

DEPARTMENT OF COMPUTER
SCIENCE & ENGINEERING



CSE BYTES

A CSE NEWSLETTER

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2019 EDITION



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ABOUT JECRC FOUNDATION

An individual's freedom lies in the way he is taught to express his thoughts, and this expression essentially comes from education. Established over a decade ago, JECRC Foundation has been providing quality education to its students, setting rationale in their minds for the transformation of technology, and ideologies of the world at large.

Perceived as the unparalleled educational group, JECRC Foundation is continuously ascending the steps of glory by establishing premier institutes in the field of engineering, management and pure & applied sciences; viz. :

Jaipur Engineering College & Research Centre (JECRC)
JECRC UDML College of Engineering (JECRC UDML)
JECRC University

Every year, more than 5000 students entrust JECRC Foundation with the responsibility of shaping their minds for a better future. Commanding the priority list of best engineering colleges in Jaipur, it has become the preferred choice of students from all across India, showing keen interest in admissions through various mediums of JEE and REAP.

Development of a unique and creative approach to life and education is the prime focus of JECRC Foundation.

DIRECTOR'S DESK

Mr. ARPIT AGRAWAL
Director, JECRC



Education acts as a pillar for building an affluent and fortunate future. Keeping this in mind and griping up the importance of good education for grooming children, JECRC Foundation has been serving it's best efforts. We at JECRC aim at making the learning proccess boundless and bona fide so that students can explore every nook of themselves and can procure best in them.

This noteworthy attempt of bringing in notice the happenings of department and giving the achievements a people's glance is a work of great endeavor and admiration. As this newsletter is again out for its's purpose of connecting with all the members, I appreciate the toil of CSE department for keeping up the initiative and putting enormous efforts behind this strenuous task. I am glad for having this initiative graced with such a great team.

The dedication and commitment of CSE department for making JECRC a central hub of all intellectual activities and acting as an axis to provide a manifesto for innovative discussions among juveniles is remarkable.

Apart from this, enormous students getting placed in distinctive companies fills me with immense pleasure and a feeling of pride.

I have no doubts that with this pace, the institute will unemittingly march ahead of other eminent institutes.

PRINCIPAL'S DESK

Prof.(Dr.) V.K. CHANDNA
Principal, JECRC



To grow a tree of invention, a seed of innovation needs to be sown. Engineer's mind is the hub of innovative thoughts which when flourished in right direction can ripe into great inventions. We at JECRC ensure that the students are given proper guidance and superintendence to espouse meticulous path for themselves.

The faculty members of CSE department and technical staff members make sure to equip the students with newly emerging technologies, outcome based learnings, research driven projects and various other programs which are structured for assisting the students to grow in diverse dimensions. The teaching technique is such that students are furnished with both professional and technical knowledge along with the enhancement of their management skills.

Within a short span of time, JECRC with the help of supportive faculty members and cooperative staff is achieving eminent progress and will strive towards attaining greater heights in near future as well.

HOD'S DESK

Dr. SANJAY GOUR
Head of Department CSE, JECRC



'Opportunities don't happen. You create them.'

Being a part of an esteemed institution like JECRC, the CS department endeavours to constantly achieve its aims and objectives. The constructive faculty members are incorporating new plans and innovating new schedules just to meet the criterion of an ideal engineer.

The CSE department is showing remarkable growth in terms of education and futuristic approach. The heightening ambitions of the CS students is a constant source of motivation for the college and faculty, demanding changes at different levels and organising more co-curricular activities. Students have shown keen efforts in start ups thus experiencing innovation at higher altitudes.

The active participations in hackathons, Ted-ex, workshops and sessions are making them a more productive learner. With a thought of triumph in our mind, we are nurturing talent and impelling students to be entrepreneurs, researchers, programmers and developers as well.

Vision & Mission of JECRC

To become a renowned centre of outcome based learning, and work towards academic, professional, cultural and social enrichment of the lives of individuals and communities.



- Focus on evaluation of learning outcomes and motivate students to inculcate research aptitude by project based learning.
- Identify, based on informed perception of Indian, regional and global needs, areas of focus and provide platform to gain knowledge and solutions.
- Offer opportunities for interaction between academia and industry.
- Develop human potential to its fullest extent so that intellectually capable and imaginatively gifted leaders can emerge in a range of professions.

