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SHORT TERM COURSE
ON
ADVANCED SURVEYING AND
GEO-INFORMATION FOR
MINING AND GEO-SPATIAL
INDUSTRIES

18th – 20th January, 2017



Coordinator

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Organized by

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INTRODUCTION & OBJECTIVE

Understanding of the different methods, the modern technologies, the underlying principles, high potentials and limitations of the advanced surveying and geo-informatics techniques including learning about the criteria for useful applications - conceptualizing the processes of creating digital databases & environments - gaining the practical skills by using existing tools in laboratory sessions - developing complete applications through field / group projects, form the basics of this course.

During the last two decades **engineering surveying** has undergone rapid & leap changes. Advanced technologies have dramatically changed the different operations of surveying, map generation, acquiring-planning and scheduling inputs for proper design and inventory management aided with the associated field survey operations (like in: *civil, chemical, mining, geo-resources, architecture, highways, railways, airports* etc.) for adequate and intensive analysis followed by improved planning and management etc.

However, the conventional survey tools and surveyors till now have limited exposure to the basic principles of these advanced surveying techniques. It is undoubtedly important that the surveyors need to be **trained through rapid learning system** to handle the advanced surveying equipment like: the *digital level, autolevel, total station, GPS, DGPS, laser beams, present day theodolites, space craft image-based operations for terrestrial as well air / satellite borne and robotic mapping* for various purposes of industrial operations.

More importantly, familiarization with the data-download process of the relevant equipment-acquired data to store and analyse the information using the associated software as well as integrating them with the related planning software; forms the other important aspects of this course.

The applications of the latest algorithms and tools of Geo-informatics in this sector particularly in surveying, mapping and planning are of paramount importance. This trend is definitely going to bring modern survey industry a

completely new dimension where automation, virtual reality etc will be playing a vital role.

DEPARTMENT OF MINING ENGINEERING

Mining Engineering at IIT Kharagpur has been working on these advanced technologies and the respective application of IT in this sector, and has earned its reputation by serving the industry over the last decades.

The Surveying and Geo-informatics division of the department has developed high level of expertise and experience in the applications of these modern surveying techniques and advanced information handling algorithms with the recent methods including **remote sensing, cadastral mapping, digital photogrammetry, GIS and DGPS** etc. in the past years. The proposed executive / academic development program will be offered especially for the surveyors, and Industrial planning- and managerial-executives, with the theoretical and practical hands-on exercises.

COURSE CONTENT

Introduction - Enabling Technologies of advanced surveying - Definition and Characteristics of the modern equipments - Applications – Principles of latest surveying techniques for solving various engineering problems - Geometric Modeling Principles - Modeling of Digital Environments - Existing Tools - Special Topics: GPS, GIS, Remote Sensing, LU/LC, Change detection, Cartography, Photogrammetry, Cadastral Mapping, Environmental Aspects, TLS and Radar Scanners.

LABORATORY SESSIONS

Basics and Introduction – Conventional methods of surveying – Data Modeling and Analyses – Familiarization with the Associated Software Packages and Tools - Preparing Models for Field Applications - Group Mini Project Works.

FACULTY

Faculty for the course involves eminent professors working in the field of Geo-informatics and Advanced Surveying and their Applications at the Institute, sister IITs, IISc and

some experts from the industry, e.g.: ISRO, NRSC, IIRS, SOI, GSI, MOEF, DGMS etc., who would deliver the lectures and help in practical sessions.

ELIGIBILITY

The course is open to any one interested and working on the application of Geo-informatics and Advanced Surveying. Field / practicing engineers, faculty of government / private colleges / institutions of the country or interested students with sufficient background, and people involved in R&D or consultancy or industry on these areas are eligible to apply. Participation would be on a **first-come-first-serve basis**. This course fee will cover lecture notes (softcopy) and related material, which excludes the transportation, fooding and lodging fees.

APPLICATION AND REGISTRATION

The interested and eligible candidates (following the above mentioned criteria) may send their application (through proper channel) for the participating in the short term course in the format attached at the end, to the course coordinator by **December 15, 2016**, along with the course fee in the form of a **demand draft** drawn in favour of '**CEP-STC, IIT Kharagpur**' payable at Kharagpur or deposit electronically in SYNDICATE BANK, IITKGP; Bank, A/C No.: 9556 2200002955, Bank Code: MICR 000025000, Core Banking No for Electronic Fund Transfer: SYN0009556. The course fee for different categories of participants is as follows:

(a)	Industry executives / scientists from different organizations	Rs .18,000.00
(b)	Faculty from Colleges / Institutions	Rs. 12,000.00
(c)	Officials from NGOs	Rs. 10,000.00
(d)	Research Scholars / Students (of Diploma, BSc, MSc, BTech, MTech & other post-graduate levels)	Rs. 5,000.00

Note: The course fee excludes transportation, fooding and lodging charges; and will cover lecture notes (softcopy), refreshment during classes and local transport costs only.

BOARDING AND LODGING

As per the present institute norms, the selected candidates / participants from industry / academic institutions / NGO would have to bear these costs.

Arrangements for accommodation for limited number (a **maximum of 30**) of the selected participants will be extended (**on first-come-first-serve-basis**) in our institute guest house in a double / single bedded (non-AC / AC) rooms on the payment basis at the institute rate (single bedded AC Rs 1000, double bedded AC Rs 1500), depending on the availability at the time of the course. Also several restaurants and cafeteria of different types are available on and around the campus. Refreshments / Tea will be available during the sessions.

GENERAL INFORMATION

IIT Kharagpur is located in a rural environment at a distance of about 5 km from Kharagpur Railway Station (SER). Kharagpur, 116 km from Kolkata, is conveniently connected to Howrah (Kolkata) by Local and Express trains. It has direct rail links with most of the major cities in India. Those traveling by air may take a taxi to Howrah Station from Kolkata Airport. Auto-rickshaws (Rs. 110/-) and Taxis (Rs. 150/-) are available from the Kharagpur Railway Station to IIT Kharagpur. Weather during February is wintery but pleasant.

IMPORTANT DATES

1. Last date of receipt of application : *December 15, 2016*
2. Intimation of selection : *December 20, 2016*
3. Confirmation by applicant : *December 31, 2016*

ADVANCED SURVEYING & GEO-INFORMATION FOR MINING AND GEO-SPATIAL INDUSTRIES

Registration Form

Name: Mr. / Mrs.:

Office Address:

Telephone No :

FaxNo.:

Mobile Nos.:

E-mail ID:

Highest Academic Qualification with year:

Professional Experience:

Sex: Male / Female

Accommodation :Required: Yes / No

Candidates Signature:

Payment Details:Dated.....

Registration Certificate

This is certify that Mr/Mrs

working as in our Organisation.

He is approved to attend the short term course

on advanced surveying and geo-information for

mining and geo-spatial industries

Date: Signature of the sponsored Agency