IT Happenings

A Newsletter of IT Department

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DECEMBER 2019

DEPARTMENT OF INFORMATION TECHNOLOGY
www.davietjal.org
Email: it@davietjal.org

DAVIET
Dayanand Anglo-Vedic Institute
of Engineering and Technology

From the desk of HOD

Dear Readers,

Happy New Year - 2020!

It gives me immense pleasure to greet you all and convey my respect & gratitude to all the Recruiters, Parents, Faculty members, staff members and student of IT Department as the Head of Information Technology Department.

"The interesting thing about cloud computing is that we've redefined cloud computing to include everything that we already do." - Larry Ellison

The above quote by Larry Ellison, Co-founder and the Executive Chairman and Chief Technology officer of Oracle shows the adaptation and implementation of Cloud Computing in businesses. Broadly described, Cloud computing represents the service on demand framework that offers data storage as well as computing power services to the customers without any direct involvement of the user for uninterrupted service availability.

The section on Cloud Computing shows the latest advancements in this area. Specially it showcases how cloud can be used to implement varied novel services like IoT Analytics. The issue also reports important activities, events conducted during July 2019 to December 2019 in the department. I would like to congratulate all the faculty members and students who bring laurels to the department.

I seek the active and kind support of all members to make IT Department more vibrant & productive to achieve the height of excellence. I sincerely request all the editorial board members to kindly work with responsibility for the benefit of the students and department.

We look forward to receive constructive feedback and suggestions from our esteemed stakeholders and readers at *ithappenings@davietjal.org*.

Dr. Dinesh Kumar
Head - IT

Editor's Message

Dear readers

Welcome all to year 2020!

Once again, Department of Information Technology is back with another issue of its in house newsletter IT Happenings!

Like the previous issue, this issue will host numerous achievements of the department, its students, including faculty and staff. This time too, we are delighted to share a thoughtful message from one of our high achiever Alumni.

With the advent of emerging technological transformations, it's a high time to focus on some of potential area like Artificial Intelligence, Machine Learning, Cloud Computing, IoT and last but not least Data Science to name a few. The department of IT will definitely put all possible efforts to make familiar these areas to our students through workshops or best in class expert lectures.

I hope the readers will surely benefit from this latest issue of New Year.

Happy New Year and Happy Reading!

Dr. P S Mann
AP - IT

Alumni Message

Gaurav Bawa
B.Tech – IT
Batch 2009 - 2013
<u>**Current Position:**</u>
Technical Lead – Chalhoub Group
Dubai

Firstly, I would like to thank Dr. Dinesh Kumar for contacting me and giving me an opportunity to share my experience in the IT Newsletter. I started my carrier in 2013 as Software Engineer from Infogain Private Limited, Noida and currently I am working as Technical Lead in Chalhoub Group, Dubai. After joining DAVIET in 2009, I was always inclined towards software development and IT industry. I have always taken the opportunity to learn and groom myself by grasping the experience of our faculty.

During my 6 years of experience in IT industry in India and abroad, I have realized that there are certain qualities which an engineer should imbibe –

> ➢ Learning should never stop: Technology is changing very fast. An IT engineer should always be on his/her toes to learn the new things and open to adapt the change. In an era of Cloud Computing, Internet of Things, Artificial Intelligence etc., IT has shifted from waterfall practices to agile methodologies. So, learning is a key thing and should never be halted.
> ➢ An Ideal Orator: Having an innovative idea in mind and presenting that idea to the society are two different things. The latter requires to connect with the thoughts of the people, understand their problems and provide solution to their problems by using your IT skills. An IT engineer should not just have great communication skills, he/she should know how to read the minds of society and understand their problems.
> ➢ Give back to the society: Working for a 6-figure salary should not be the only motive, you should always try to give back to society. Google's GPS Maps, Wikipedia etc. are helping society in solving their day to day problems.
> ➢ Always respect your parents, teachers and friends. Life will give you a chance to manage people, always be a people's manager. Technology can be learned but social values and respect can only be imbibed by self-introspection. This has always been my thumb rule in life.

