

TEQIP-II Sponsored Short Term Course
on
DIGITAL IMAGE PROCESSING AND MULTIMEDIA SECURITY

December 30, 2013 to January 03, 2014



Course Coordinators:

Dr. Debashis Nandi (Department of IT)
Dr. Mrinal Kanti Mandal (Department of Physics)
Dr. Baisakhi Chakraborty (Department of IT)

National Institute of Technology Durgapur
Mahatma Gandhi Avenue
Durgapur 713 209

THE INSTITUTE

National Institute of Technology Durgapur (NITD) is a leading technical institute offering undergraduate, postgraduate and doctoral programmes in various disciplines of engineering, technology, science, social science and management. The education system is holistic with equal importance being attached to all-round development of the students. NITD was established as a Regional Engineering College (REC) in 1960 as a joint venture of the Government of India and Government of West Bengal. REC Durgapur was converted to NIT Durgapur under the full administrative and financial control of the Ministry of Human Resource Development of Government of India with a Deemed University status on 3rd July, 2003. Subsequently NITD has been given the status of a University by the UGC Act. The Institute was declared an **Institute of National Importance** by the Government of India on August 15, 2007.

The city of Durgapur is recognized as one of the fastest developing Tier-II cities in the national scenarios. Durgapur is situated at a distance of about 180 KMs from Kolkata. It is located right on the major railway and expressway (NH-2) connecting Kolkata to Delhi and Durgapur can be reached from Kolkata (and vice versa) in ~ 2 hrs. 30 mins.

THE DEPARTMENT

Department of Information Technology of NIT Durgapur is one of the new and leading Departments in terms of teaching qualities and research activities. The department has been offering undergraduate course in IT since 2000. Within a very short span of time, the department has created an excellent learning environment with dedicated young faculty members, technical staff, 'state-of-the-art' laboratories and innovative academic processes. The department provides computational facilities for system level programmers, application development and research. The Department, over the years, is successfully undergoing several projects sponsored by the Department of Information Technology, Government of India. A number of students are working at present for their Ph.D. degrees undergoing research under supervision of several faculties. Theoretical and experimental investigations are being carried out in the frontier areas like Modeling & simulation of Networks, Optical Burst Switched Network, Distributed Systems, Wireless Networks, Knowledge Management, data mining and Case based reasoning, Swarm Robotics, Soft computing, cryptography and network security, VLSI testing, distributed computing, software engineering, image processing, algorithms and applications, chaos and security, bioinformatics and several other allied and interdisciplinary domains.

The department has been offering post graduate course since 2008.

Many students who have received their M.Tech degrees from this Department are serving now in different Institutes of higher learning in India.

ABOUT THE SHORT TERM COURSE “IMAGE PROCESSING AND MULTIMEDIA SECURITY”

Digital image processing is the use of computer algorithms to perform image processing on digital images. As a subcategory or field of digital signal processing, digital image processing has many advantages over analog image processing. It allows a much wider range of algorithms to be applied to the input data and can avoid problems such as the build-up of noise and signal distortion during processing. Many of the techniques of digital image processing, or digital picture processing as it often was called, were developed in the 1960s at the Jet Propulsion Laboratory, Massachusetts Institute of Technology, Bell Laboratories, University of Maryland, and a few other research facilities, with application to satellite imagery, wire-photo standards conversion, medical imaging, videophone, character recognition, and photograph enhancement. The cost of processing was fairly high, however, with the computing equipment of that era. That changed in the 1970s, when digital image processing proliferated as cheaper computers and dedicated hardware became available. Images then could be processed in real time, for some dedicated problems such as television standards conversion. As general-purpose computers became faster, they started to take over the role of dedicated hardware for all but the most specialized and computer-intensive operations. With the fast computers and signal processors available in the 2000s, digital image processing has become the most common form of image processing and generally, is used because it is not only the most versatile method, but also the cheapest.

In the recent years, with the development of network and multimedia technology, the multimedia data like image, audio and video data, are used more and more widely in human society. Some multimedia data, including entertainment, politics, economics, militaries, industries, education etc, is necessary to be protected by

providing confidentiality, integrity, and ownership or identity. To protect multimedia contents, cryptology technique, which appears to be an effective way for information security, has been employed in many practical applications. During the last three decades, tremendous interest has been posed for developing multimedia security in communication system.

