TECH SAMACHAR

Fuel your mind! Ignite your Imagination!!!

CSE

Department of
COMPUTER SCIENCE &
Engineering

Department of Computer Science and Engineering

VISION

" To contribute to Global Development by producing Knowledgeable and Quality professionals who are Innovative and Successful in advanced field of Computer Science & Engineering to adapt the changing Employment demands and social need "

MISSION

M1: To provide Quality Education for students, to build Confidence by developing their Technical Skills to make them Competitive Computer Science Engineers.

M2: To facilitate Innovation & Research for students and faculty and to provide Internship opportunities

M3: To Collaborate with educational institutions and industries for Excellence in Teaching and Research.

Department of
**Computer Science
and Engineering**

About the Department

The Department of Computer Science & Engineering was started in the year 2001 is known for imparting Quality education and carrying out cutting edge research. In addition to the UG program, PG CSE program and Research facilities for Ph.D. The department offers undergraduate program and has a comprehensive curriculum on topics related to software and hardware with an emphasis on theoretical and practical learning. It has well equipped, state of the art laboratories supported by highspeed Internet and wireless networks.

The students of CSE Department deliver value to the department with a dynamic character and active culture towards learning and delivering through assigned projects guided by faculty. The faculty members are highly qualified experienced and dedicated. All faculty members are masters, some doctorates and few are pursuing their Ph.D. from various reputed universities. All are inspired in delivering top class education blending their research in the area of information technology. The infrastructure of the department provides the student and staff a conducive learning environment.

The Department regularly organizes industrial visits, conferences, workshops, technical talks, project exhibitions for the faculty and students training by using in- house resources as well as industry experts. This helps in effectively bridging the gap between academic and industry.

Dr K. R. Paramahamsa

Chairman, AMC – CITY – BROOKLYN – CAMBRIDGE Group of Institutions

Tech Samachar is particularly important as it encourages the students to share the knowledge they have acquired. Writing articles for the Newsletter also improves the communication skills of the budding engineers of the Computer Science and Engineering Department. It is common knowledge that representation of an idea is as important as, if not more important, than the idea itself.

Tech Samachar aims to inspire and nurture upcoming Engineers to bring a revolution in this ever-evolving world of Technology. The Newsletter captures the current Technological advancements.

To conclude I would like to congratulate the faculty and the students of the editorial team on bringing out this Issue of Tech Samachar. I am glad to see that they have lived up to the high standards and my best wishes to the students for a bright future.

Dr. Thippeswamy H N

Principal, City Engineering College

Congratulations to the students and faculty associated to Newsletter committee for successfully publishing this Issue of Departmental Technical Newsletter Tech Samachar. Tech Samachar is creating platform which provides an opportunity to the students and staff to express their original thoughts on technical topics.

The Newsletter plays an important role in providing exposure to the students to develop written communication skills and command over the language. It is a step towards building professional and ethical attitude in them. The entire journey of creating Tech Samachar is an outcome of rigorous effort made by students and faculty. Students not only gain the knowledge about the latest technological developments and advancements through reading and writing articles but they also develop verbal and written communication skills.

On concluding note, I would like to thank all the stakeholders for their involvement and encouragement and wish All the Best for their bright future.

Dr. Sowmya

HOD, Computer Science and Engineering

It is a moment of joy and great satisfaction to bring out the Volume 2, Issue 2 of Tech Samachar, Monthly Newsletter from department of Computer Science and Engineering. Tech Samachar is a platform where all the department activities are brought under one folder. This monthly newsletter showcases active involvement of our students in various creative events, hidden talents of our aspiring students and highlights the milestones attained by the Institution and achievements of department.

Tech Samachar is all about the technology that motivates students to do something, that leaves an eternal mark on the world of Technology. Thus, it was our job to ensure inspiring technological developments are being brought to the students of CEC, by the students of CEC itself. I congratulate the entire editorial team for their effort in bringing out "Tech Samachar" in a very innovative way.

From Editor's Desk

It is indeed a great pleasure to introduce "Tech Samachar" Volume 2 Issue 2. At the outset, on behalf of the entire Computer Science and Engineering Department and all the readers we extend our whole hearted gratitude to our beloved Chairman, Dr. K. R. PARAMAHAMSA, to our principal Dr. Thippeswamy H N, and also to our HOD Dr. Sowmya, for their dynamic, inspirational, enthusiastic contribution and motivation towards our department also boosting our confidence for the publishing Monthly Newsletter TECH SAMACHAR. This technical newsletter named 'TECH SAMACHAR' signifies an giving out of current technical datum. We are happy to see such enthusiasm in the members of the college towards contributing to this magazine. Team 'TECH SAMACHAR' will always remain grateful for the massive support and interest shown by you all.

