

**INDIRA GANDHI DELHI TECHNICAL  
UNIVERSITY FOR WOMEN**

**Department of**  
**INFORMATION**  
**TECHNOLOGY**  
**2019-20**





## About IGDTUW

Indira Gandhi Delhi Technical University for Women (IGDTUW) has been upgraded from Indira Gandhi Institute of Technology in May 2013 vide Delhi State Legislature Act 9, 2012, as a non-affiliating teaching and research University at Delhi to facilitate and promote studies, research, technology, innovation, incubation and extension work in emerging areas of professional education among women, with focus on engineering, technology, applied sciences, management and its allied areas with the objective to achieve excellence in these and related fields.

The objective of the University is to foster an environment for excellence in professional education and ensure active participation of women in the field of Engineering, Science, Management and Technology, while striking out a work-life balance and to emancipate women through pursuit of knowledge enabling them to gain equal status in society through realization of their rights and responsibilities.

## VISION FOR THE DEPARTMENT

IT Department aspires to become a front-runner by empowering our Young Women students through quality technical education and comprehensive technology infrastructure. The Department envisions creating efficient problem solvers, technically competent, skilled and groomed Young Women Researchers and IT professionals to meet global challenges.

## MISSION FOR THE DEPARTMENT

- ❖ To offer high quality education both theoretically and practically to our young women students in undergraduate, post graduate and doctoral programs.
- ❖ To create a secure atmosphere for students and faculty of our department for continuous learning to investigate, apply and transfer knowledge.
- ❖ To maintain stat-of-the-art facilities and well equipped laboratories where student and faculty can research and enhance their understanding of technology.
- ❖ Organizing technical programs and providing need based quality training to enhance the knowledge of our young women students in the latest technologies.



# DEPARTMENT OF INFORMATION TECHNOLOGY

The Department of Information Technology, founded in January 2010 is the fastest growing department. The department has shown incomparable innovation, research aptitude, intellectual talent, technical skills, and problem solving skills through active participation of faculty, research scholars and students at national and international level. Since its inception, the department started a four year B.Tech.(IT) program in 2010 and a three year post graduate program in Computer Applications (MCA) in 2011 to nurture talent in the field of information technology through IT solution development. With information technology at the peak, there also comes a need of securing the IT environment, hence the department launched a Post-graduate program in Information Security Management M.Tech- ISM in 2013 (now renamed as MTech – IT with specialization in ISM) to provide knowledge base and work force with requisite expertise to cater to the needs of industry and information technology in enhancing the security dimension of IT and cyber world.

To exemplify R&D activities, the department started the PhD program in 2014 and currently 16 research scholars are pursuing the research work in the department. The department believes in continuous learning and therefore, hosts various Workshops, Faculty Development Program, Conference, Seminars and expert talk sessions on regular basis. The department encourages the students to participate in the various conferences, workshops and other competitions to hone their technical expertise. Technical events like Espectro, Advaya have been successfully conducted by the department under the aegis of ACM Society since 2011.



## PROGRAMS OFFERED

- B.Tech-Information Technology – 4 years
- M.Tech-IT (Information Security Management) – 2 years
- Master of Computer Applications (MCA) – 3 Years
- PhD

## FACULTY PROFILES



**Prof. R.K. Singh**

**Professor, Dean (Planning and Development), Registrar**

**Qualification:** Ph.D. (IT), GGSIP University, M.S., BITS, Pilani

**Area of Specialization:** Software Engineering, Project Management, Software Testing

**Experience:** 24 Years



**Dr. A.K. Mohapatra (On Deputation to Delhi Police as Chief Technical Advisor)**

**Associate Professor**

**Qualification:** Ph.D. (IT), GGSIP University, M.Tech (Computer Science), ISM Dhanbad

**Area of Specialization:** Cryptography, Information Security, Network Security

**Experience:** 18 Years



**Dr. Arun Sharma**

**Associate Professor, Head of the Department and MD (Anveshan Foundation)**

**Qualification:** Ph.D. (Thapar University), M.Tech.-CSE (Pbi University)

**Area of Specialization:** Software Engineering, Soft Computing Techniques, Big Data, Machine Learning

**Experience:** 22 Years



**Dr. Kalpana Yadav**

**Assistant Professor**

**Qualification:** Ph.D. (Software Reliability), Jiwaji University, Gwalior, M.Tech. (Computer Sc. & Engineering), GJU, Hissar

