-style-type: none"> <li>• International Valid certification by AKGEC and SIEMENS</li> <li>• Visualise Industrial Manufacturing System and Processes</li> <li>• Understand use of CNC Machines</li> <li>• Identify measuring instruments and equipments for quality control</li> <li>• Identify Cutting Tools, Work Holding Devices</li> <li>• Understand use of CMM and 3D Scanning</li> </ul>   |



Director  
Ajay Kumar Garg Engg. College  
Ghaziabad

|   |                        |   |  |                            |  |
|---|------------------------|---|--|----------------------------|--|
| CENTER OF EXCELLENCE IN AUTOMATION TECHNOLOGIES | Bosch Rexroth, Germany | Programmable Logic Controller-Basic Level | The course starts with basics of PLC, covering hardware, software and architecture. It teaches ladder logic, function blocks, input/output cards. It explains all basic, standard and custom functions and capabilities of a PLC.  | Two Weeks Program   80 Hrs | <ul style="list-style-type: none"> <li>• Design and build PLC schemes on their personal computers.</li> <li>• Design and build PLC logic and control schemes in an industrial environment.</li> <li>• Design ladder logic, function blocks and safe habits to work in any manufacturing unit.</li> <li>• To illustrate the concepts and with the incorporation and usage of all commonly used PLC functions.</li> </ul>                        |
| CENTER OF EXCELLENCE IN AUTOMATION TECHNOLOGIES | Bosch Rexroth, Germany | Integrated Automation Technologies        | This course covers adequate background on various industrial fluid-based actuation systems with enhanced hands-on training sessions on controllers and visual systems to truly appreciate the related concepts in explicit details giving an in-depth explanation on the relevance & co-ordination of these components in an industrial environment. |                            | <ul style="list-style-type: none"> <li>• Manufacturing excellence through relevant automation.</li> <li>• Controller programming and use of actuators in automation.</li> <li>• Selection criteria for Industrial control system and PLC Programming.</li> <li>• Understand virtual designing and monitoring of automation systems.</li> <li>• Perform maintenance techniques including: Installation, Maintenance, Troubleshooting</li> </ul> |

  
 Director  
 Ajay Kumar Garg Engg. College  
 Ghaziabad

|                 |                              |   |   |                   |  |
|-----------------|------------------------------|---|---|-------------------|--|
| LabVIEW Academy | National Instruments (India) | LabVIEW Machine Vision And Image Processing | To explore the LabVIEW environment and interactive analysis, dataflow programming, and common development techniques in a hands-on format.                            | 40 hours          | <ul style="list-style-type: none"> <li>• Understand the fundamentals of selecting and setting up the appropriate machine vision hardware components</li> <li>• Develop a machine vision application in LabVIEW</li> <li>• Acquire and display images in LabVIEW using machine vision hardware</li> <li>• Use several image processing functions to process, analyze, and inspect images</li> </ul> |
| LabVIEW Academy | National Instruments (India) | Machine Vision And Image Processing         | To cover the fundamentals of machine vision, to use and select the hardware components of a machine vision system and implement machine vision tasks and inspections. | 40 hours          | <ul style="list-style-type: none"> <li>• Introduction to Lighting, Camera, and Optics</li> <li>• Machine Vision Solution Strategies</li> <li>• Acquiring and Displaying Images in LabVIEW</li> <li>• Getting Measurement-Ready Images</li> <li>• Performing Particle Analysis</li> <li>• Machine Vision Functions</li> <li>• Calibrating Images</li> <li>• Machine Vision Inspections</li> </ul>   |
| LabVIEW Academy | National Instruments (India) | LabVIEW Machine Vision And Image Processing | To use and select the hardware components of a machine vision system and implement machine vision tasks and inspections.  | 3 Days   24 Hours | <ul style="list-style-type: none"> <li>• Understand the fundamentals of selecting and setting up the appropriate machine vision hardware components</li> <li>• Develop a machine vision application in LabVIEW</li> <li>• Acquire and display images in LabVIEW using machine vision hardware</li> <li>• Use several image processing functions to process, analyze, and inspect images</li> </ul> |