Computer Science and Engineering is an ever-expanding field and the power what technology holds today is definitely beyond one's imagination rendering impressive set of ideas. We hope all the readers will enjoy this issue as much as we enjoyed creating it.

 Happy Reading!!

Prof. AMBIKA P R, *Asst. Professor, CSE*

Prof. ARCHANA BHAT, *Asst. Professor, CSE*

Prof. LAXMI M C, *Asst. Professor, CSE*

STUDENT EDITORIAL TEAM

Namratha S, 8th Sem

Karthik A.N, 8th Sem

Udank Aarun Jain, 8th Sem

Priya Singh, 8th Sem

Mrudula S, 6th Sem

Iqra Fathima, 6th Sem

Charan Simha D, 6th Sem

Shalini R, 6th Sem

Rahul Mulge, 6th Sem

CONTENTS

5G

(5ᵗʰ Generation Technology)

What is 5G?

5G is the 5th generation mobile network. It is a new global wireless standard after 1G, 2G, 3G, and 4G networks. 5G enables a new kind of network that is designed to connect virtually everyone and everything together including machines, objects, and devices. 5G wireless technology is meant to deliver higher multi-Gbps peak data speeds, ultra-low latency, more reliability, massive network capacity, increased availability, and a more uniform user experience to more users. Higher performance and improved efficiency empower new user experiences and connects new industries.

Who invented 5G?

No one company or person owns 5G, but there are several companies within the mobile ecosystem that are contributing to bringing 5G to life. Qualcomm has played a major role in inventing the many foundational technologies that drive the industry forward and make up 5G, the next wireless standard.

History

The previous generations of mobile networks are 1G, 2G, 3G, and 4G.

1. **First generation - 1G**
   1980s: 1G delivered analog voice.

2. **Second generation - 2G**
   Early 1990s: 2G introduced digital voice (e.g., CDMA- Code Division Multiple Access).

3. **Third generation - 3G**
   Early 2000s: 3G brought mobile data (e.g., CDMA2000).

4. **Fourth generation - 4G LTE**
   2010s: 4G LTE ushered in the era of mobile broadband.

5G is a unified, more capable air interface. It has been designed with an extended capacity to enable next-generation user experiences, empower new deployment models and deliver new services.

With high speeds, superior reliability and negligible latency, 5G will expand the mobile ecosystem into new realms. 5G will impact every industry, making safer transportation, remote healthcare, precision agriculture, digitized logistics and more a reality.

Features of 5G
Where is 5G being used?

Enhanced Mobile Broadband
In addition to making our smartphones better, 5G mobile technology can usher in new immersive experiences such as VR and AR with faster, more uniform data rates, lower latency, and lower cost-per-bit.
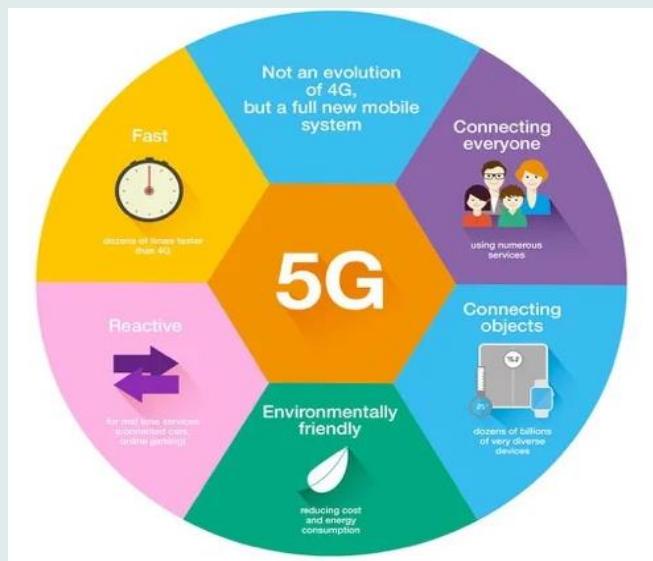
Mission-critical communications
5G can enable new services that can transform industries with ultra-reliable, available, low-latency links like remote control of critical infrastructure, vehicles, and medical procedures.