**Area of Specialization:** Soft Computing, Software Reliability

**Experience:** 18 Years



**Mr. Rishabh Kaushal**

**Assistant Professor**

**Qualification:** M.S. by Research (CSE) from IIIT, Hyderabad and Pursuing PhD at IIIT- Delhi.

**Area of Specialization** Information Security and Algorithms

**Experience:** 9 Years



**Ms. Ankita**

**Assistant Professor**

**Qualification:** Pursuing Ph.D from GGSIPU, Delhi

M.Tech. (IT) from GGSIPU, Delhi

**Area of Specialization:** Software Testing, Java programming, Advanced Java programming and Network Security

**Experience:** 9 Years



**Dr. Aruna Bhat (On Lien)**

**Assistant Professor**

**Qualification:** M.Tech. (IT) GGSIPU, PhD ( CSE) IIT Delhi

**Areas of Specialization:** Pattern Recognition, Software Engineering, Database Systems

**Experience:** 8 Years



**Ms. Nidhi Arora**

**Assistant Professor**

**Qualification:** M.Tech. (CSE) from IIT Delhi and pursuing PhD ( CSE) at IIT Delhi

**Areas of Specialization:** Data Structures, Algorithms

**Experience:** 7 Years



**Ms. Nisha Rathee**

**Assistant Professor**

**Qualification:** M.Tech.(CSE) MDU Rohtak and Pursuing PhD at MDU Rohtak

**Areas of Specialization:** Software Engineering, Object Oriented Software Testing, Meta-heuristic algorithms, Data Mining, Data Structures

**Experience:** 7 Years



**Dr. Niyati Baliyan**

**Assistant Professor**

**Qualification:** Ph.D. (IIT Roorkee), M.Tech from Gautam Buddha University, Greater Noida and Sheffield Hallam University, U.K.

**Areas of Specialization:** Semantic Web, Knowledge Engineering and Data analytics.

**Experience:** 4 Years



**Dr. Chandra Prakash**

**Assistant Professor**

**Qualification:** PhD from MNIT Jaipur, B.Tech+M.Tech (IT) from IIITM Gwalior

**Areas of Specialization:** Machine Learning , Deep Learning, Reinforcement Learning, Biometrics, Pattern Recognition, Gait Analysis,

**Experience:** 5.5 Years



**Dr. Mohona Ghosh**

**Assistant Professor**

**Qualification:** Postdoc from NTU Singapore, Ph.D and M.Tech from IIIT-Delhi, B.Tech from GGSIPU

**Area of Specialization:** Symmetric Key Cryptography and its associated cryptanalysis, Cyber Security, Cyber Forensics

**Experience:** 3 Years





**Dr. Sourabh Bharti**

**Assistant Professor**

**Qualification:** PhD (Information Technology) from IIITM Gwalior, M.Tech (Computer Science and Engineering) from IIITM Gwalior.

**Areas of Specialization:** Wireless Sensor Networks, Internet of Things, Intelligent Sensing

**Experience:** 1.5 Years



**Mr. Gaurav Indra**

**Assistant Professor**

**Qualification:** Ph.D. (Pursuing) at NSUT, M.Tech (SE) from DTU

**Areas of Specialization:** Post Quantum Cryptography, Information Theory, Mutual Authentication in Cognitive Radio based IoT, Secure Wireless Communication, Big Data Analytics, Cognitive Computing

**Experience:** 4 Years



**Ms. Bhawna Narwal**

**Assistant Professor**

**Qualification:** Pursuing Ph.D from IGDTUW, M.Tech. (ISM) IGDTUW, Delhi

**Areas of Specialization:** Cryptography, Information Security, Network Security, Wireless Networks. Wireless Body Area Networks

**Experience:** 1.5 Years



**Ms. Charu Gupta**

**Assistant Professor**

**Qualification:** Pursuing PhD from IGDTUW, M.Tech. (Information Security) from GGSIPU, Delhi.

**Areas of Specialization:** Cryptography, Information Security, Web Tehnology

**Experience:** 7 Years

## LAB INFRASTRUCTURE



The Department boasts of a state-of-the-art, centrally air conditioned Computer Centre with newly procured high-end configuration computing systems. In addition, there are Software Design Lab, Distributed Computing Lab and Information Security Lab to address the growing computing needs of the students at the Department. The labs are equipped with around 180 latest configuration computer systems i.e. Intel® Core TM i5 and i7 processors to meet the computing needs of the students. Recently department established a software development cell to cater the requirements of automation of various divisions of the university.