I am always available for quick chats and share my experience at gaurav.daviet@gmail.com

All the best

Signing out 😊

Gaurav Bawa

Departmental Profile

Department of Information Technology (DoIT)

The Department of Information Technology is a part of the DAV Institute of Engineering and Technology. The Department was established in 2002. We offer program leading to the Bachelor of Technology in Information Technology. We are a growing department with an outstanding faculty, keeping pace with the rapid proliferation of, and advances in, computing and information technology. Our commitments to quality undergraduate teaching and strong research programs provide a solid foundation for those seeking to become well-prepared, talented, and indispensable computing professionals. Approximately 250 full-time undergraduates are pursuing their degree in IT. The departmental faculty actively participates and provides leadership to major research centers on campus. Opportunities to pursue faculty supervised undergraduate research and project work are readily available The department makes extensive use of wideband connectivity to the commodity Internet Students and faculty have ready access to advanced computational hardware and software both through Institute resources as well as through our more specialized laboratory workstations. The Bachelor of Information Technology with a major in Computer Science is accredited by the, All India Council for Technical Education (AICTE), a specialized accrediting body recognized by the Council for Higher Education Accreditation.

OUR VISION

"To become pioneer in information technology education and research by creating employable personnel; empowered with technical skills on diversified technological fronts with inbuilt intellectual base at undergraduate and postgraduate levels"

OUR MISSION

M1: To produce industry ready professionals catering to the needs of IT/ITeS.
M2: To promote industry-academia interaction for bridging the gap between academic and industrial application in emerging IT Technologies.
M3: To encourage in-house development of various IT applications by under-graduates to strengthen techno-managerial skills

PROGRAM EDUCATIONS OBJECTIVES

PEO1: To empower students with substantial knowledge in mathematics, scientific and primitive engineering concepts required to solve computing problems and pursue higher studies.

PEO2: To equip students with profound knowledge about the vital information technology and allied engineering concepts to deal with industry oriented problems and develop novel products.

PEO3: To inculcate professional-social ethics, team work in students and acquaint them with requisite technical and managerial skills to attain a successful career.

PROGRAM SPECIFIC OUTCOMES

PSO1: Apply standard practices for software project development using hands-on   programming skills for analysis, design and creation of software solutions.
PSO2: Design networks and also aware of network security related issues
PSO3: Create and maintain database for providing back-end support to IT applications.

PROGRAM OUTCOMES

After the successful completion of undergraduate course IT Engineering, Graduates will be able to:

PO1. Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization for the solution of complex engineering problems.

PO2. Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3. Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety, and cultural, societal, and environmental considerations.

PO4. Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5. Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling to complex engineering activities, with an understanding of the limitations.

PO6. Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal, and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7. Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8. Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9. Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10. Communicate effectively on complex engineering activities with the engineering community and with the 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.

PO11. Demonstrate knowledge and understanding of the 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.

PO12. 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.

Technological Front ───────────────

Cloud Computing and its Emerging Trends

Guneet Kaur Walia
Assistant Professor – IT

1.0 Introduction:

Cloud computing is a fast moving beast, with new trends and technologies popping up all the time. It's an umbrella term that constitutes parallel, distributed, cluster, grid and utility computing. It basically refers to applications and services that run on distributed network using virtualized resources and accessed by common internet protocols. It is distinguished by the notion that the resources are virtual and limitless and also the details of the physical system are abstracted from the user. There are different models of this computing based on Deployment and the kinds of services these models provide. The kind of services provided can be represented as XaaS (Anything-as-a-service), the major types comprises Infrastructure-as-a-service(IaaS), Platform-as-a-service(PaaS), Software-as-a-service(SaaS), Compliance-as-a-service(CaaS) and so on.

Companies are now migrating their information operations to the cloud. Many cloud service providers (like Amazon Web Services (AWS), Microsoft Windows Azure, IBM's Blue Cloud, Oracle cloud, Rackspace) can allow your data to be either transferred via your traditional internet connection or via a dedicated direct link. The benefit of a direct link into the cloud will ensure that your data is uncontended and that the traffic is not crossing the internet and the Quality of Service can be controlled. The migration of data across different cloud service providers or from your traditional data system to cloud requires negotiation of SLA's (Service Level Agreement) amongst SP's. SLA's acts as a foundation of the consumer's trust in the provider. It majorly comprises of objectively measurable conditions for the service and SLO's. Cloud computing underpins a vast number of services. That includes consumer services like Gmail or the cloud back-up of the photos on your smartphone, though to the services which allow large enterprises to host all their data and run all of their applications in the cloud. Netflix relies on cloud computing services to run its video streaming service and its other business systems too, and have a number of other organizations. Cloud computing is becoming the default option for many apps: software vendors are increasingly offering their applications as services over the internet rather than standalone products as they try to switch to a subscription model. However, there is a potential downside to cloud computing, in that it can also introduce new costs and new risks for companies using it.

