| ISO 9001:2015 | AICTE-CII: GOLD Category Institute | NAAC-'A' Grade Institute (CGPA: 3.21) |

KAKATIYA INSTITUTE OF TECHNOLOGY & SCIENCE
Opp : Yerragattu Gutta, Hasanparthy (Mandal), WARANGAL - 506015, TELANGANA, INDIA
काकतीय प्रौद्योगिकी एवं विज्ञान संस्थान, वरंगल – ५०६०१५, तेलंगाना, भारत
కాకతీయ సాంకేతిక విజ్ఞాన శాస్త్ర విద్యాలయం, వరంగల్ – ౫౦౬ ౦౧౫ తెలంగాణ, భారతదేశము
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Estd: 1980
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Name of the Department: **Department of Computer Science & Engineering**
Name of Research and Education Centre:

<div style="border:1px solid">

Research & Education Centre
CLOUD COMPUTING

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About the Centre:

This Research and Education Centre on Cloud Computing was established in the Year 2014. This centre serves as a pivotal resource for our students (UG & PG) supporting various curriculum-related experiments and research works. This Centre helps the faculty members for their academic research work. Moreover, this facility plays a crucial role in facilitating Minor and Major projects for PG students and Final-year UG students. Cloud computing facility is essential because it offers hands-on experience with cloud technologies in a cost-effective, scalable, and flexible environment. Cloud computing lab helps to simulate real-world scenarios, promote collaborative learning, provide access to cutting-edge tools, and offer remote accessibility, making them invaluable for education and industry training.

The primary functions of the center:

To Carry out academic laboratory sessions and Research work of B.Tech. and M.Tech. Students on various cloud platforms. This centre helps the faculty members in their pursuance of their research work.
Amazon AWS:

1. Free Access to Learning Resources and Hands-on Labs: Amazon Educate provides UG and PG students with free access to a vast library of cloud computing learning resources. This includes online courses, tutorials, and hands-on labs that cover a wide range of topics related to Amazon Web Services (AWS). Students can gain practical experience with building and deploying applications in the cloud, allowing them to experiment and solidify their understanding of cloud concepts.

2. AWS Educate Credits and Badges: The program offers a free tier of AWS credits specifically for students. This allows them to experiment with real-world AWS services for a limited time, putting their theoretical knowledge into practice. Additionally, students can earn digital badges upon completing courses, which

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can be showcased on their resumes or online profiles, demonstrating their acquired cloud skills to potential employers or research collaborators.

Google Cloud Platform (GCP)

1. Powerful Tools, Free Tier Access: GCP offers a wide range of powerful tools for students, including virtual machines, data storage, and machine learning capabilities. These tools would typically be very expensive to access individually, but GCP offers a generous free tier that allows students to experiment and learn without breaking the bank. This free tier provides enough resources to tackle many student projects.

2. Enhanced Collaboration and Remote Work: GCP allows for easy collaboration on projects. Students can share data and resources securely in the cloud, enabling them to work together on projects regardless of location. This is especially beneficial in today's environment where remote work and geographically dispersed teams are becoming increasingly common.

Microsoft Azure:

1. Free Azure Credits for Research and Development: Microsoft offers Azure for Students which includes free credits specifically for research purposes. This allows students to experiment with powerful cloud computing resources like data analytics tools, machine learning services, and high-performance computing without the upfront financial burden. This can be crucial for students undertaking research projects that require significant processing power or data storage.

2. Learning Industry-Standard Cloud Skills: Azure is a leading cloud computing platform used by many businesses worldwide. By familiarizing themselves with Azure during their studies, UG and PG students can gain valuable hands-on experience with in-demand cloud technologies. This not only enhances their understanding of cloud computing principles, but also prepares them with practical skills that are highly sought-after by potential employers.

Major Equipment:

88 Computer systems with the following configurations:
Dell Inc. Intel Core(TM) i5-7400 CPU @3.00 GHz/8.00 GB RAM / 1 TB HDD/CDROM &VEN_HL-DT-ST & PROD_DVD+-RW_GU90N/Dell Keyboard/Dell Mouse/18.5" Dell LED Monitor, UPS: Delta EH-20 KVA UPS (WITH 30 min. HOUR BACK UP), Projector :Epson EB-S31 Projector with screen, Switches : D-LINK 24 Port Gigaset PA System   :   Ahuja SSB – 120 DP

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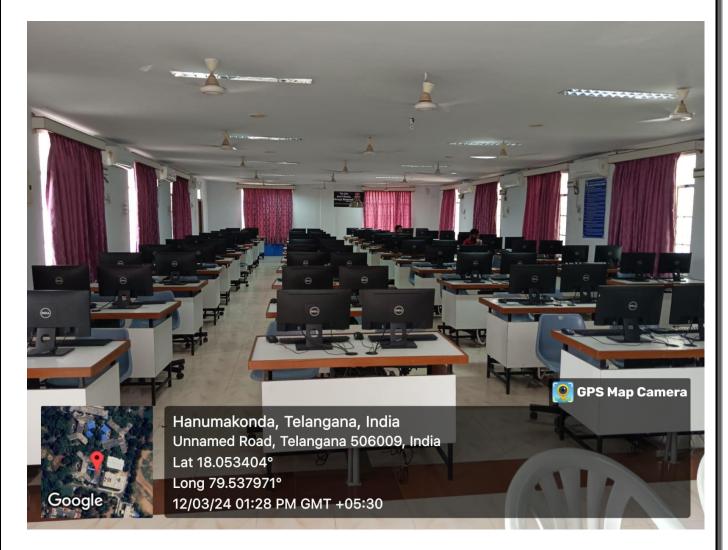కాకతీయ సాంకేతిక విజ్ఞాన శాస్త్ర విద్యాలయం, వరంగల్ – ౫౦౬ ౦౧౫ తెలంగాణ, భారతదేశము

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Major software to be accessed or utilized:

Platform as a Service (PaaS)

- Microsoft Azure App Service: A cloud platform that enables developers to build, deploy, and scale web apps and APIs.
- Google App Engine: A platform for developing and deploying web applications on Google's infrastructure.
- AWS Elastic Beanstalk: An easy-to-use environment for deploying and scaling web applications and mobile backends.

Software as a Service (SaaS)

- GitHub: A cloud-based version control system for software development projects. Students can use GitHub to collaborate on projects, track changes, and share code.
- GitLab: Another popular Git-based platform offering functionalities similar to GitHub, but with additional features like project management and continuous integration/continuous delivery (CI/CD) tools.

Cloud Management Tools

- AWS CloudFormation: A service for managing and provisioning cloud resources in a declarative way. Students can use CloudFormation to define the infrastructure for their cloud applications using templates, ensuring consistency and repeatability.
- Microsoft Azure Resource Manager (ARM): Similar to AWS CloudFormation, Azure Resource Manager allows users to define and manage cloud resources through templates.
- Google Cloud Deployment Manager: A service for deploying infrastructure on GCP in a declarative way, using templates that specify the desired state of the cloud resources.

Types of projects / research carried out with description:

- PG Dissertation work – Cloud Computing, Data Science, Big Data Analytics, Machine Learning, Artificial Intelligence and Internet of Things (IoT)

- UG Major Projects –Cloud Computing, Artificial Intelligence and Machine Learning, Data Science, IoT

- Faculty to carry out their Research work related to the fields of Cloud Computing, Artificial Intelligence and Machine Learning, Data Science and IoT

Photographs of the Facility:

Research and Education Centre for Cloud Computing is equipped with 88 high end configuration systems

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Research and Education Centre Facility of CSE Department

Details of Faculty In charge for Research and Education Centre

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