Last year, CISCO under its CSR activity established a Internet of Things (IoT) lab for running thingQbator program with state-of-the-art equipments., including 3D printer, WebEx, IoT Gateways, IoT Platforms, Development Boards and others. The program aims to provide a platform where university students could work together with like-minded colleagues, get exposure to the latest Internet of Things (IoT) technology - and turn their ideas into working prototypes in an environment that encourages a hands-on culture. The program is implemented by NASSCOM Foundation through its partners.

The department houses a library of its own to provide focused and concentrated access to the learning material in the field of Information Technology to its students, faculty members and staff.

## ONGOING PROJECTS

Information Technology, Ministry of Communication and Information Technology under ISEA project Phase-II and the following labs has been established under the project grant:-

**Cyber Forensics Lab:** The lab is equipped with FRED Server and Net Force Suite –a forensic suite developed by C-DAC.

**IoT Lab:** The lab has been equipped with real time test bed “SenseNuts: IoT Platform for Excellence” for experimenting sensor for IoT applications.

The Objective of the ISEA Project includes capacity building in the area of information security to address the human resource requirement of the country, training of government personnel and creation of mass information security awareness targeted towards academic users, general users and government users. The department has already provided the security awareness education to approx. 500 students in last two academic years.

**Chief Investigator: Prof. R.K Singh, Co. Chief Investigator: Dr. A.K Mohapatra**

## MOU WITH NASSCOM FOUNDATION FOR thingQbator LAB



IGDTUW signed a Memorandum of Understanding (MoU) with NASSCOM Foundation on 11th May, 2018 for starting “thingQbator” program of CISCO at IGDTUW. thingQbator is a CISCO funded program for the skill development of young people in India under its CSR Mandate. Under this program, a lab with latest IoT equipments including 3D printer, IoT Gateways, IoT Platforms, Development Boards, and various other kits has been established by NASSCOM Foundation at the University.

## EVENTS & WORKSHOPS



### WORKSHOP ON 'TOOLS FOR RAPID PROTOTYPING - 3D PRINTING'

- ❖ On September 15, 2018, thingQbator Lab hosted a workshop entitled 'Tools of Rapid Prototyping - 3D printing'.
- ❖ The workshop was part of the community building session where students got an opportunity to interact with the thingQbator space and experience the maker culture of doing stuff on their own along with getting detailed exposure to approach the idea portal for connecting to First Cohort of thingQbator.

### ONE WEEK SHORT TERM TRAINING COURSE (STC) ON OUTCOME BASED EDUCATION AND ACCREDITATION BY NITTR

- ❖ Department organized a One Week Short Term Training Program on Outcome Based Education and Accreditation from 24-28 August, 2018
- ❖ The focus of the program was on outcome based education along with NBA Accreditation process.





## Workshop on "It's All About Connected Devices"



On 11th & 12th Oct 2018, a two day hands-on workshop on "It's All About Connected Devices" was conducted by Li2-Technologies, Bangalore for students of cohort-1 in order to streamline and aid the ideas submitted by students with ways of implementation of latest technologies. Approx 60 students from all over the university have been shortlisted for cohort-1 with 20 distinctive ideas.



### MID COHORT HACKATHON

Organised from 5<sup>th</sup> Jan 2019 till 7<sup>th</sup> Jan 2019 for 8hrs each day. Total 10 teams participated. Mr Prashant and Mr Dheeraj from Li2 mentored them for 3 days. Hon'ble Vice Chancellor, IGDTUW, Registrar, IGDTUW and HoD-IT appreciated the efforts of students. Mr Gaurav Indra, Mr Prashant, Mr Dheeraj and Ms Gargi finalized the result of Hackathon. Team thinkovators won the hackathon. Goodies were distributed.