|                 |   |                             |   |                    |  |
|-----------------|---|-----------------------------|---|--------------------|--|
| FABLab          | Collaboration between the Grassroots Invention Group and the Center for Bits and Atoms at the Media Lab in the Massachusetts Institute of Technology (MIT). | Embedded Systems & IoT      | To demystifies the internal working of the Micro-controllers, Development Boards and its Peripherals  | 3 Days<br>4 Hours  | <ul style="list-style-type: none"> <li>Understand the fundamentals of selecting and setting up the appropriate machine vision hardware components</li> <li>Develop a machine vision application in LabVIEW</li> <li>Acquire and display images in LabVIEW using machine vision hardware</li> <li>Use several image processing functions to process, analyze, and inspect images</li> </ul>   |
| FABLab          | AKGEC FABLab  | Digital Manufacturing       | To train participants and to develop their skills on Design tools like NX-CAD/CAM and to create complex industrial components and to convert their creative and innovative ideas into reality with the help of software skills and prototyping technology with the industrial grade machines. | Two Weeks   80 Hrs | <p>Validate designs against product requirements</p> <p>Rapidly prepare any part model for NC programming using NX CAM.</p>  |
| LabVIEW Academy | National Instruments (India)  | Industrial Training Program | To acquaint the participants with the basics of how to develop applications in the LabVIEW programming environment.   | 6 Weeks<br>20 Hrs  | <ul style="list-style-type: none"> <li>Interactively acquire and analyze data from NI hardware (NI DAQ devices) and non-NI instruments (GPIB instruments)</li> <li>Create and program a LabVIEW application that acquires, analyzes, and visualizes data</li> <li>Use programming structures, data types, and the analysis and signal processing algorithms in LabVIEW</li> <li>Work with sets of single-channel and multi-channel data</li> <li>Implement a sequencer using a state machine design pattern</li> <li>Use local variables to modify front panel controls or stop parallel loops</li> <li>Apply common design patterns that use queues and events</li> </ul> |

|  |  |  |  |  |   |
|--|--|--|--|--|---|
|  |  |  |  |  | <ul style="list-style-type: none"> <li>● Evaluate file I/O formats and use them in applications</li> <li>● Prepare, build, debug, and deploy stand-alone applications</li> <li>● Ready for Entry-level LabVIEW certification</li> </ul> |
|--|--|--|--|--|---|

### **Infosys Campus Connect Program (CCP)**

As a step towards grooming students into perfect professionals and to make them compatible with the IT industry, the campus connect programme is run by our T&P department which is conducted by Infosys. Under this programme, Infosys has designed and provided a 100 hours teaching module, for which, the faculty at AKGEC has been especially trained by the firm. This module is taught to the top 120 students of third year as an extra course on weekends. In addition to this, Infosys has also provided a range of projects that the students take up as a part of their final year projects. These steps not only help Infosys to reduce their in-house training time but also help the students in acquiring technical skills which make them more suitable for the IT industry.

### **PERSONALITY DEVELOPMENT PROGRAMMES (PDP)**

Academic excellence alone is not enough and cannot guarantee a good career. Certain personality attributes and soft skills are essential not only to get a good job placement but also to be able to contribute and grow in an organization. Taking cognizance of this, the college emphasises all round development through a range of extracurricular activities as well as organizing and conducting formal Personality Development Program.

This programme spanning over 100 hours is conducted by a professional agency and includes training in communication skills, group discussion, interpersonal skills and interviews. This is a mandatory programme for second year B.Tech. students of the college. This programme helps in the overall personality development of students. The whole exercise is intended to increase the employability of students. Amidst an inspiring and invigorating environment, students undergo training that turns them into top notch professionals.