Massive IoT
5G is meant to seamlessly connect a massive number of embedded sensors in virtually everything through the ability to scale down in data rates, power, and mobility—providing extremely lean and low-cost connectivity solutions.

How fast is 5G?

5G is designed to deliver peak data rates up to 20 Gbps based on IMT-2020 requirements. Qualcomm Technologies' flagship 5G solutions, the Qualcomm® Snapdragon™ X65 is designed to achieve up to 10 Gbps in downlink peak data rates. But 5G is about more than just how fast it is. In addition to higher peak data rates, 5G is designed to provide much more network capacity by expanding into new spectrum, such as mm Wave.

5G can also deliver much lower latency for a more immediate response and can provide an overall more uniform user experience so that the data rates stay consistently high—even when users are moving around. And the new 5G NR mobile network is backed up by a Gigabit LTE coverage foundation, which can provide ubiquitous Gigabit-class connectivity.

Disadvantages of 5G

❖ Obstructions can impact connectivity
❖ Initial costs for rollout are high
❖ Limitations of rural access
❖ Battery drains on devices
❖ Upload speeds don't match download speeds
❖ Detracting from the aesthetics.

By,
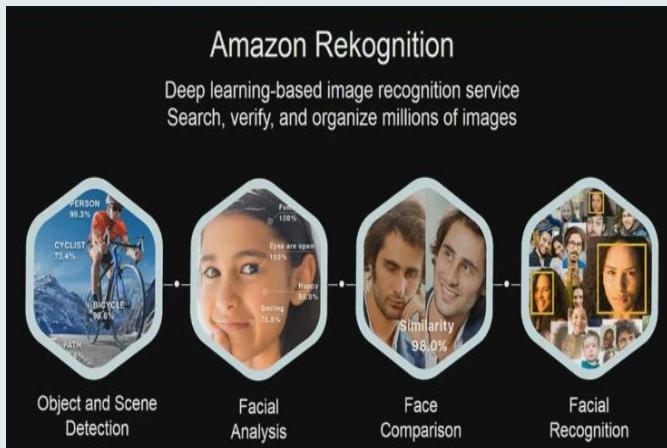
Prof. Shruti Vijay

Assistant Professor, Dept of CSE

Introduction

Amazon Rekognition makes it easy to add image and video analysis to your applications. You just provide an image or video to the Amazon Rekognition API, and the service can identify objects, people, text, scenes, and activities. It can detect any inappropriate content as well. Amazon Rekognition also provides highly accurate facial analysis, face comparison, and face search capabilities. You can detect, analyze, and compare faces for a wide variety of use cases, including user verification, cataloging, people counting, and public safety.

Amazon Rekognition is based on the same proven, highly scalable, deep learning technology developed by Amazon's computer vision scientists to analyze billions of images and videos daily. It requires no machine learning expertise to use.

Amazon Rekognition includes a simple, easy-to-use API that can quickly analyze any image or

video file that's stored in Amazon S3. Amazon Rekognition is always learning from new data, and we're continually adding new labels and facial comparison features to the service. For more information, see Common use cases for using Amazon Rekognition include the following:

- **Searchable image and video libraries** – Amazon Rekognition makes images and stored videos searchable so you can discover objects and scenes that appear within them.

- **Face-based user verification** – Amazon Rekognition enables your applications to confirm user identities by comparing their live image with a reference image.

- **Detection of Personal Protective Equipment**

  Amazon Rekognition detects Personal Protective Equipment (PPE) such as face covers, head covers, and hand covers on persons in images. You can use PPE detection where safety is the highest priority. For example, industries such as construction, manufacturing, healthcare, food

processing, logistics, and retail. With PPE detection, you can automatically detect if a person is wearing a specific type of PPE. You can use the detection results to send a notification or to identify places where safety warnings or training practices can be improved.

- **Sentiment and demographic analysis** – Amazon Rekognition interprets emotional expressions such as happy, sad, or surprise, and demographic information such as gender from facial images. Amazon Rekognition can analyze images, and send the emotion and demographic attributes to Amazon Redshift for periodic reporting on trends such as in store locations and similar scenarios. Note that a prediction of an emotional expression is based on the physical appearance of a person's face only. It is not indicative of a person's internal emotional state, and Rekognition should not be used to make such a determination.

