

SELECTED TOPICS OF ADVANCED SIGNAL PROCESSING

- Category 1:** Nil
(Enclose Certificate that your institute is approved by **TEQIP-II**)
- Category 2:** ₹ 2500 (for Teachers)
(for colleges not funded by TEQIP)
- Category 3:** ₹ 2000 (for Students)
(for colleges not funded by TEQIP)
- Category 4:** ₹ 5000 (for industry, govt. and semi govt. organizations, research labs etc.)

Payment should be made via demand draft drawn in favour of “**CEP-STC, IIT Kharagpur**”, payable at Kharagpur

DEMAND DRAFT DETAILS	
Amount ₹	
Bank Name	
Place	
Branch Code	
DD No. & Date	

Declaration

The information provided is true to the best of my knowledge. If selected, I agree to abide by the rules and regulations of the course and shall attend the course for the entire duration without any failure.

Place _____

Date _____

Signature of applicant _____

Please complete the details above and mail alongwith registration fee to:

Prof. Mrityunjoy Chakraborty
Dept. of E. & E.C.E.
IIT Kharagpur - 721302
Email: mrityun@ece.iitkgp.ernet.in

About IIT Kharagpur

History

First in the chain of IITs to be set up by the Government of India, Indian Institute of Technology, Kharagpur started in 1951 in the erstwhile Hijli Detention Camp. It has now blossomed into one of the finest technical institutions in the world, with 585 faculty members in 19 Departments, 9 Centres, and 12 Schools offering 6 M.Sc. programmes, 5 Joint M.Sc. -Ph.D. programmes, 15 B.Tech (Hons.) programmes, 49 joint M.Tech. - Ph.D programmes, 2 M.Tech. programmes (in video-conferencing mode), 1 Master of City Planning programme, 1 Master of Medical Science and Technology programme, 1 LL.B. in Intellectual Property Rights programme, 34 Dual-Degree (both B.Tech and M.Tech) programmes, and 2 Management programmes. It also has MS, Ph.D, and D.Sc. programmes.

Location

Kharagpur is known world over for two landmarks. One, the longest railway platform, and the other, the Indian Institute of Technology, more commonly known as IIT. Situated about 120 km west of Kolkata, Kharagpur can be reached in about 2 hours by train from Howrah railway station of Kolkata or 3 hours by car from Kolkata Airport. Kharagpur is also connected by direct train services to most major cities of the country. The Institute is about 10 minutes drive (5 km) from the Kharagpur railway station. Private taxi, auto-rickshaw or cycle-rickshaw can be hired to reach the Institute.

Weather

Winter (October to February) is moderate and pleasant (10 to 25°C) in Kharagpur. Summer (March to June) is hot (25 to 40°C) and sometimes humid. Rains are normally confined to the months of June to September.

Overview

- The course covers some niche topics from advanced DSP without requiring much background knowledge in DSP (only elementary knowledge of signals and systems or DSP will be sufficient).
- The course is FREE of charges for teachers and students of TEQIP funded colleges.
- For teachers and students of non-TEQIP colleges, only a nominal fee will be charged. Same applies to participants from industry.
- The course consists of *five lectures, each of two hours*, to be offered on five weekends (details given below).
- The lectures will be delivered using the audio-video broadcasting facility of IIT, Kharagpur and participants can attend them remotely at the IIT extension centers at Kolkata (Salt Lake), Bhubaneswar (IIT, Bhubaneswar) and Raipur.
- All participants will receive Certificate of Attendance duly signed by the Dean (CEP), IIT, Kharagpur at the end of the program.

Venue

IIT Kharagpur and its extension centers at Bhubaneswar and Kolkata through online video lecture. All video-conferencing enabled classrooms at Kharagpur, Kolkata and Bhubaneswar are equipped with high definition video-conferencing system. Each of these acoustic treated air-conditioned video enabled classrooms with multiple HD cameras, document viewers and large display monitors permit teachers to conduct LIVE interactive sessions from Kharagpur with multiple remote classrooms at Kolkata and Bhubaneswar. 8 Mbps leased line connectivity of Kolkata and Bhubaneswar centers with Kharagpur ensure uninterrupted bi-directional lossless audio video transmission.