### **CLOUD COMPUTING CELL**

Cloud Computing Cell has been a part of Ajay Kumar Garg Engineering College since February 2016. The members are exposed to the latest Cloud Technologies that enable them to be market ready thereby increasing their opportunities in placements and research. It provides a platform to the students to compute, manage and deploy the cloud. The Cell is coordinated by Dr. Anupama Sharma and Dr. Parneet Kaur, faculty members, IT department. Cloud computing is a growing computing technology that provides almost unlimited computing resources on demand. It connects a number of other technologies like IoT, Big Data, Fog etc. The users of the cloud can access data, applications and storage etc. with least management of the local environment. It can be understood as a delivery system that



delivers computing in the same way as a power grid delivers electricity. The Cloud Computing Cell has successfully installed a private cloud using Apache Cloudstack. Cloudstack works on the IaaS model of cloud where the services are the complete virtual computers that are able to do the computation as on local machines.



**CLOUD COMPUTING CELL**

## Activities

The cell helps students to boost their learning about the latest technological trends. The cell is also promoting research work and projects in the field of cloud computing and related technologies.

The cell conducts a series of activities every year; few of them are mentioned here.

### **Erudition'20**

Cloud Computing Cell conducted a 9-hour interactive workshop Erudition'20 on AWS, GitHub, Raspberry Pi, version control system and other trending topics on IOT. The event included hands-on project for deploying home based Personal Cloud Storage. A Raspberry Pi kit worth ₹ 3000 was awarded to the top performing student in the event.

#### **List Of Winners**

| <b>Position</b> | <b>Names</b>   | <b>Student No.</b> | <b>Award</b>           |
|-----------------|----------------|--------------------|------------------------|
| <b>1st</b>      | Rydam Agrawal  | 1911007            | Raspberry Pi + Goodies |
| <b>2nd</b>      | Aditya Dwivedi | 1931011            | Goodies                |
| <b>3rd</b>      | Sumit Dagar    | 1910091            | Goodies                |

Event coordinators Abhineet Chaudhary (CS – 1710004) & Aditya Gautam

Dates – 28th Feb to 1st March 2020.

  
**Director**  
**Ajay Kumar Garg Engg. College**  
**Ghaziabad**

### **Screening Program of Cloud Computing Cell - SPOCC**

Team CLOUD COMPUTING CELL organized a recruitment drive – SPOCC'19 in odd semester 2019-20. In order to continue the trends of the cell for effective learning and capturing intelligent minds to serve the college in an even bigger and better way, it is necessary to involve the participation of bright and innovative students and prepare them to achieve the common goal therefore we organized this event. The event included two rounds. First round consists of aptitude, HTML-CSS, C LANGUAGE and cloud computing based questions whereas the second round was a personal interview.

### **Workshop on Flutter and Firebase**

Flutter is an app SDK for building high-performance, high-fidelity apps for iOS, Android, web, and desktop from a single codebase.

Firebase is a mobile- and web application development platform, backed by Google, to help developers deliver richer app experiences.

Event coordinators: Prashant Shishodia (CSE- 1610088) & Harsh Gupta (IT – 1613104)

Date: 5th March to 9th March 2019.

### **3rd Inception Day**

Cloud Lab Coordinators: Mr. J. K. Seth, Ms. Anupama Sharma

Date: 19th April, 2019

### **Quizard**

The event was completed in two rounds, the first round presented the question on a web series on a mobile app (developed by CCC) and the second round was based on the questions related to aptitude, programming and puzzles.

The top three winners of the event were awarded with a cash price of 1000, 800 and 500 respectively.

Dates: 22nd and 23rd October 2019.

### **Workshop on Amazon web service with Alexa**

It is a platform that offers flexible, reliable, scalable, easy-to-use, and cost-effective cloud computing solutions. Alexa is the brain behind the Echo devices. Using Alexa is as simple as asking a question to someone—just ask and Alexa will respond. Alexa updates through the cloud automatically and is continually learning, adding new functionality and skills.

Event coordinators: Shivam Dhama (IT) & Lavish Jain (CS)

  
Director  
Ajay Kumar Garg Engg. College  
Ghaziabad

Date: 12th April to 15th April 2018.

### **Workshop on Cloud Computing & Linux**

Cloud Computing is the delivery of computing services which includes servers, storage, databases, networking, software, analytics, and intelligence over the Internet to offer faster innovation, flexible resource management, and boost economies of scale. Linux is a family of open-source operating systems based on the Linux kernel.