### DESIGN THINKING WORKSHOP

On 24<sup>th</sup> Oct 2018 All 20 teams of cohort-1 attended the workshop on design thinking conducted by Mr. Paras Pundir (Founder, Community Folks).

### WORKSHOP ON GITHUB

On 26<sup>th</sup> Oct workshop on "GitHub for Beginners" conducted by GitHub Campus Experts Mr. Yashowardhan from LMNIIT, Jaipur, Mr. Kunal from Manipal University, Karnataka, Mr. Pranav from IIT- Dhanbad . Cohort-1 students attended the same.

### WORKSHOP ON DEVELOPING IoT APPLICATIONS

On 22nd & 23rd Nov 2018, a two day hands-on workshop on "Developing IoT Applications" conducted by Li2-Technologies (Bangalore) for students of cohort-1 in order to streamline and aid the ideas submitted by students with ways of implementation of latest technologies. Attended by 10 students from cohort-1. Workshop covered following topics: - Open source Cloud platforms, Mobile App and Storage, Hosting a server and Website, Developing a chat terminal, Voice controlled home assistant, Project ideation and building.

## LI2 WORKSHOP ON "PI WITH AN EYE"

On 9<sup>th</sup> and 10<sup>th</sup> Jan 2019 a two day hands-on workshop on "PI with an Eye" conducted by Li2-Technologies (Bangalore) for students of cohort-1. Attended by 23 students from cohort-1. Workshop covered following topics: - Raspberry Pi, SSH, Python; Working with Sensors and Displays, Visualisation and Control Pi Camera and OpenCV, Face Tracking, Edge, Color and Shape Detection.

## ONE DAY WORKSHOP ON NATURAL LANGUAGE AND SPEECH TECHNOLOGY



Department of IT organized a One Day International Workshop on Natural Language and Speech Technology Research on 11<sup>th</sup> January, 2019. More than 100 participants from various parts of the country along with students, faculty members and Research Scholars of the university attended the workshop. Expert sessions were delivered by Mrs Swaran Lata, Scientist G and Head- TDIL Group, Ministry of Electronics and Information Technology, Government of India, Dr Amita Dev, Vice Chancellor, IGDTUW, Prof. S S Agrawal, emeritus scientist, CSIR, Dr Sunita Arora from CDAC.

## MoU WITH CYBER PEACE FOUNDATION

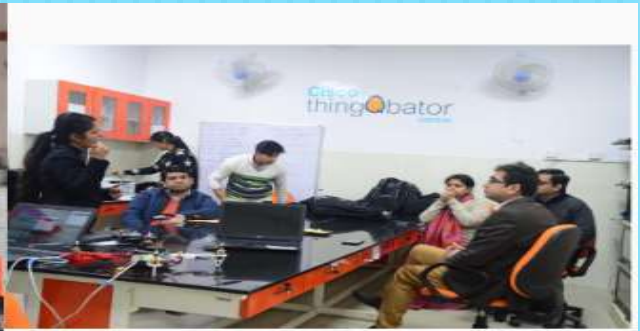
Department of Information Technology signed an MoU with Cyber Peace Foundation on 17th January, 2019 to promote research and development activities in the area of cyber security and forensics. Hon'ble Vice Chancellor, IGDTUW Dr Amita Dev and Capt. Vineet Kumar, Founder, CPF signed the MoU.



Signing an MoU with Cyber Peace Foundation for promoting Research and Development in Cyber Security field



## FINAL DEMO DAY



On 18<sup>th</sup> Feb 2019, Final Demo Day for cohort-1 was organised where registered teams pitched their ideas and being judged for their work performance in Cisco thingQbator. Total 10 teams presented their work. Dignitaries from NASSCOM Foundation and CISCO were present along with VC Ma'am to embrace the event. 10 teams from cohort-1 pitched their ideas and 20 teams from cohort-2 were welcomed into thingQbator.

## ONE WEEK WORKSHOP ON ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING FROM 27-31<sup>ST</sup> MARCH, 2019.



Department of Information Technology organized a one week workshop on Artificial Intelligence and Machine Learning from 27-31<sup>st</sup> March, 2019. This workshop was conducted by Mr Bipul Shahi, Resource Person from Finland Labs, New Delhi. More than 55 students and faculty members from different departments of the University attended this workshop. The topics like Python, Artificial Neural Network, Supervised and Unsupervised Learning, Deep Learning, Recurrent Neural Network (RNN), Convolutionary Neural Network (CNN) and other were covered during the five days workshop.