- **Facial Search** – With Amazon Rekognition, you can search images, stored videos, and streaming videos for faces that match those stored in a container known as a face collection. A face collection is an index of faces that you own and manage. Searching for people based on their faces requires two major steps in Amazon Rekognition:

1. Index the faces.
2. Search the faces.

- **Unsafe content detection** – Amazon Rekognition can detect adult and violent content in images and in stored videos. Developers can use the returned metadata to filter inappropriate content based on their business needs. Beyond flagging an image based on the presence of unsafe content, the API also returns a hierarchical list of labels with confidence scores. These labels indicate specific categories of unsafe content, which enables granular filtering and management of large volumes of user-generated content (UGC). Examples include social and dating sites, photo sharing platforms, blogs and forums, apps for children, ecommerce sites, entertainment, and online advertising services.

- **Celebrity recognition** – Amazon Rekognition can recognize celebrities within supplied images and in videos. Amazon Rekognition can recognize thousands of celebrities across a number of categories, such as politics, sports, business, entertainment, and media.

- **Text detection** – Amazon Rekognition Text in Image enables you to recognize and extract textual content from images. Text in Image supports most fonts, including highly stylized ones. It detects text and numbers in different orientations, such as those commonly found in banners and posters. In image sharing and social media applications, you can use it to enable visual search based on an index of images that contain the same keywords. In media and entertainment applications, you can catalog videos based on relevant text on screen, such as ads, news, sport scores, and captions. Finally, in public safety applications, you can identify vehicles based on license plate numbers from images taken by street cameras.

- **Custom labels**– With Amazon Rekognition Custom Labels, you can identify the objects and scenes in images that are specific to your business needs. For example, you can find your logo in social media posts, identify your products on store shelves, classify machine parts in an

assembly line, distinguish healthy and infected plants, or detect animated characters in videos. For more information in the *Amazon Rekognition Custom Labels Developer Guide*.

Some of the benefits of using Amazon Rekognition include:

- **Integrating powerful image and video analysis into your apps** – You don't need computer vision or deep learning expertise to take advantage of the reliable image and video analysis in Amazon Rekognition. With the API, you can easily and quickly build image and video analysis into any web, mobile, or connected device application.

- **Deep learning-based image and video analysis** – Amazon Rekognition uses deep-learning technology to accurately analyze images, find and compare faces in images, and detect objects and scenes within your images and videos.

- **Scalable image analysis** – Amazon Rekognition enables you to analyze millions of images so you can curate and organize massive amounts of visual data.

- **Integration with other AWS services** – Amazon Rekognition is designed to work seamlessly with other AWS services like Amazon S3 and AWS Lambda. You can call the Amazon Rekognition API directly from Lambda in response to Amazon S3 events. Because Amazon S3 and Lambda scale automatically in response to your application's demand, you can build scalable, affordable, and reliable image analysis applications. For example, each time a person arrives at your residence, your door camera can upload a photo of the visitor to Amazon S3. This triggers a Lambda function that uses Amazon Rekognition API operations to identify your guest. You can run analysis directly on images that are stored in Amazon S3 without having to load or move the data. Support for AWS Identity and Access Management (IAM) makes it easy to securely control access to Amazon Rekognition API operations. Using IAM, you can create and manage AWS users and groups to grant the appropriate access to your developers and end users.
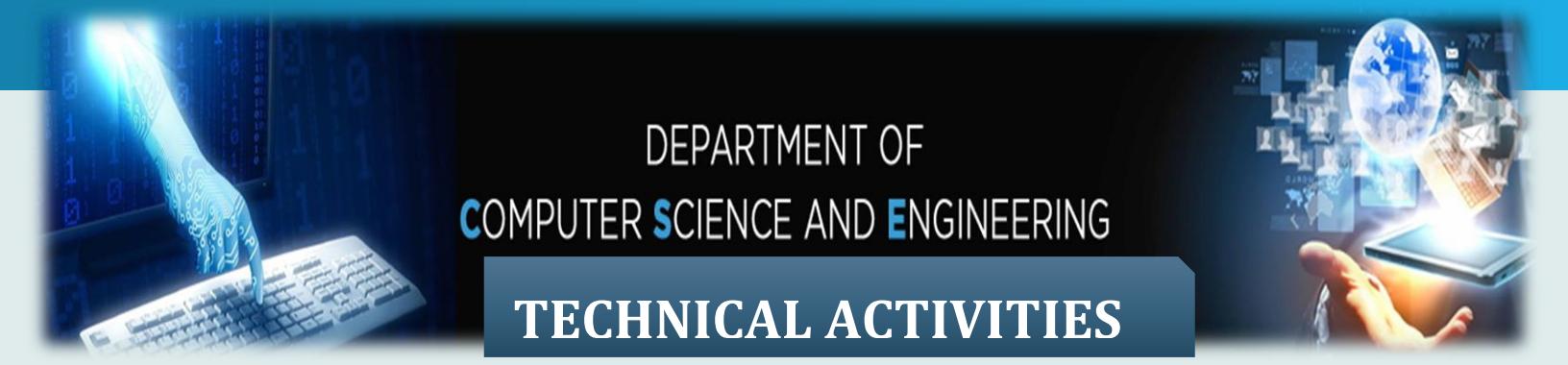
- **Low cost** – With Amazon Rekognition, you pay for the images and videos that you analyze, and the face metadata that you store. There are no minimum fees or upfront commitments. You can get started for free, and save more as you grow with the Amazon Rekognition tiered pricing model.