Event coordinators: Shivam Dhama (IT) & Shrey Tripathi (CS)

Date: 9th to 11th November 2017.

### **OPEN-SOURCE SOFTWARE R&D CENTER**

In the present-day scenario, the open-source software is replacing the proprietary software because of manifold advantages they have over proprietary software. Even though Free/Open-Source Software (FOSS) is widely used, much of the computer science research community has yet to fully recognise its potential to change the world of research and development of software intensive systems across disciplines.

The establishment of this research and development centre is expected to create a unique opportunity to all stakeholders of the institute. The facility so created shall be useful to carry out research/development/training/consultancy related to open source software. The centre will customize the open source software according to the requirements. It will also train the students and faculties of our institute and will involve them in the development and customisation of recent open source software.

The Open Source Software Research and Development Center will function in the Computer Science & Engineering Department under the supervision of Dr. Sunita Yadav, HoD CSE.

The Composition of the team, the functionaries and the function to be performed are listed below:-

Advisory Board

Dr. R.K. Agarwal, Director, AKGEC (Chairman)

Dr. Sunita Yadav, HoD CSE (Member)

Special Invitees from other departments.

Working Committee

Center Head - HoD CSE

Chief Organiser - Dr. Arun Kumar Yadav

Project Implementation Committee

Principal Investigator(PI) - Faculty, on project basis

Research Assistant(RA) - Student, on project basis

### **Activities/Events**

  
Director  
Ajay Kumar Garg Engg. College  
Ghaziabad

## **Cypher 20**

OSS R&D Centre, conducted “Cypher’20” – a Workshop on Web security on 29th February & 1st March 2020. ‘Cypher’20’ was a workshop conducted to spread awareness amongst college students about cyber security paving a way towards building a strong foundation. The workshop was mainly focused on ways to secure application and spread awareness about threats in modern technology and ways to prevent them.

The workshop was successfully conducted in the Computer Centre – 1 (CS-IT Block) from 9:00 am to 5:00 pm on 29th March 2020 and 9:00 am to 5:00 pm on 1st March 2020. Total 72 students registered for the workshop. The workshop fulfilled its main purpose- ‘To introduce the students the basics of web security and spread awareness for it.

## **Code-O-Fiesta 2019**

OSS R&D Centre, AKGEC in association with CodeChef conducted “Code-O-Fiesta 2019 – an Online Coding Contest on 26 September 2019. ‘Code-O-Fiesta’ was an initiative which aroused a combative attitude that paved a way towards building a strong foundation. The contest was basically a step to upgrade the knowledge and combative spirit of students regarding their coding skills and competence. The contest was successfully conducted in the CSE Labs from 4:00 pm to 6:30 pm on 26 September 2019. Total 70 teams (97 Students) registered for the event and out of these 43 teams (69 Students) actually participated in the event. Out of total registered teams, 18 teams (27 students) were from non CS/IT branches. A set of 5 questions were given to the candidates to solve within the time limit (2 hours) and teams were ranked by CodeChef on the basis of marks and the time engrossed to solve the problem.

## **CodeChef Event 2017**

The event was conducted on 6 September, 2017 where over 60 teams participated in the coding event powered by CodeChef and OSSRND. The top 3 teams were awarded with Rs 1000, Rs 800 and Rs 500 respectively and certificates.

## **The Triwizard Tournament 2017**

The event was conducted on 4 March 2017 where over 30 teams participated in the first round. In the final round 3 teams were selected based on their coding performance in previous rounds. The winning teams were awarded with certificates.

## **BIG DATA CENTRE OF EXCELLENCE**

It is the Research and Development centre of AKGEC. It is the first “Centre of Excellence ” in AKTU, working in the field of BigData. It was established in 2013 and since 4 years it has been motivating and guiding the students into the world of Big Data. Big Data is the most trending technology of the 21st century. It is the hottest market currently. Companies require

Big Data Analysts to analyze the large amount of data being generated and gain insights from the data. Businesses are focusing more on agility and innovation, adopting BigData technologies to help the companies achieve that in no time. The team aspires to develop skills in Big Data and gradually move from Machine Learning to Deep Learning and finally Artificial Intelligence.