2.0 Emerging trends of Cloud Computing

With the emerging trends, cloud computing is now spreading its wings across the world in its various forms, popular ones include Fog computing, Green computing, Mobile computing. Cloud computing is acting as a catalyst for the development and deployment of scalable Internet of Things applications and business models in the form of Fog Computing. The term "Fog Computing" was introduced by the Cisco Systems as a new model to ease wireless data transfer to distributed devices in the Internet of Things

(IoT) network paradigm. CISCO's vision of fog computing is to enable applications on billion of connected devices to run directly at network edge. It involves bringing down intelligence from the cloud close to the ground/ end-user. The applications are run on Cellular Base Stations, network routers, WiFi gateways and the end devices, like sensors are able to perform basic data processing. The recent developments include Smart Grid, Connected Vehicles, Software defined network, Smart Traffic lights.
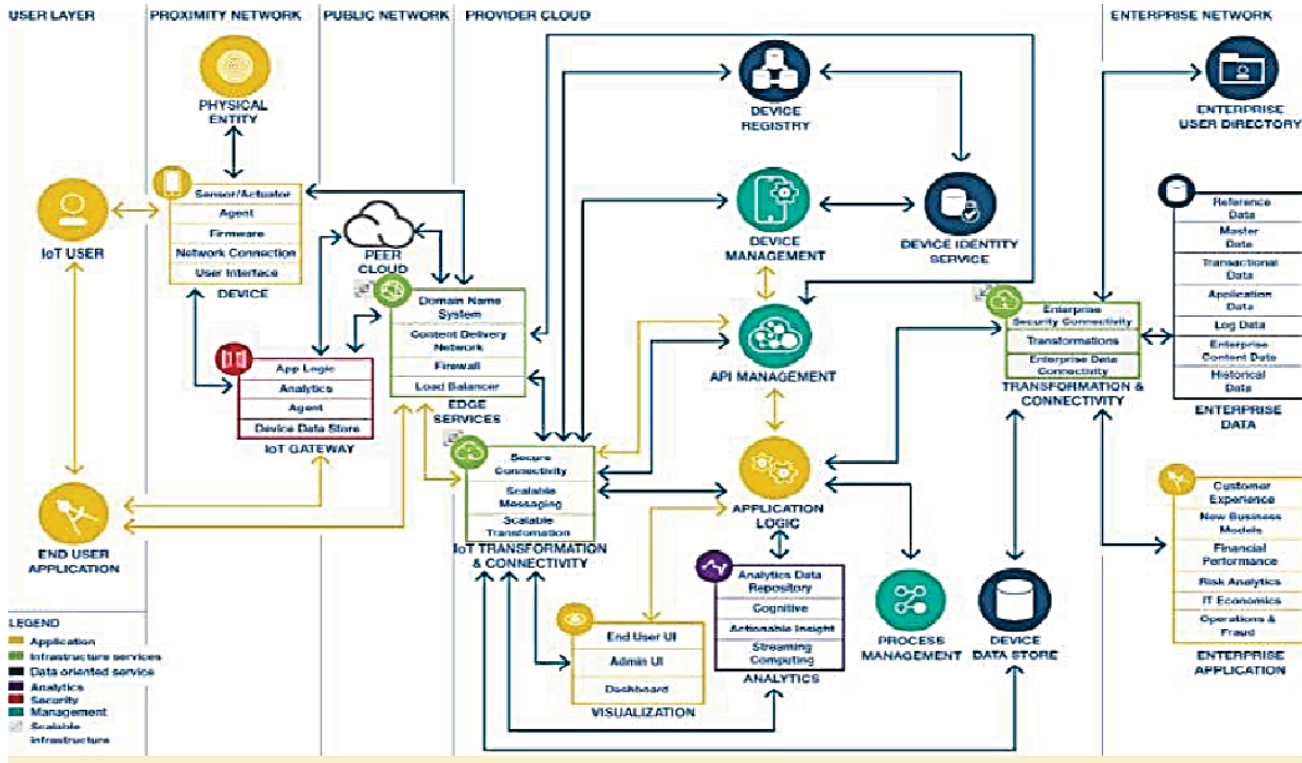

Fig. No. 1. Cloud Components for IoT

2.1 Fog Computing Enablers:

- *Virtualization:* it's the key concept of cloud computing. It is creation of a new virtual version of any product or service, for example disk partitions in hard disk that is used for computer system for storage. There occurs lots of forms in which virtualization occurs, like CPU virtualization, full virtualization, para virtualization, memory virtualization etc.
- *Containers:* it reduces the overhead of resources management by using light-weight virtualizations. Example: Docker containers.
- *Service Oriented Architecture(SOA):* it's a style of software design where services are provided to the other components by application components, through a communication protocol over the internet.
- *Software Defined Network (SDN):* an approach to using open protocols, such as OpenFlow, to apply globally aware software control at the edges of the network to access networks switches and routers that typically would use closed and proprietary firmware.