Vision & Mission of Department

To become renowned Centre of excellence in computer science and engineering and make competent engineers & professionals with high ethical values prepared for lifelong learning.



- M1. To impart outcome based education for emerging technologies in the field of computer science and engineering.
- M2. To provide opportunities for interaction between academia and industry.
- M3. To provide platform for lifelong learning by accepting the change in technologies.
- M4. To develop aptitude of fulfilling social responsibilities.

Program Outcomes

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and Computer Science & Engineering specialization to the solution of complex Computer Science & Engineering problems.
2. **Problem analysis:** Identify, formulate, research literature, and analyze complex Computer Science and Engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions:** Design solutions for complex Computer Science and Engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of Computer Science and Engineering experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex Computer Science Engineering activities with an understanding of the limitations.
6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional Computer Science and Engineering practice.
7. **Environment and sustainability:** Understand the impact of the professional Computer Science and Engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the Computer Science and Engineering practice.
9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings in Computer Science and Engineering.
10. **Communication:** Communicate effectively on complex Computer Science and Engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance:** Demonstrate knowledge and understanding of the Computer Science and Engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change in Computer Science and Engineering.

PROGRAM EDUCATIONAL OBJECTIVES

1. To provide students with the fundamentals of Engineering Sciences with more emphasis in Computer Science & Engineering by way of analyzing and exploiting engineering challenges.
2. To train students with good scientific and engineering knowledge so as to comprehend, analyze, design, and create novel products and solutions for the real life problems in Computer Science and Engineering
3. To inculcate professional and ethical attitude, effective communication skills, teamwork skills, multidisciplinary approach, entrepreneurial thinking and an ability to relate engineering issues with social issues for Computer Science & Engineering.
4. To provide students with an academic environment aware of excellence, leadership, written ethical codes and guidelines, and the self-motivated life-long learning needed for a successful professional career in Computer Science & Engineering.
5. To prepare students to excel in Industry and Higher education by Educating Students along with High moral values and Knowledge in Computer Science & Engineering.



PROGRAM SPECIFIC OUTCOMES

1. Ability to interpret and analyze network specific and cyber security issues in real world environment.
2. Ability to design and develop Mobile and Web-based applications under realistic constraints.

WORKSHOP



A weekly training program on Robotics Process Automation was conducted from 14 Nov 2019 to 16 Nov 2019 and from 29 Nov 2019 to 3 Dec 2019 by Mr. Abhishek Dixit & Dr. Nilam Choudhary for students of CSE to give practical knowledge along with theoretical aspects about the Robotics process automation course. This helped students to crack the certification exam of RPA issued by Automation Anywhere. 180 students and 4 faculty members



of CSE have cleared the certification exam on 3rd December 2019. Robotic process automation technology is software that can be trained to mimic digital data tasks performed by humans. The technology is a hot commodity in today's enterprises. RPA's software robots are automating routine and often mind-numbing work formerly done by humans. Its impact has been described as transformational and disruptive. RPA was named as the fastest-growing software segment last year by Gartner.

THOUGHT MANAGEMENT



Workshop on Thought Management was organized by Spiritual Cell, JECRC. 50 enthusiastic students participated in this workshop. In the workshop, Mr. Mukesh Agarwal, Founder of Spiritual Lab gave a lecture about the types of thoughts going on in the mind and how to control them. Staff of SBN college also came with student participants. Karada scan, memory test, concentration test were also done during this workshop. Describing this workshop as very important in the lives of students, Pratibha Singh said that in the kind of environment that surrounds today, such a workshop is very important.