The various technologies on which the team works are:

Machine Learning ,

Blockchain,

Deep Learning

Big Data Technologies Apache Hadoop, Apache Spark, Apache Flink, Apache Pig, Apache Hive, Apache Kafka, MongoDB, Apache Mahout, Cassandra, etc.

Web Development Angular, Django, PHP

Android Development Kotlin, Java

### **Activities/Events**

Since its establishment, the centre is progressing tremendously, winning several online competitions as well as intercollege competitions in Big Data domain. The members of the centre participate in teams also and compete on national level.

Most fascinating and knowledge-earning activity is “Knowledge Transfer Session” that takes place every week in the lab itself. During this session, the members share their knowledge on a topic, with other members and also clarify the doubts so that all members stand on the same level. This creates a very interesting and motivating environment in the lab itself.

### **Detail of Event**

Abhyantriki – Intra College 48-Hour Hackathon by Big Data Centre of Excellence (BDCoE)

Dates: 16th – 17th November, 2019

Prizes, if any: Prize Rs. 3000/- (Utkarsh Srivastava, IV Year CSE; Shresth Jauhari, IV Year CSE; Vibhas Saxena, III Year CSE)

Theme of the event: The sole purpose of Abhyantriki was to create awareness about the vital technical skills needed for the students to help them participate in National Level Hackathons in the future. Abhyantriki provided a platform where the students were motivated and guided by the members of BDCoE in making their projects.

**Event Name:** 4th Foundation Day

Date: 10th April, 2019

Co-ordinators: Dr. Sushil Kumar and Ms. Anu Gupta

**Event Name:** 4 Days Workshop on Machine Learning with Python

Dates: 25th-28th Feb, 2019

**Details of event:**

  
Director  
Ajay Kumar Garg Engg. College  
Ghaziabad

A four Day workshop was organized by Big Data Centre of Excellence on “Machine Learning with Python” under Dr. Sushil Kumar (Assistant Professor) and Ms. Anu Gupta, (Assistant Professor) Co-ordinator Big Data Centre of Excellence (BDCoE). The workshop commenced on 25th February, 2019 and successfully ended on 28th February, 2019. The students were taught basics of Python, Statistics, and various machine learning algorithms along with hands-on practice on Jupyter Notebooks. A total of 36 students successfully completed the workshop. After the successful completion of the workshop, a competition was hosted on Kaggle and top three winning students were awarded with the cash prize of worth Rs. 500, Rs.300 and Rs. 200 respectively along with a certificate of appreciation.

Centre has been conducting various activities to guide more and more students into the world of Big Data and to provide them a start so that they can excel in their interest. Various events conducted by the centre are-

- Seminar for awareness regarding Big Data
- Recruitment drive to recruit new members.
- Training of newly recruited trainees
- Workshop open to students of or college from all the branches and all the years
- A game event open to all the students
- Internal Hackathon- projects on Big Data

**The workshops and courses conducted till date are:**

- Complete course on Hadoop Ecosystem
- Workshop on Pig and Hive
- Seminar on Big Data technologies
- Workshop on Data Science with R
- Machine Learning and Introduction to neural networks.
- 17th and 18th February 2018, a 12 hours workshop was conducted , on the topic- “Machine Learning and Introduction to neural networks”. The event was a great success with maximum participation from the students of 1st, 2nd and 3rd year.

**Faculty coordinators-**

Dr Ruchi Gupta (Associate Professor)

Mr. Rahul Sharma (Assistant Professor)

Mr Sarvachan Verma (Assistant Professor)

  
Director  
Ajay Kumar Garg Engg. College  
Ghaziabad



BIG DATA CENTRE OF EXCELLENCE

### **Evidence of Success:**

The above initiatives and measures taken by the college to bridge the gap between industry requirements and academic curriculum have paid very rich dividends in improving the employability of students.