By,

Prof. Ramesh B

Assistant Professor, Dept. of CSE

TECHNICAL ACTIVITIES

ITECH Collage was organized for the 6th semester students on May 20th, 2022.

CITY ENGINEERING COLLEGE, BANGALORE

Department of Computer Science and Engineering
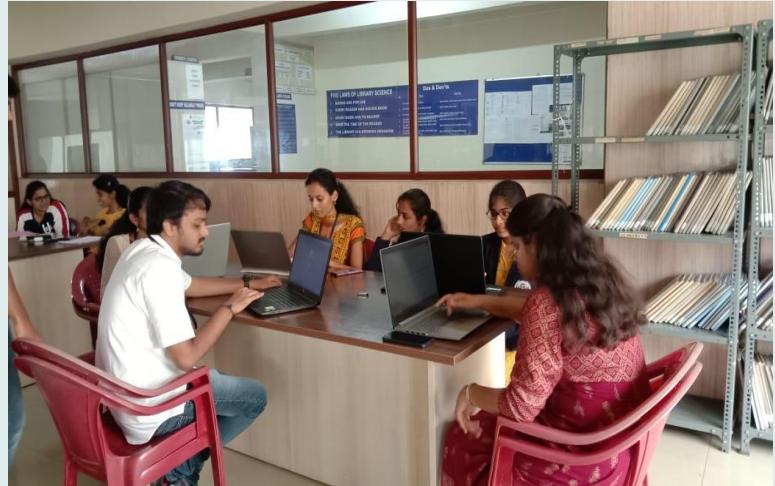
Proudly Presents

ITECH COLLAGE

Date: 20-05-2022
Time: 2PM to 4PM

Participants:
6th Semester Students

Organized By:
Dr. Vagdevi
Prof. Nandini S B

DEPARTMENT OF
COMPUTER SCIENCE AND ENGINEERING

INDUSTRIAL VISIT
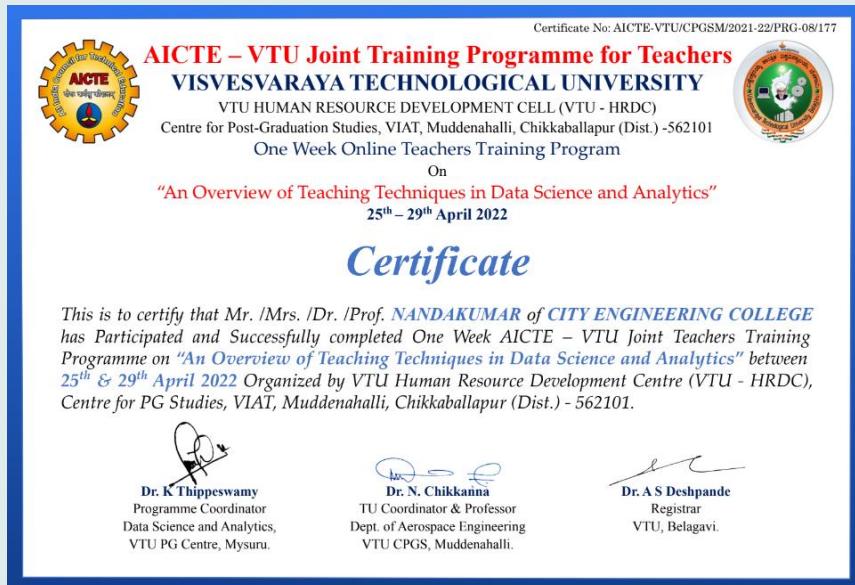
Industrial visit to **NATIONAL INSTITUTE OF OCEANOGRAPHY, GOA** was organized for the 8th semester students from May 22nd to 25th, 2022.