Autonomous Driving at JECRC

2-Day Workshop by international experts on Autonomous Driving at JECRC Foundation! The world is advancing in every sphere, and JECRC walks with it hand in hand. Mr Ritukar Vijay (CS 2007 batch alumnus) along with Mr Hardik Sharma (ME 2010 batch alumnus) conducted a workshop on Autonomous Driving, AI and robotics space for 2 days, i.e. 13th and 14th December 2019. On day one, a Faculty Development Programme was organized and witnessed the participation of around 40 faculties. On day 2, an enormous number of enthusiastic students gained knowledge from skilled professionals. Mr Ritukar Vijay currently worked for Aptiv Germany and headed the Tech & Product Strategy at Hitech Robotics. He also has 12 patents and 5 international papers credited to his name. Mr Hardik Sharma worked as Sr. Mechanical Engineer at Grey Orange Pvt. Ltd. and has developed and patented a modular robotic system for surgical procedures. Coming together, these two JECRC gems along with 2 IIT alumni have started Autonomy IO. With the aim to make students friendly with AI environment, and develop a focus on Autonomous Vehicle Research platform, JECRC welcomed them for an interactive workshop. We are grateful to Mr Mukesh Agarwal, Mrs Shruti Kalra, and Mr Manish Jain for bringing such an opportunity for students on campus.



MEETING WITH CHIEF MINISTER



The Senior Leadership of JECRC was invited to meet the Chief Minister. There were discussions on how to increase Rajasthan's employment Index & how JECRC as a leader in Higher Education can come up with new plans to cover schools of Jaipur to prepare future Innovators. He seemed quite impressed with the fact that 35% of the placement offers have been very well received by the female students. "These are the efforts that carry

a STATE forward. I extend my appreciation & congratulate JECRC for adding substantial value to our State," said Honourable Chief Minister Shri Ashok Gehlot.

DST DAAD 2019

JECRC had the privilege of hosting Prof. Gerald Drager & Ms Friedrike Wesseman from Hannover Germany. JECRC has bagged the DST DAAD 2019 project in partnership with Prof Drager. On their visit, they greatly appreciated the technical facilities and social initiatives of JECRC. They were greatly moved by the first of its kind Thought Laboratory in India established at JECRC.



FACULTY ACHIEVEMENTS

1.



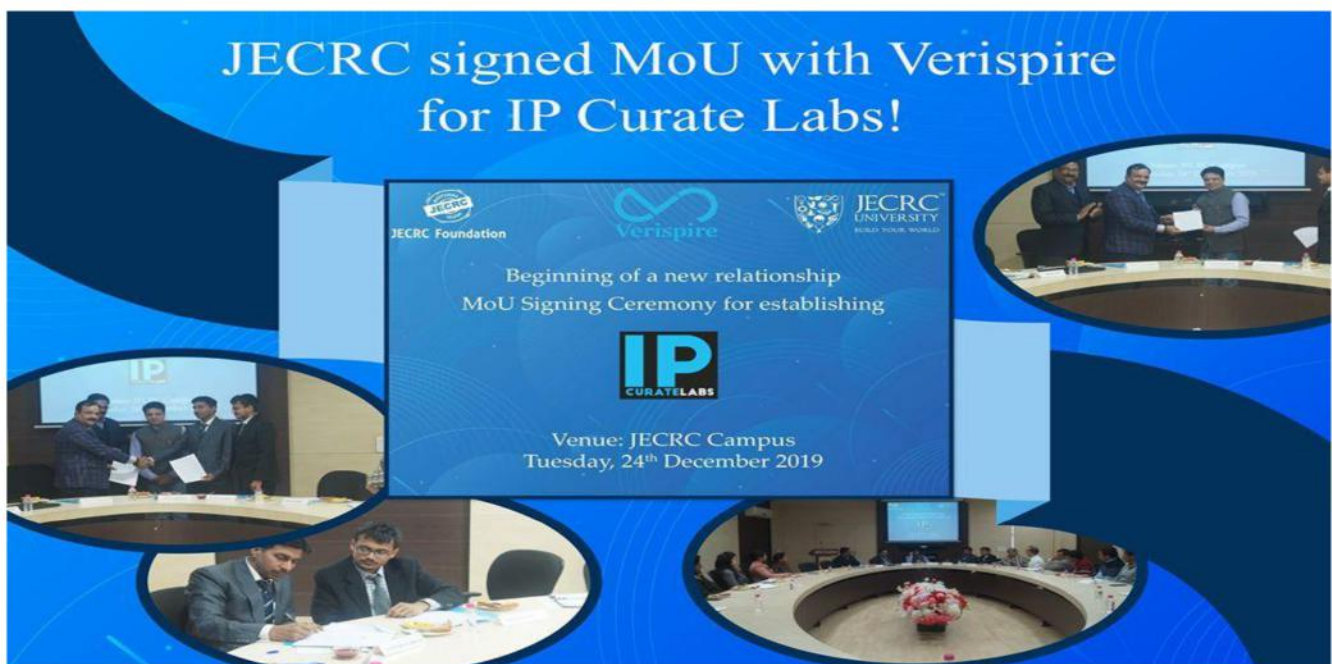
Dr. Sanjay Gaur (Head of Department,CSE) received Best Researcher Award on 27th December 2019 by University of Technology, Jaipur. This award was given in reference of working in the computer science research activities and paper publications.It was a moment of pride to receive the award from Prof (Dr.) N. P. Kaushik (exV.C. RTU Kota) & Prof (Dr.) Praveen Trivedi (exV.C. Awadh University and Gorakhpur University).