### **ANVESHANA 2021**

Students of Ajay Kumar Garg Engineering College along with school students participated in ANVESHANA PROJECT COMPETITION 2021 which concluded on 15 March, 2021 virtually on Zoom platform due to Covid-19.

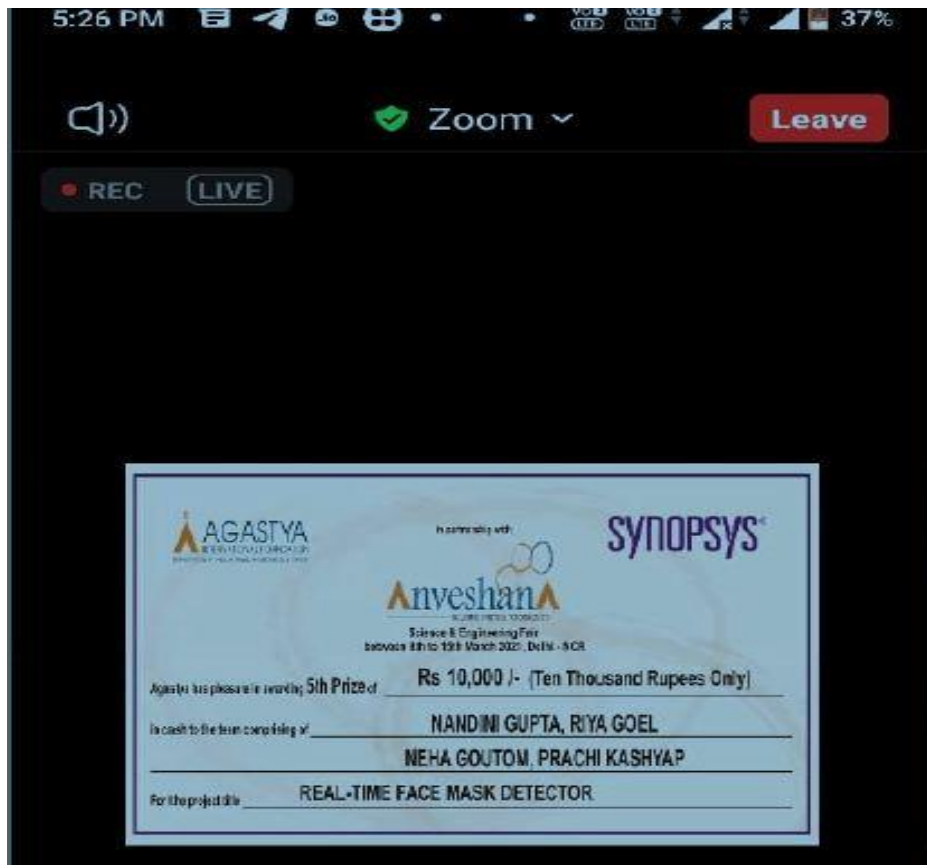
Anveshana Delhi NCR-2021 (Science and Engineering Fair)—is the culmination of several months' effort and collaboration between Government School pupils and Engineering College Students in the spirit of scientific enquiry. A bridge of knowledge and mentoring has been built between college students and school students. This Program is being conducted every year from 2012 in Bangalore, from 2014 in Hyderabad, from 2016 in Delhi NCR and from 2019 in Mumbai. Anveshana is conducted by Agastya International Foundation and Synopsys India pvt ltd. Agastya is Bangalore based NGO and Synopsys is US Based IT Consulting firm, with offices in northern and southern part of India.

This year 40 Finalists have been selected out of 150 Projects received from 22 Engineering Colleges from Delhi, Haryana, Rajasthan, UP and MP and then they added 2 Schools students in each team from different 32 Government Schools from all 5 states mentioned above. Due to Covid-19, this program was conducted virtually through Zoom Application. Chief Guest, Mr. Dharmendra Kumar, Deputy Secretary, Ministry of Home Affairs Joined the Valedictory ceremony with Agastya's Chairman, Ramji Raghavan, Head of Operation, Mr. Sai Chandrasekhar, General

**Director**  
**Ajay Kumar Garg Engg. College**  
**Ghaziabad**

Manager-Programs-TS Suresh and Lead HR-Synopsys, Shahla Sultana. Two judges, Dr. Prakash from Shiv Nadar University and Mr. Deepak Rai from NIT, Patna, joined for the evaluation process and saw all 40 Finalist Team Presentations scheduled between 9th to 12th March, 2021 and helped to find out top 10 teams to be awarded.