3.0 iCOMOT -- A Toolset for Managing IoT Cloud Systems

iCOMOT is a toolset offering features for deploying, controlling, monitoring and testing both IoT units and cloud services in an integrated environment spanning different infrastructures. Using iCOMOT, various activities can be performed, such as dynamically reconfiguration of sensors, communication protocols, and cloud services in an elastic manner, suitable for testing and assuring quality of IoT cloud systems configurations.
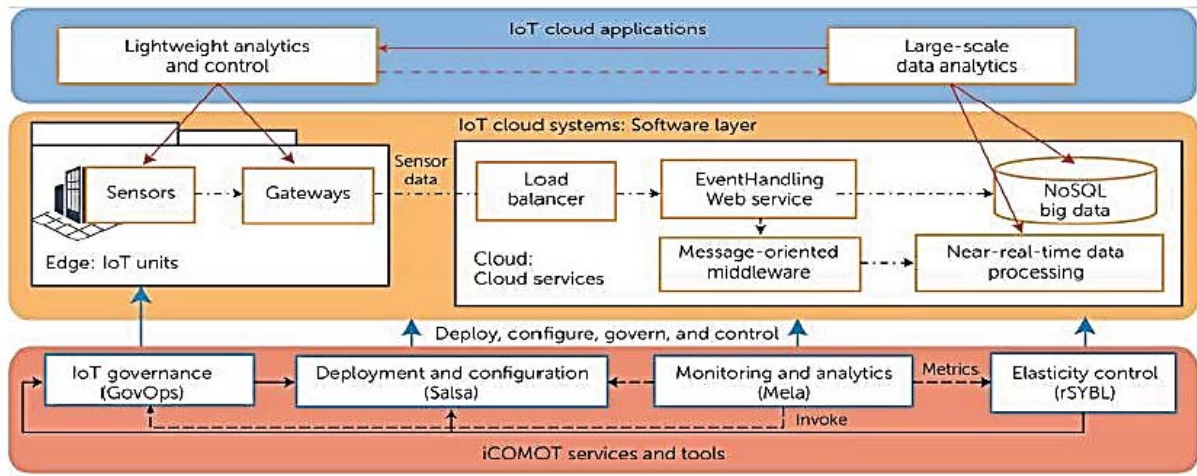

Fig. No. 2. iCOMOT: An IoT Cloud System

Top layer represents typical IoT applications executed across IoT and Clouds. Middle layer represents the software layer as an IoT cloud system built on top of various types of cloud services and IoT elements. Bottom layer shows different tools and services from iCOMOT that can be used to monitor, control, and configure the software layer.

The cloud effectively serves as the brain to improved decision-making and optimized internet-based interactions. However, when IoT meets cloud, new challenges arise. The critical concerns during integration are quality of service (QoS) and quality of experience (QoE), as well as data security, privacy and reliability. Cloud computing offers a practical utility-based model that will enable businesses and users to access applications on demand anytime and from anywhere.

References:

1. Truong H. , iCOMOT -- A Toolset for Managing IoT Cloud Systems, IEEE International Conference on Mobile Data Management, USA, 2015
2. Sosinsky B., Cloud Computing Bible, Wiley Publication, 2018

Departmental Activities

Expert Talk on Cyber Security

- ✓ Mr. Palwinder Singh, Founder and CEO, Secuneus Technologies Pvt. Ltd. has delivered an expert talk on Cyber Security to the students of B.Tech - IT 5th Semester. During his talk, he has discussed the various topics of Cyber Security like vulnerability Assessment and Penetration Testing (VAPT), Website Security, Digital Fraud, Cyber Space, Cyber Crimes, Cyber Law, Carrier in Cyber Security, Online Banking Security and Case Studies.

Workshop on Machine Learning and TensorFlow

- ✓ Department has organized workshop on Machine Learning and Tensorflow on 23/09/19 for the students of B.Tech IT (3rd & 5th semester). Mr. Rahul Pathak and Mr. Ranu Mishra from CETPA, Noida have conducted this workshop in the department. During this workshop, various topics like Machine Learning introduction, statistical background, ML libraries, planning ML tasks and implementation of project in Tensorflow.