2. Dr. Sanjay Gaur (Professor and Head of Department,CSE) was invited on 22 November 2019-23 November 2019 by Department of Mathematics Computer & Information Science of Central University (Himanchal Pradesh) for Invited talk in their National Seminar entitled "Analytical aspects of Dynamics". He delivered talk on "Numerical & statistical Inference in Data mining with reference of data pre-processing.
3. Dr. Sanjay Gaur (Professor and Head of Department,CSE)had chair the session on 13 December 2019-14 December 2019 in the 4th International Conference on Information and Communication technology for Competitive Strategies (ICTCS-2019) at Bhupal Nobles' University, Udaipur-India.
4. Ms. Geerija Lavania(Assistant Professor,CSE) has participated in One-week 'Faculty Training Programme', from 9th December 2019 to 13th December 2019 organized by Forsk Technologies. It's an Online (Instructor Led) and interactive training with both way communication. During the FTP, work is done on development of Python programming concepts and the curriculum of RTU/BTU Python Lab is covered.



IP Curate Labs

JECRC Foundation signed a MoU with Verispire Tech, Noida, to establish “IP Curate Labs” Adding to the long list of prestigious associations, here is yet another one which will mark the setup of IP Curate Labs in both JECRC College and JECRC University. The MoU signing ceremony took place at JECRC College under the auspicious presence of Shri Arpit Agrawal, Director JECRC, and dignitaries and was witnessed by the core faculty group along with Principal of JECRC College, Dr. Vinay Chandna and Registrar of JECRC University, Shri Sohan Agrawal. This was coordinated by Mr Manish Jain, Mrs Shruti Kalra, and Mr Mukesh Agarwal. This will help bringing in evolutionary changes for students. The establishment of these labs will simplify the process of filing patents for both students and faculty members. Various workshops will promote the ecosystem of copyrights and patents, helping JECRCians go a long way, without having to do it the hard way!!



Attack of DOS in Public Cloud in Cloud Computing

Cloud computing is the delivery of computing services including servers ,storage databases ,networking ,software ,analytics and intelligence over the internet ("the cloud") to offer faster innovation ,flexible resources and economics of scale.



Cloud computing is usually described in one of two ways .Either based on the deployment of model or on the service that the cloud is offering ,based on a deployment model we can classify the cloud as public that are managed by the third parties which provide cloud services over the internet to public ,these services are available as pay-as-you-go billing mode. They offer solutions for minimizing IT Infrastructure .They are a goto -option for small enterprises ,which are able to start their businesses without large upfront investments by completely relying on public infrastructure for there IT needs .public cloud is multitend that is meant to serve multiple users ,not a single customers. A user requires a virtual computing environment that is separated, and most likely isolated from the other users. private cloud are distributed systems that work on a private infrastructure and providing the users with dynamic provisioning of computing resources .instead of a pay-as-you-go model as in public clouds there could be the other schemes in that take into account the usage of the cloud and proportionally billing the different departments or sections of analytics enterprise.