Initially, out of 6 teams from our college, four teams were qualified for finals. However, out of four, only one team qualified in the final round of Anveshna 2021. Students who qualified in finals won 5th prize worth Rs. 10,000 for their project titled "Real-Time Face Mask Detector". The project was highly admired by the audience as well as judges. Perhaps our students were unable to groom the school students up to the level of 1st prize winning students.



ANVESHANA 2021

## SHANKARA HACKATHON 2021

Students of Ajay Kumar Garg Engineering College participated in SHANKARA HACKATHON 2021 was during 19-20 March, 2021 at Shankara Institute of Technology, Jaipur.

SHANKARA HACKATHON is a 36 hour continuous design sprint-like event in which computer programmers and others involved in software development, including graphic designers, interface

Director  
Ajay Kumar Garg Engg. College  
Ghaziabad



designers, project managers and others often including domain experts, collaborate intensively on software projects. The competition was organized by Shankara Group of Institutions in association with TEQIP-III and Rajasthan Technical University, Jaipur. The event was inaugurated by Shri. Kalraj Mishra, Hon'ble Governor of Rajasthan, along with the special Guest of Honour H.E. Julius Pranevicius, Ambassador of Lithuania in India, and Shri. Subhash Garg, Hon'ble Minister for Technical Education, Government of Rajasthan.

Around 130 projects were presented from different colleges all over India. Our college students presented two projects out of which the project titled "Smart Education System during Lockdown" won the First prize of Rs.25,000. Both projects were highly appreciated by the jury. The closing ceremony was honoured by Shri. Ashwani Kumar Choubey, Hon'ble Minister of State for Health and Family Welfare, and the special Guest of Honour was H.E. Dr. Ali Chegeni, Ambassador of Iran in India, Shri. Subhash Garg, Hon'ble Minister of Technical Education, Government of Rajasthan, Dr. D.Y. Patil, Former Governor of Tripura, Bihar and West Bengal and Founder of D.Y. Patil University, and Prof. R.A. Gupta, (Hon'ble Vice – Chancellor, RTU, Kota.



Shankara Hackathon, 2021

### **Shankara Hackathon, 2020**

The team TECHNOXIANS, a project team of B.Tech students at AKGEC, bagged the first runner up position in the event Shankara Hackathon 2020 held at SIT Jaipur during 28-29 February,

Director  
Ajay Kumar Garg Engg. College  
Ghaziabad

2020. The 36 hour event, sponsored by TEPIQ III, was inaugurated by Hon'ble Governor of Rajasthan Shri Kalraj Mishra Ji along with various other cabinet ministers. The team TECHNOXIANS presented their innovative solution on Smart System to clear the way for ambulances and alert the hospital about the seriousness in advance. The solution was highly appreciated by the jury members.



Shankara Hackathon, 2020

### **LAAL Ten Tech, 2020**

Team LAAL Ten Tech, a startup of IDEA Lab at AKGEC won the cash prize of Rs. 20,000 as a 2nd runner up in Idea Pitching Competition at Startup Conclave organized by IMS Ghaziabad-University Courses Campus and sponsored by Ghaziabad Management Association.

### **PARTICIPATION IN TECHSTARS STARTUP WEEKEND 2020**

Software Development Centre (SDC), AKGEC, represented the College at Techstars Startup Weekend 2020 powered by Google. The event, a 54-hour event where designers, developers, marketers and startup enthusiasts come together to share ideas, form teams and launch startups was held from 31 January, 2020 to 02 February, 2020 at IMT Ghaziabad. The event was attended by 70+ participants wherein 24 ideas pitched. Of the ten final ideas selected, five were presented by AKGEC SDC teams.

