

Workshop on Network Simulation and Tools
(NS3 & Omnet++)
February 4-9, 2017

About the Course :

A network simulator is a software that predicts the behavior of a computer network. Since, communication networks have become too complex for traditional analytical methods, so to provide an accurate understanding of system behavior, network simulators are used. In simulators, the computer network is typically modeled with devices, links, applications etc. and the performance is analyzed. A network simulator must enable a user to model the network topology specifying the nodes in the network, the links and traffic between those nodes providing network performance metrics as output.

The goal of this course is to provide knowledge on fundamental concepts of network simulators NS3 and Omnet++, generation of different network scenarios in these network simulators, understanding and implementation of existing as well as new modules and protocols of different networks like Wireless Sensor Network, Vehicular Ad-hoc Network, Internet of Things using frameworks like Veins, Castalia etc. in NS3 and Omnet++. Also, the course will cover the simulation environment of these simulators and performance analysis of the protocols.

Resource Person

Dr. Vinod Kumar Jain
Assistant Professor,
PDPM IITDM Jabalpur

Dr. Matadeen Bansal
Assistant Professor,
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High Check Mech Industries Kohlapur,
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Course contents

Introduction of NS3: Installation and overview of the network simulator, GUI of NS3 , commonly used APIs in NS3 and demonstration of existing examples in NS3.

Simulation environment: Basic models in NS3, communication technologies like WiFi, LTE etc. , implementation of different protocols eg. routing protocols, data dissemination protocol etc. in different types of network (MANET, Sensor, VANET etc), setting of parameters like channels, transmission range, delay model etc. in simulator , integration with other frameworks, tools and libraries and handling of various attributes in NS3.

Analysis: Performance evaluation of the protocol on the different parameters like collision, delay, packet loss, no of packets generated etc.

Introduction of Omnet++: Installation, understanding of the simulator and demonstration of existing examples.

Simulation environment: Understanding and integration with other frameworks like Veins, Castalia, INET etc. , implementation of different protocols in different networks using different frameworks, setting of simulation parameters and integration of hardware specific code.

Analysis: Result interpretation and analysis of the protocols on different parameters.

Schedule:

Day 1 : Installation and basics of NS3 along with frameworks

Day 2 : Running and analysis of scripts, WSN platform

Day 3 : Protocol modification and demonstration of network
Parallel computing

Day 4 : Installation and basics of Omnet++ along with
frameworks

Day 5 : Simulation environment basics, Running and trace file
analysis, WSN platform

Day 6 : Protocol modification, scenario generation and its
analysis

Course Coordinators

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Application Form

Name of the Applicant (first, last):

Gender:

Designation:

Name and Address of the Organization/Institute/college:

City/town: Email:

Alternate email (if any):

Phone Number:

Mobile Number:

Do you need accommodation? (Yes/No):

Note: Accommodation and meal facility will be available only from the evening of 3rd February 2017 to the morning of 10th February 2017.

DD Number: Date:

Issuing Bank:payable at :

Signature of the Applicant

I hereby agree to relieve Mr./ Ms./ Dr.
..... in case she/he is selected to attend the
programme.

Signature and Seal of the Forwarding Authority

Name

Designation

About Electronics & ICT Academy at PDPM IIITDM Jabalpur

Department of Electronics and Information Technology, Government of India has instituted seven Electronics and ICT Academies with one academy at PDPM IIITDM Jabalpur with the primary objective preparing manpower for two important missions - 'Digital India' and 'Make in India'. The Academy aims at the design and implementation of scalable training programmes in niche areas of electronics and ICT for the development of required knowledge base, skills and tools to unleash the talent of Indian population. The Academy at PDPM IIITDMJ will partner with IIITM Gwalior, MANIT Bhopal, and IIT Indore to run high quality specialized courses for faculty, students and unemployed graduates. In addition, the Academy will conduct customized training programmes and research promotion workshops for corporate sector and educational institutions. The Academy is envisioned to become a central hub of activities on training, consultancy work and entrepreneurship programmes.

About PDPM IIITDM Jabalpur

IIITDM Jabalpur was established in 2005 with a focus on education and research in IT enabled Design and Manufacturing. Since its inception, PDPM IIITDM Jabalpur has been playing a vital role in producing quality human resources for contribution in India's mission of inclusive and sustainable growth. The Institute offers undergraduate, postgraduate and PhD programmes in Computer Science and Engineering, Electronics and Communication Engineering, Mechanical Engineering, and Design along with masters and PhD programmes in Mathematics and Physics. Under IIIT act, the Institute has been declared an Institute of National Importance in January 2015. The Institute campus is being developed on 250 acres of land close to Dumna Airport, Jabalpur. The Institute is 10 kms from the main railway station and 5.5 kms from Dumna airport, Jabalpur.

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Who can attend :

The programme is open to faculty and research scholars. Industry personnel working in the concerned/allied discipline may also apply.

How to apply :

Online – The participants may log on to the website ict.iiitdmj.ac.in and fill up the application form by providing all the necessary details.

By Email – Scanned copy of the filled in application form duly endorsed by the forwarding authority may be mailed at vkjain@iiitdmj.ac.in, academyiiitdmj@gmail.com.

Please also send/post your duly-filled application form endorsed by the forwarding authority along with the required DD of the registration fee (add accommodation charges, if needed) in favour of 'Electronics and ICT Academy, IIITDMJ' payable at Jabalpur to the contact address. Please ensure that your complete application should reach to us before due dates as mentioned below.

Note: No Travelling Allowance will be paid by the Academy.

Important Dates :

Last Date of Online Registration : January 25th, 2017

Spot Registration also available if seats are available.

Course Dates : February 4-9, 2017

Registration Fee

(course material + lunch inclusive) :

Rs. 2000/- for participants from academia

Accommodation charges (if needed) :

Rs. 2000/- (including breakfast and dinner)

Contact us

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PDPM Indian Institute of Information Technology,
Design and Manufacturing, Jabalpur,
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Seamless Learning Opportunities



Faculty Development Programme Under Electronics and ICT Academy

PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur,
Dumna Airport Road,
Jabalpur 482005

Building Human Resources For Digital India

E&ICT Academy IIITDMJ



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