The advantages of using private cloud can portray customer information protection ,Infrastructure ensuring SLAs ,compliance with standard procedures and operations ,Hybrid cloud is a Heterogenous distributed system resulted by combining facilities of public cloud and private cloud .for this reason they are also called Heterogenous clouds ,community clouds are distributed systems created by integrating the services of different clouds to address the specific needs of an industry ,or a community ,or a business sector .In this cloud the infrastructure is hazarded between organizations which have shared concerns or tasks. The cloud may be managed by an organization or a third party some sectors which uses hybrid clouds are media industry ,healthcare industry, energy and core industry, scientific research ,rest based on a service the cloud model is offering laaS(infrastructure as a service) which is used for internet-based access to

storage and computing power. It is the most basic category of cloud core distributed systems that work computing types, IaaS lets you rent IT infrastructure—servers and virtual machines, storage, networks and operating systems—from a cloud provider on a pay-as-you-go basis. PaaS (platform as a service) The second cloud computing type is which gives developers the tools to build and host web applications. PaaS is designed to give users access to the components they require to quickly develop the operate web or mobile applications over the internet without worrying about setting up or managing the underlying infrastructure of servers, storage, network and databases, SaaS (software as a service) the third cloud computing is used for web based applications. SaaS is a method for delivering software applications over the internet where the cloud providers host manages the software applications making it easier to have the same applications on all of your devices at it once by accessing it & the cloud or storage, data-base, information, process, application, integration, security.

Management, testing as a service. various benefits of cloud computing are cost, global scale, speed, security, productivity, performance, reliability. Cloud security also known as cloud computing security, consists of a set of policies, controls, procedures and technologies that work together to protect cloud-based systems data and infrastructure. these security measures are configured to protect data, support regulatory compliance and protect customers privacy as well as setting authentication rules for individual users and devices. from authentication access to filtering traffic, cloud security can be configured to the extract needs of the business, because these rules can be configures and manages in one place, administration overheads are reduced and IT teams empowered to focus on other areas of business.

The way cloud security is deliveries will depend on the individual cloud providers or the cloud security solutions in place. implementation of cloud security processes should be a joint responsibility between the business owner and solution provider.

Cloud security benefits includes centralized security, reduced costs, reduced administration, reliability. In case of public cloud scenario, elements of security are typically provided by the third-party cloud service providers. Depending on the industry and type of information stored in a public cloud there may be enough privacy and security.

A private cloud offers the most control over security parameters because all security parameters because all security efforts are done in house or are outsources to managed security provider. There are options for businesses looking for increased security while taking advantage of a flexible public infrastructure such as a cloud-based content delivery network. A dos(denial -of -service) attack on public cloud is a security event that occurs when an attacker prevents legitimate users from accessing specific computer systems, devices, services or other IT resources. dos attacks typically floods servers ,systems or networks with traffic in order to overwhelm the victims resources and make it difficult or impossible for legitimate users to access them. When an attack that crashes a server can often be dealt with successfully by simply rebooting the systems, flooding attacks can be more difficult to recover from recovering from a ddos (distributed denial of service) attack, in which attack traffic comes from a large no of sources, can be even more difficult. Dos and ddos attacks often use vulnerabilities in the way networking protocols handle network traffic, for example by transmitting a large number of packets to a vulnerable network service from different internet protocol (IP)addresses in order to overwhelm the service and make it unavailable to legitimate users. Signs of a dos attacks is provided in guidelines given by us computer emergency readiness team(us-cert) to determine when a dos attack may be underway .US-CERT states that the following may indicate such attack. Degradation in network performance, an inability to reach a particular website, difficult accessing a website, higher than unusual volume of spam email. Preventing a dos attack expert recommend a no of strategies to defend against dos and DDos attacks, starting with preparing an incident response plan well in advance. When an enterprise suspects a dos attack is underway, it should contact its internet service provider (ISP)to determine whether the incident is an actual dos attack or degradation of performance caused by some other factor. The ISP can help with dos and ddos mitigation by rerouting or throttling malicious traffic and using load balancers to reduce the effect of the attack. detection products for dos protection SME intrusion detection systems, intrusion prevention systems and firewalls offer dos detection functions.

So, we can conclude that by preventing the dos attack by detection products, we can also use or access features of public cloud efficiently and safely so that more future expects to go with public cloud.

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