Team of AKGEC and IMT students was awarded certification by Google, a free domain name for its members and vouchers for achieving second position in the event. The winning team presented their idea of building an integrated platform for all the NGOs, corporates and professionals – a one stop solution for anyone who wants to contribute to the society.

AKGEC Team Members

  
Director  
Ajay Kumar Garg Engg. College  
Ghaziabad

|                  |                    |
|------------------|--------------------|
| Arnav Jain       | B.Tech II Year IT  |
| Srishti          | B.Tech II Year EC  |
| Muskan Agrawal   | B.Tech II Year CSE |
| Sachin Prajapati | B.Tech II Year EN  |

## **Startup Weekend, 2020**

AKGEC is proud to congratulate its students Ravi Gupta (B.Tech IV Year EN) and Vaibhav Lakhmani (B.Tech III Year IT) for winning the first prize for their innovative idea ILUZIO VR in the 54 hour Techstars Startups Weekend held at Noida during 27-29 September, 2019. ILUZIO VR is based on VR based learning in schools.

Techstars Startups Weekend Event, powered by Google, is an open platform for the innovators and entrepreneurs to present their startup idea and also to explore themselves the ideas for product development, business model canvas and validation.



**Startup Weekend, 2020**

## **CST Grant For Project 'Smart Home Technology For Persons With Mobility Impairment'**

Students of B.Tech IV year CSE successfully completed project 'Smart Home Technology for Persons with Mobility Impairment' under guidance of Dr. Sunita Yadav, HoD CSE. The project received a grant of Rs. 20,600 from Council of Science & Technology, DST, U.P under the UP Engineering Students' Grant Scheme 2018-19.

Director  
Ajay Kumar Garg Engg. College  
Ghaziabad

Smart Home System is a fully functional system that uses WIFI modules implemented using Android applications. It enables users to control appliances and machines which are Raspberry Pi enabled, with just one touch thus making it easy to be used by people with mobility impairment. The focus of this application also includes directing a security system with webcam surveillance.

### Team Members

|                                       |                                      |  |  |
|---------------------------------------|--------------------------------------|--|--|
| IV Year CSE<br>B.Tech<br>Harleen Kaur | IV Year CSE<br>B.Tech<br>Ayushi Goel | IV Year CSE<br>B.Tech<br>Disha Bhatnagar | IV Year CSE<br>B.Tech<br>Deeksha Singh |
|---------------------------------------|--------------------------------------|--|--|



Smart Home Technology

### Outstanding Positions In CII MAJESTIC SKILL-WILL-LEAD Competitions

| Date | Venue | AKGEC Team |  | Idea | Position |
|------|-------|------------|--|------|----------|
|      |       |            |  |      |          |

*Aj*  
**Director**  
**Ajay Kumar Garg Engg. College**  
**Ghaziabad**

|                        |       |   |  |                                       |   |
|------------------------|-------|---|--|---------------------------------------|---|
| 25<br>October,<br>2018 | AKGEC | Utkarsh Dwivedi<br>Divyanshu Paliwal<br>Yashwant Verma<br>Mahima Baghel | B.Tech III<br>Year ,ME<br>B.Tech II<br>Year ME | Refrigeration and Air<br>Conditioning | I |
|------------------------|-------|---|--|---------------------------------------|---|

**Second Position For The Project Smart Agriculturist Support System (SASS) In Niyanttra-2017 Hosted By National Instruments**



Smart Agriculturist Support System

**Third Appreciation Prize For Project Smart Inspection Based Sorting System In Mitsubishi Electric Cup-2018**

*A.K.G.*  
Director  
Ajay Kumar Garg Engg. College  
Ghaziabad



Mitsubishi Electric Cup-2018

**Runner Up Gradeability Award For Design Of Hybrid Vehicle In EFFICYCLE-17 Event At Lovely Professional University**



EFFICYCLE-17

**Future plans:** To promote research and development and to transform the innovative ideas into business ventures.

  
Director  
Ajay Kumar Garg Engg. College  
Ghaziabad