## BUSINESS INTELLIGENCE FESTIVAL (25<sup>TH</sup> APRIL, 2019)

Department of IT organised Business Intelligence Festival on 25<sup>th</sup> April, 2019 in which students from IGDTUW presented their course projects in form of posters. The event was coordinated by Mr. Rishabh Kaushal, Assistant Professor, Department of Information Technology. Event was jointly organized by ACM Student Chapter, Technical Society at Department of Information Technology, IGDTUW and IGDTUW-Anveshan Foundation (Incubation Center) of University. It was aptly supported by Dr. Arun Sharma, HOD(IT) and Dr. V. K. Arora, CEO, IGDTUW-Anveshan Foundation along with faculty members of other departments of IGDTUW. Event was sponsored by Intuit India. Two senior executives Mr. Prashanth and Mr. Mohan Kumar from Intuit India traveled from Bangalore for the event. They gave T-shirts to all 60 students and prizes to top four winning teams comprising of 20+ students. Poster presentations from students took place in post lunch session. 60 students presented their projects as posters. In total 12 projects were put on display. The event was full of learning for the students and culmination of their semester long efforts in developing the projects in their course titled 'Business Intelligence'.



## MEET THE SUCCESSFUL ENTREPRENEURS

thingQbator and Anveshan Foundation arranged a meet of Industry leaders with the Incubatee companies and the participants of Cohort-I and II on 19<sup>th</sup> May, 2019. Mr Jagadeesh, Founder, KAAJ Ventures and a well known venture capitalist and founder of successful start-ups along with Mr Arun Nagpal, CEO and Founder of Mrida LLP, Prof Puneet from IT BHU, Mr Prashant from NASSCOM Foundation, Mr Chandra Shekhar Raman from CISCO and his team interacted with the participants. Incubatee companies and thingQbator participants presented their ideas before the experts. The experts shown their keen interest in the projects and appreciated the efforts put-in by them. They also gave them useful tips to convert their ideas into the commercial products along with the important aspects to promote the products in the market to become the successful entrepreneurs. At the end, Dr Arun Sharma, HoD-IT presented a Vote of Thanks and presented mementoes to all the guests.





## FELICITATION CEREMONY OF THINGQBATOR PROGRAM AT CISCO, BANGALORE



**Students of IGDTUW being awarded by CISCO**

On successful completion of one year of thingQbator program, an grand event was organized by CISCO and NASSCOM Foundation at CISCO office, Bangalore on 2nd July, 2019 where best three teams from all five thingQbator labs (IGDTUW, IT-BHU, IITMK, Amrita and Trident) were invited to showcase their ideas and prototypes before the panel of very senior professionals from CISCO and other industries. Three teams comprising of 11 students from IGDTUW presented their projects namely Parking Hero, Dost and Falltrack. The projects were highly appreciated by the panel members and advised to go ahead for commercial version for these prototypes. All three teams were awarded with Amazon Gift Voucher of INR 40,000 each. Dr Arun Sharma, HoD-IT was also felicitated by Mr Vishwanathan Iyer, Vice President – Sales, APAC, CISCO and Mr Chandra Shekhar Raman, Lead for thingQbator, CISCO. Mr Raman appreciated the efforts put in by IGDTUW to make thingQbator program a great success and assured to continue the support for one more year. Senior industry persons from NASSCOM Foundation, implementation partners Li2 and Project Defy were also present on the occasion.