DEPARTMENT ACHIEVEMENT

DR. NANDAKUMAR, Professor from Dept. of CSE, has Participated and Successfully completed One Week AICTE – VTU Joint Teachers Training Programme on "An Overview of Teaching Techniques in Data Science and Analytics" between 25th & 29th April 2022 Organized by VTU Human Resource Development Centre (VTU - HRDC).

Prof. Nandini S.B, Asst. Professor, from Dept. of CSE, has Participated 5 Days FDP on "Technical writing with LATEX" between 7th & 11th March 2022 Organized by

BIT Bangalore.

DEPARTMENT ACHIEVEMENT

Ms. Mrudula S Prasad, Ms. Ananya Bhombare, Mr. Fozail Ahmed and Mr. Charan Simha

Participated in Hackwell 3.0, 48-hour hackathon organized by Honeywell at JSSATE, Bengaluru, held on 27th to 29th April 2022.

PLACEMENT

Congratulations

To 2021-22 Batch for getting placed in Campus placement

Saniya Samreen
1CE18CS068
Cap Gemini
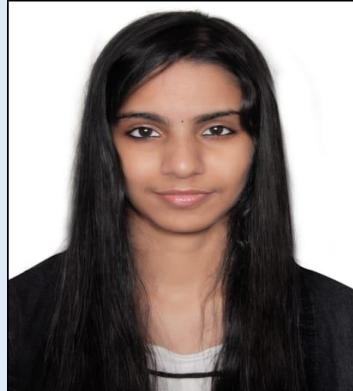
Shweta C
1CE18CS079
Infosys

Divya G.
1CE18CS017
Cap Gemini

Suraj S.
1CE18CS085
Computacenter India

Prathisha K.S. Karanth
1CE18CS057
ITC InfoTech India

Keerthy Sri
1CE18CS035
ITC InfoTech India

HOW TO CHOOSE CAREER CAREFULLY...

What career to choose or what you want to do in the future have always been a big dilemma in many of the student's life. With the infinite number of career options open to us today it is really hard to pick one and stick to it.

So how can you take the right steps towards a fulfilling career? Here are few tips that might help you in picking the right career.

Congratulations

TO 2020–21 BATCH FOR GETTING PLACED IN CAMPUS PLACEMENT

Shaziya Kousar

1CE17CS115

Balaji Everest technologies

- ✓ Perform a self evaluation

- ✓ Identify appropriate skill sets

- ✓ Take a career test

- ✓ Do your homework

- ✓ Get an internship

- ✓ Shadow people

- ✓ Spend time at their place of work.

Your Career is a Marathon not a Sprint

Seminar on "Career Avenues" with different technologies like cloud computing, ethical hacking, block chain technologies held on 5th May 2022

CITY
ENGINEERING COLLEGE
Jayanagar Education Society (R)

VISION

Making Remarkable Contribution by Disseminating Knowledge on emerging trends in Engineering and Technology through various Programmes to Excel in Quality both at National and International level and to provide Career Guidance & Training for Employment.

MISSION

M1-To Encourage Knowledge Acquisition and Faster Innovation and Research.

M2-To Prepare Students for Immediate Employment, leading to Technological and Socio-Economical growth.

M3-To Provide Guidance for a productive career under various programmes.

OUR STORY

City Group of Institutions, established in 2001 by a prominent educationist Dr K R Paramahamsa are spread across five campuses in Bengaluru imparting quality education to thousands of students through its Schools, PU Colleges, Engineering Colleges, Commerce and Management Colleges, Faculty of Science and Computer Applications and Research Centres.

The group is committed to offering programs that promotes theoretical, analytical and logical growth of students through selected combinations of general education and skill specific value added programs across verticals to achieve outstanding academic output.

City Engineering College was established under Jayanagar Education Society and located in Vasanthpura, Kanakapura Road, Bengaluru. The Campus has spread out in 12 acres of land with unique style of buildings.

The institution believes in providing high quality education to the prospective professionals of the country for which necessary quality bench marks have been put in place, in the areas of faculty recruitment, development, training & placement, teaching process, student's grooming, external academic audits and feedback system for academic enhancement.

COURSES OFFERED

B.E Computer Science & Engineering

B.E Artificial Intelligence & Machine Learning

B.E Electronics & Communication Engineering

B.E Information Science & Engineering

B.E Mechanical Engineering

B.E Civil Engineering

M.Tech Computer Science & Engineering

RESEARCH CENTRE

Computer Science & Engineering

Mechanical Engineering