Course Objectives

To give an exposure to the participants some of the advanced, currently relevant topics of digital signal processing that are not usually covered in college curricula. It is hoped that this program will empower the participants to take up further studies in the chosen areas.

Course Schedule and Methods

Date: July 11, 18 and August 1, 8, 22, 2015

Time: 11.00 am – 1.00 pm

Eligibility

The course assumes minimal background knowledge. Teachers, engineers, scientists and students having an introductory level knowledge in signals and systems can attend this program.

Important Dates

Registration deadline : June 15, 2015

[Complete application should be received by the coordinator by this date]

Lecture #1 : Advanced signals and systems (Tentative dates : July 11, 11 am – 1 pm)

Lecture #2 : Filter banks and discrete wavelet transform (Tentative dates : July 18, 11 am – 1 pm)

Lecture #3 : Parallel implementation of digital filters (Tentative dates : August 1, 11 am – 1 pm)

Lecture #4 : Multiplier free realization of digital filters and discrete transforms via distributed arithmetic (Tentative dates : August 8, 11 am – 1 pm)

Lecture #5 : DSP on CORDIC (Tentative dates : August 22, 11 am – 1 pm)



mityun@ece.iitkgp.ernet.in

Course Contents

- 1 Advanced signals and systems
- 2 Filter banks and discrete wavelet transform
- 3 Parallel implementation of digital filters
- 4 Multiplier free realization of digital filters and discrete transforms via distributed arithmetic
- 5 DSP on CORDIC

The Faculty



Prof. Mityunjoy Chakraborty obtained Bachelor of Engg. (1983), M.Tech. (1985) and Ph.D. (1994) from Jadavpur University, IIT Kanpur and IIT, Delhi respectively. He joined IIT, Kharagpur as a lecturer in 1994, where he presently holds the position of a full professor. Prof. Chakraborty has held many invited, visiting positions in reputed universities abroad. He has been an associate editor of the IEEE Transactions on Circuits and Systems, Part I (2004-2007, 2010-2012) and part II (2008-2009), a guest editor of the EURASIP JASP and a TPC member for many important IEEE conferences. The teaching and research interests of Prof. Chakraborty are in digital and adaptive signal processing, VLSI signal processing and DSP for wireless communications, in which he has guided several Ph.D. students and published extensively. Prof. Chakraborty is a fellow of the INAE.

Registration Fees

Category-1: Nil (for Teachers and Students of TEQIP funded colleges.)

Category-2: ₹ 2500 for Teachers (for colleges not funded by TEQIP)

Category-3: ₹ 2000 for Students (Students must send a bonafide Certificate from Parent Institution along with the registration form)

Category-4: ₹ 5000 (for participants from industry, govt. and semi govt. organizations, research labs etc.)

To confirm participation please send the scanned copy of the Demand Draft to mityun@ece.iitkgp.ernet.in by 15 June, 2015 positively.

The number of seats is limited and thus candidates are advised to register early.

Accommodation

Outstation participants will be provided accommodation at IIT Kharagpur on self payment basis as per availability on prior request.

Course Co-Ordinator

Prof. Mityunjoy Chakraborty
(Coordinator, Teacher)
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Communication Engineering
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REGISTRATION FORM

KNOWLEDGE DISSEMINATION PROGRAMME

SELECTED TOPICS OF ADVANCED SIGNAL PROCESSING

July 11, 18, August 1, 8, 22, 2015

Name

Date of Birth

Gender Male FemaleCategory Academic Student Professional
(Please enclose a bonafide certificate from your parent institution)

Organization

Address for Correspondence

Preferred location for attending

Phone

E-mail

Highest Academic Qualification

Experience (in years)

Accommodation Required (at IIT Kharagpur) Yes No