Workshop on Implementing Storage and Virtualization on AWS

- ✓ Department has organized workshop on Implementing Storage and Virtualization on AWS on 16/10/19 for the students of B.Tech IT (5th semester). Mr. Shankar Soni alongwith his team from Ansh Infotech, Ludhiana have conducted this workshop in the department. During this workshop, various topics virtualization, Amazon Web Services and implementation of these technologies had been discussed.

Visit to village Kagniwal

- ✓ Students of B.Tech – IT 3rd Year visited the village Kagniwal on 26/09/2019. This visit was organized under Swatch Bharat Abhiyan Scheme of Government of India. The basic objective of this visit was to discuss and identify the socio-economic/environmental issues and problems being faced by the people of the village. After interaction with people, students discussed these issues with faculty and fellow students to find out any possible solution to the problems faced by the villagers due to plastic waste and harmful effects. Students also spread awareness about the adverse effects of using plastic materials such as Polybags, Plastic Bottles etc. Students also prepared and submitted Problem Formulation Report of this visit.

Industry Week

✓ Industry week was organized in the department from 29/10/2019 to 01/11/2019. During this industry week, students gained hands-on experience on various workshops on Google KOTLIN, front end development, Laravel, Python Programming and Cyber security. Experts from industry conducted these workshops in the department. Mr. Hardeep Singh & Mr. Vishal Kumar from O7 Services, Jalandhar were the resource persons of these workshops.

Glimpses of Industry Week

Aptitude test for students

✓ Keeping in view the upcoming placement drives, department had organized aptitude test for the students of IT 7th semester.

HCNA Training Program

✓ Department of Information Technology organized HCNA Training program in collaboration with Huawei Telecommunications Equipment Company. In this program students got hands on experience on Huawei products. This program was conducted under guidance of highly educated HCNA certified trainer Dr. Rajeev Vashist. Under this program student learned a lot about Computer Networks such as Switching and Routing.
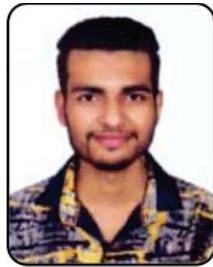
Students who have cleared the HCNA Exam

Mr. Yuvraj of **B.Tech – IT 5th Semester** has also qualified for **National Finals** to be conducted **Huawei Office, Gurgaon** from 3 - 8 February 2020.

YUVRAJ

VAIBHAV   **GIRISH**   **JASMINE KAUR**   **VANSH**

KANIKA   **MOHIT**   **MUSKAN ANAND**   **NISHTHA**
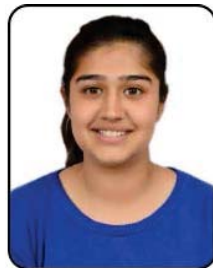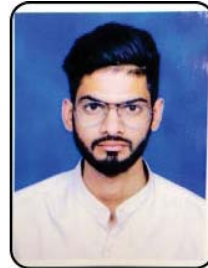
RAKSHIT   **SAANYA DHIR**   **SALIL CHODWARY**   **SANJANA**

Faculty Achievements

✓   Dr. Dinesh Kumar delivered Expert Talk on the topic Machine Learning in Web Application Development during UGC Sponsored National Seminar on Web Effusion - An Upsurge in Web Designing and Development.

✓   Dr. Dinesh Kumar has published research paper titled Performance enhancement of traffic information gathering (PEnTInG) algorithm for vehicular ad-hoc networks in International Journal of Communication Systems, Wiley, 2019

✓   Dr. Dinesh Kumar has published research paper titled Analysis of Pedagogy of Teacher's Capability to Transform Knowledge into Practice using Fuzzy Logic, International Journal of Fuzzy System Applications, Vol. 8, No. 2, pp. 16-33, 2019

✓   Mrs. Avani Chopra, Assistant Professor – IT has successfully completed 12 Weeks AICTE recognized MOOCs based course on Software Project Management by IIT Kharagpur under NPTEL program funded by Ministry of HRD, Govt. of India.

✓   Mr. Jaswinder Dhillon, Assistant Professor –IT Attended AICTE & IKGPTU Sponsored One Week Faculty Development Programme on Recent Trends in Renewable Energy Sources & Technologies

✓   Mr. Jaswinder Dhillon, Assistant Professor –IT Attended AICTE & IKGPTU Sponsored One Week Faculty Development Programme on Artificial Intelligence and Soft Computing Techniques for Engineering Applications.