## **SUMMER INTERNSHIP ON CYBER SECURITY: ATTACK AND DEFENCE (3<sup>rd</sup> to 28<sup>th</sup> JUNE, 2019)**

Department of IT under aegis of ISEA Project jointly with Cyber Peace Foundation conducted Four Weeks Summer Internship on Cyber Security: Attack and Defence from 03<sup>rd</sup> June 2019 to 28<sup>th</sup> June 2019. The workshop was attended by 57 participants from various Universities and Institutions including IGDTUW. During the Internship, hands on experience on various issues pertaining to Cyber security, Honeypot, Block Chain, Malware analysis and Cyber Law and IT Act was given to participants. It also included one week extensive hands on training on Certified Ethical Hacking using various tools such as Footprinting tools (Foca, Maltego), Email Tracking (email Tracker Pro), network scanning (using Nmap, hping, session hijacking using ZAPProxy) and other web application, IOT and cloud computing vulnerability assessment and penetration testing tools (SQL Map, Metasploit, Kali Linux). The various case studies pertaining to cyber crime were also discussed. Students were also allocated Project work on Honey Pot, Malware Analysis and Online Vulnerability Detection Source Game.

The lectures/expert sessions were delivered by the industry experts (Authorized training partner of EC Council, IBM, Voyager), CPF and faculty members from leading institutions/universities and IGDTUW. 25 participants appeared and successfully qualified for EC Council's Certified Ethical Hacking Certification Exam (CEH v10) .

Valedictory function and inauguration of Cyber Peace Centre of Excellence at Department of IT, IGDTUW was organized on 01<sup>st</sup> July 2019. It was graced by Dr Amita Dev, Hon'ble Vice Chancellor, IGDTUW, Sh. Shekhar Dutt, Former Governor Chhatisgarh, Sh S N Pradhan, Director General, National Disaster Recovery Force, and Capt. Vineet Kumar, Founder, Cyber Peace Foundation.



**Participants of Summer Internship Program**

## **PARTICIPANTS OF SMART INDIA HACKATHON 2019**

So many students from IT department participated in SIH-2019 (Smart India Hackathon) and represented IGDTUW at various cities. Following teams brought the accolades

- Kopal Gupta and Itishree, BTech 4<sup>th</sup> Year: First Prize under Goldman Sachs category. Topic: Optimising Inter-city public transportation system
- Richa Sharma, Priya Joshi, Nishita Malhotra 2<sup>nd</sup> Prize
- Vidhi Jain BTech IT 3<sup>rd</sup> Year: Inspiration Award



# ONE WEEK FACULTY DEVELOPMENT PROGRAM ON ARTIFICIAL INTELLIGENCE (22<sup>nd</sup> TO 26<sup>th</sup> JULY, 2019)

Department of IT organised a One week Faculty Development Program on Artificial Intelligence from 22<sup>nd</sup> -26<sup>th</sup> July, 2019 sponsored by Department of Science and Technology. The FDP was attended by participants from various Universities and Institutions including IGDTUW. During the FDP, hands on experience on various issues pertaining to Artificial Intelligence. The lectures/expert sessions were delivered by the industry experts and faculty members from leading institutions/universities and IGDTUW.



## OTHER ACHIEVEMENTS FROM THE STUDENTS

### **Manmeet Kaur, BTech – IT 2<sup>nd</sup> Year**

WeTech® Goldman Sachs Global Mentorship Program Award'19 and was one of the 45 students across nation selected for Goldman Sachs Services Private Limited ("GSSPL" or "Goldman Sachs") and the Institute of International Education ("IIE")'s WeTech® Initiative of the Mentorship Award. It comprises of a six-month virtual one-on-one mentorship placement with a Goldman Sachs volunteer mentor (the "Mentorship").

### **Tableau Conference 2018**

Awarded the coveted Data Plus Women Community Grant in September 2018. I am one of the 2 awardees across the globe. This grant includes Complimentary Tableau Conference ticket and \$2,000 to be used to cover travel and hotel costs.

### **Western Digital STEM SCHOLARSHIP'18**

Received a scholarship amount of \$2000 by Western Digital in August 2018. The scholarship is awarded based on the candidate's academic performance and community involvement.

### **Google Udacity Scholarship'18**

-Selected among top 350 people from over 10k aspirants across the nation on the basis of a **challenge course completion, open source contribution, community involvement** and other tasks. Enrolled in udacity's Front End development nanodegree for free as a part of scholarship

### **Manmeet Kaur, Priyanka Daryani (BTech – IT 2<sup>nd</sup> Year)**

Microsoft Codess'19

Was one of 55 people across nation invited for an all expenses paid networking event to Microsoft, Hyderabad which comprises of sessions intended to expand skills and a mentored Hackathon.

# What does IT look like to you?

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