

## **Report on TEQIP-III sponsored one week STC on “Research Trends in Cloud, Fog and Edge Computing” organized by Department of Computer Science and Engineering during 17-21st July 2019**



A One-week TEQIP-III sponsored Short Term Course on "Research Trends in Cloud, Fog and Edge Computing (RTCC-2019)" was organized by Department of Computer Science and Engineering at Dr. B R Ambedkar National Institute of Technology Jalandhar from 17-21 July 2019. The main objective to accomplish through this STC was to provide an evident opportunity for the students to gain and foster their knowledge through the exposure to the latest ongoing trends, tools, and practices used at the global scale.

We are pleased to share that the course witnessed the participation of around 60 participants from various institutions across the country including Lyallpur Khalsa College of Engineering Jalandhar, Sri Guru Granth Sahib World University Fatehgarh Sahib, BCET Gurdaspur, Apeejay College of Fine Arts Jalandhar, GNDU Amritsar, Shree Ramchandra College of Engineering Pune, ITS Ghaziabad, LPU Jalandhar, Guru Nanak National College Nakodar, GBPIET Pauri-Garhwal, CT Group Of Institutions Shahpur, DAV University Jalandhar, UPTTI Kanpur, GCE Aurangabad, Uttaranchal University Dehradun, Gurukul Kangri Vishwavidhyalya Dehradun, HPU Shimla, Gulzar Group of Institutes Khanna, NSIT New Delhi. The course not only shed lights on the recent trends in Cloud, Fog and Edge Computing but also provided hands-on training experience on many tools of Cloud Computing.

The STC was graced with the auspicious presence Chief Guest Prof. L.K. Awasthi, Director NIT Jalandhar and Guest of Honour Prof. Mayank Dave, Head of Department of Computer Science and Engineering at NIT Kurukshetra. The course was inaugurated by lighting the traditional lamp followed by Saraswati Vandana.

Prof. L. K. Awasthi welcomed all the dignitaries and then addressed the participants by emphasizing on the significance of Cloud in today's digital world. He added that it is remarkable that the Department of Computer Science & Engineering is always keen to organize conferences, workshops,



Saraswati Vandana and Traditional lamp lighting by Dr. L.K. Awasthi, Prof. M. Dave, Prof. Harsh. K. Verma, Prof. A.L. Sangal, and Coordinators

short term courses and GIAN courses that are beneficiary for the participants to solve the problems in the advance research areas of Computer Science and Engineering field. He highlighted the importance of staying updated and dedicated to the ever-growing technological world.

Prof A. L. Sangal, Dean (Student Welfare) outlined the aim, objectives, and overview of this STC. He told about the importance of Cloud, Fog and Edge Computing in the present era. Prof. Harsh Kumar Verma, Head of Department of Computer Science and Engineering highlighted the accomplishments of the department and told participants to devote their 100% in the course and use this knowledge to extricate the issues and problems in the field of Cloud, Fog and Edge Computing. The STC coordinators Dr. Kuldeep Kumar and Dr. Avtar Singh provided an insight into theoretical and experimental knowledge aspects of Cloud, Fog and Edge Computing along with the emphasis on the link among them.

The first day started with the expert talk by the Guest of Honour Prof Mayank Dave, who delivered an introductory talk on Cloud and Fog computing. The first-day event further proceeded with an expert talk by Prof Sandeep Sood, Associate Dean Head, Computer Science and Engineering, Guru Nanak Dev University Regional Campus, Gurdaspur. He delivered a lecture on the Internet of Things. He talked about the basic difference between core Internet and the fringe Internet.



Prof L. K. Awasthi addressing the participants



Prof Mayank Dave addressing the participants

The second day of the event was started by an expert talk by Prof O.P. Verma, Principal at G B Pant Engineering College Delhi, who introduced participants regarding the difference between Fog and Edge computing. Another interesting talk of the day was by Prof Sanjeev Sofat, Head, Department of Computer Science and Engineering, PEC University of Technology Chandigarh on “Cloud Threat and Security”.

On the third day of the STC, Dr. Kamlesh Dutta, Associate Professor and Head, Department of Computer Science and Engineering, NIT Hamirpur delivered a talk on “Cloud Computing: An Innovation Enablers” and motivated participants for new business models and start-ups by using the features of the Cloud Computing. Dr. Kuldeep Kumar, Assistant Professor, NIT Jalandhar shed light on a practical approach to research methodology and industry-academia research trends in Cloud Computing. Dr. Avtar Singh, Assistant Professor, NIT Jalandhar further discussed the various services provided by Cloud computing and how it is different from Fog computing.

Prof Harsh K Verma, Head, Computer Science and Engineering Department, NIT Jalandhar delivered a lecture on best practices for a secure computing environment. He discussed various virus attacks and how the virus gets into the computer and spread, various virus symptoms, virus defence and its protection. On the fourth day, Dr. Amit Sangroya, Scientist, TCS Innovation Labs delivered a talk on Benchmarking Cloud Services and discussed the use of Cloud services in the respective (distributed) system under test (SUT). Karamvir Singh Rajpal, Chairman, NeoneX provides hands-on session on cloud computing.

The very last day of the STC program begun with the expert lecture delivered by Dr. Mani Madhukar, Program Manager at IBM about latest technologies including Blockchain, Machine Learning, Deep Learning, Cloud, Fog and Edge computing. He also gave Hands-on experience on Cloud Computing and illustrated how to deploy code in Cloud and create services on Cloud. He also gave hands-on experience on Node-Red tool which is beneficial for creating IoT applications.

The five-day STC program ended with certificate distribution to all the participants and the valedictory address by the organizers. Dr. L. K. Awasthi, Director, Dr. B R Ambedkar National Institute of Technology congratulated coordinators to organize such an informative course successfully and extended support to all the participants to achieve their future endeavor.



Certificate Distribution and tree plantation by Worthy Director, NIT Jalandhar

Coordinators, RTCC-2019