✓   Ms. RajinderVir, Assistant Professor-IT Attended AICTE & IKGPTU Sponsored One week Faculty Development Programme on Artificial Intelligence and Soft Computing Techniques for Engineering Applications

✓   Mrs. Guneet Kaur, Assistant Professor – IT has successfully completed 12 – Weeks AICTE recognized MOOCs based course on Programming in Java organized by IIT Kharagpur under NPTEL program funded by Ministry of HRD, Govt. of India

Student Achievements

✓   Mr. Bibekjot Singh – IT 7th Sem has won 3 GOLD medals in IKG PTU Zonal Youth Fest – 2019, 3 GOLD medals in IKG PTU Interzonal Youth Fest – 2019 & got 5th Position in Inter University Youth Fest – 2019

✓   Mr. Neha– IT 7th Sem has won GOLD medal in IKG PTU Zonal Youth Fest – 2019 & GOLD medal in IKG PTU Interzonal Youth Fest – 2019

✓   Mr. Mukul – IT 7th Sem has won GOLD medal in IKG PTU Zonal Youth Fest – 2019   SILVER medal in IKG PTU Interzonal Youth Fest – 2019

Students performance in IKG PTU Sports Tournaments

✓   Mr. Rupinder Singh – IT 5th Sem has won SILVER medal in IKG PTU Inter College Table Tennis Tournament – 2019

✓   Mr. Navpreet Singh – IT 5th Sem got 2nd Position & 3 Medals in IKG PTU Inter College Swimming Tournament – 2019

✓   Mr. Karan Singh – IT 5th Sem got 2nd Position in IKG PTU Inter College Swimming Tournament – 2019

✓   Mrs. Jasmine Kaur– IT 5th Sem has participated in IKG PTU Inter College Table Tennis Tournament – 2019

✓   Mr. Siddhant Jasrotia – IT 5th Sem has participated in IKG PTU Inter College Football Tournament – 2019

✓   Mr. Atul Tak – IT 5th Sem has participated in IKG PTU Inter College Kabaddi Tournament – 2019

Department Faculty/Staff Profile

S.No.	Name	Designation	Qualification
1	Dr. Dinesh Kumar	Associate Professor & Head	PhD.
2	Dr. P S Mann	Assistant Professor	PhD.
3	Dr. Rajeev Kumar	Assistant Professor	PhD.
4	Mrs. Reeta Bhardwaj	Assistant Professor	M.Tech., Pursuring PhD.
5	Mr. Jaswinder Singh	Assistant Professor	M.Tech., Pursuring PhD.
6	Mr. Gagan Kumar	Assistant Professor	M.Tech., Pursuring PhD.
7	Mrs. Avani Chopra	Assistant Professor	M.Tech.
8	Mr. Rajesh Kochher	Assistant Professor	M.Tech.
9	Mrs. Rajindervir Kaur	Assistant Professor	M.Tech.
10	Mrs. Guneet Kaur	Assistant Professor	M.Tech.
11	Mr. Bhagat Singh	Network Administrator	MCA, CCNA, MBA
12	Mr. Rajesh Gandhi	Lab. Assistant	MCA, CCNA
13	Mr. Surjit Singh	Lab. Assistant	MSc - IT

Editorial Board

Chief Editor

- ➢ Dr. Dinesh Kumar, Head - IT

Editor

- ➢ Dr. P S Mann, AP – IT

Editorial Board Members

- ➢ Mrs. Avani Chopra, AP – IT

- ➢ Mrs. Guneet Kaur, AP – IT

Student Members

- ➢ Ms. Muskaan Gupta – IT 8th Semester

- ➢ Mr. Girish Arora – IT 6th Semester

- ➢ Mr. Rupinder Singh – IT 6th Semester

- ➢ Mr. Ankit Narang – IT 4th Semester

Call for Special Section

Kind Attention!!!

Fourth Coming Issues: July 2020: **_Blockchain Technology_**

Please send your contributions by **30th April 2020.**

Submissions Guidelines:

- ✓ The articles should be authored in as original text.

- ✓ Plagiarism is strictly prohibited.

- ✓ Include a brief biography of four to six line for each author with high resolution author photograph.

Please send your article in MS-Word format to Editor at **_ithappenings@davietjal.org_**

Dr. Dinesh Kumar
Chief Editor