The Objectives of the short term course is to bring researchers and technocrats from different parts of our country to a common gathering for exchanging and sharing the recent developments in digital image processing and multimedia encryption and their applications in different trade of engineering and technology like satellite imagery, medical imaging, videophone, character recognition, and photograph enhancement, multimedia data protection etc.

TOPICS TO BE COVERED

- Introduction to Image Processing and its applications
- Fundamentals of Image processing and image enhancement techniques
- Biomedical image processing
- Ultrasound imaging and image enhancement
- Super resolution imaging
- Chaos and image encryption
- Multimedia security and digital watermarking

RESOURCE PERSONS

The resource persons constitutes experts/senior faculty members from NIT Durgapur and various guest speakers from other reputed institutions and industries including ISI, BESU, IIT, Industries, Research Institutes, etc.

WHO CAN ATTEND THE COURSE

The course is aimed to attract and bring together Faculty Members, Scientists, Engineers, Technologists, Research Scholars and Final Year UG/PG students from Academic and Research Institutions and Industries. The participants will be benefitted immensely and will get new insights and knowledge about the topic through close interactions/discussions with the Senior Faculty Members/Scientists and Experts of the respective field during the lecture sessions as well as in some laboratory sessions.

BOARDING & LODGING

Boarding, lodging and travel expenses shall be borne by the participants. Limited shared accommodations are available in the Institute Guest House on first come first served basis. Several good hotels are available in and around Durgapur. Participants may contact directly or through the coordinator(s) for accommodation in Hotels.

REGISTRATION FEES

Participants	Up to October 2013	After October 2013
Faculty/Staff Member of Academic Institutes	Rs. 3500/-	Rs. 4500/-
Members from Research Institutes/Industries	Rs. 5000/-	Rs. 6500/-
Research Scholars & Students	Rs. 2500/-	Rs. 3000/-

There will be no registration after 06th December 2013. *Registration fee includes study/lecture materials, refreshment and lunch for 5 days during the course.*

Patron:

Prof. T. Kumar, Director, NIT Durgapur

Advisory Committee:

Col. (Retd.) P. S. Sandhu, Registrar

Prof. P. P. Gupta, Dean (R&C)

Prof. K. C. Ghanta, Coordinator TEQIP-II

Prof. B. Halder, Nodal Officer (Academic) TEQIP-II

Course Coordinators:

Dr. Debashis Nandi (Dept. of IT)

Dr. Mrinal Kanti Mandal (Dept. of Physics)

Dr. Baisakhi Chakraborty (Dept. of IT)

Members:

Mr. Subhrabrata Choudhury

Mr. Sajal Mukhopadhyay

Dr. Debashis Mitra

Mr. Animesh Dutta

Mrs. Dipanwita Das



NATIONAL INSTITUTE OF TECHNOLOGY, DURGAPUR
Department of Information Technology
M.G. Avenue, Durgapur – 723109, West Bengal

REGISTRATION FORM

TEQIP-II Sponsored Five-day Short Term Course on
DIGITAL IMAGE PROCESSING AND MULTIMEDIA SECURITY
December 30, 2013 to January 03, 2014

1. Name: -----
2. Designation & Affiliation: -----
3. Male/Female:-----
4. Mailing Address:-----
5. Telephone No.: _____ & _____ (M)
6. E-mail ID : -----
7. Highest Academic Qualification:-----
8. Working Experience (In nos. of Years): -----
9. Accommodation required* (Y/N):-----
10. Registration fees: DD/Cheque No. _____ Date _____ Amount _____
(Account Transfer/DD/Multi City Cheque should be drawn in favor of “NITD IT PHY”, payable at Durgapur.)
A/C Name: **NITD IT PHY** A/C No. **33154858334** IFS Code: **SBIN0002108** MICR Code: **713002204**
11. Vegetarian / Non-Vegetarian: -----

Place: _____
Date: _____

Signature of the Applicant

Signature and Seal of the Head of the Department/Institute

N.B.: Please ensure that all the fields (1 to 11) are properly filled-in and then duly signed. Photocopy of this form may also be used for registration. Please send the completed application form together with the scanned copy of the demand draft to the Course Coordinator by E-mail.

CORRESPONDING ADDRESS

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