INTRODUCTION

Optimization, which simply means *making the best choice out of a given set of options*, appears in every aspect of engineering and business. Optimization may superficially seem like a simple task. But when the decisions to be made are too many, choices are diverse, constraints are complicated and scenarios varied, one has to adopt an analytical and systematic approach to decision making. The fields of optimization and game theory develop precisely this approach. A better understanding of this approach leads to clearer interpretation of decision situations and better decisions. Optimization and game theory are the backbone of every industry, from logistics, analytics, finance and telecommunications to power and energy, control and automation, aerospace etc.

COURSE OUTLINE

This course will introduce the basics and methods of optimization and game theory and acquaint the attendees with the latest decision making tools. We will cover case studies/examples from telecommunications, power and logistics. The course will begin with optimization problems involving a single agent and end with selected topics in multiagent and competitive decision making.

COURSE CONTENTS

The short-term course includes following topics:

- Review of fundamentals
- Optimization methods and algorithms
- Optimization under uncertainty
- Multiagent decision making: game theory and theory of syndicates

Over the five days of the course the participant will learn basics of optimization and know a host of optimization algorithms. The participant will learn to identify classes of optimization problems and develop a sense for which algorithms to apply for a given situation. We will cover examples/case studies from specific industry applications. The general theme of the course is "decision making" in various contexts. Hence it will cover optimization under uncertainty and under competition. In the latter we will do an overview of game theory and the theory of syndicates. We will also cover optimization algorithms for computation of equilibria in games.

WHO MAY BENEFIT

Engineers and analysts working in areas such as finance, power and energy, control and automation, aerospace, telecommunications, logistics, business analytics etc.

VENUE FOR THE COURSE

Course will be held in Seminar Hall of Systems and Control Engineering/Guest House/VMCC, IIT Bombay.

LECTURE NOTES

Hard copies of the lecture notes or presentations will be made available at the time of registration.

TEACHING FACULTY

The teaching faculty is Prof Ankur A. Kulkarni. He has several years of experience of research and teaching in the US and in India. He is a recipient of the INSPIRE Faculty Award of the Government of India and the William A Chittenden award at the University of Illinois, USA. He has made contributions to game theory, team theory and optimization. He is a popular teacher having consistently received 95% and above ratings for courses on game theory and optimization he has designed and delivered at IIT Bombay.

ELIGIBILITY

Professionals from industry, faculty and students from colleges are welcome to attend.

IMPORTANT DATES

Last date for receipt of registration: June 12, 2015 (contact the coordinator on 9167889384 for on-the-spot registration)

Course dates: 15 June – 19 June 2015.

REGISTRATION

Per participant (for the full course):

- For industry participants: Rs 20,000 + Service Tax @ 14%
- For participants from academia: Rs 10,000 + Service Tax @ 14%
- For students: Rs 5000 + Service Tax @ 14%

A demand draft should be drawn in favour of "The Registrar, IIT Bombay- CEP Account" payable at Mumbai.

No income tax is to be deducted at source from the course fee, as IIT Bombay is exempt from the same. The course fee includes course material, lunch and coffee/tea.

Candidates will be awarded a "Certificate of Participation".

Completed registration form should be sent to the following address:

Prof. Ankur A. Kulkarni,
Course Coordinator,
Systems and Control Engineering, IIT Bombay, Powai, Mumbai – 76.
Phone: (022) 25765384
Email: ankur@sc.iitb.ac.in

Candidates should complete the enclosed registration form, and send it by mail to the above address. **Additionally, a scanned copy should be emailed to the coordinator.**

ACCOMMODATION

Limited accommodation is available at the IIT Bombay Guest House for an additional fee. Participants are urged to contact the coordinator well in advance for such requests.

For any further information regarding the speaker, please visit
http://www.sc.iitb.ac.in/~ankur/

For any further information regarding CEP programmes at IIT Bombay, please contact:

Professor-In-Charge, CE & QIP,
IIT Bombay, Powai, Mumbai–76.
Phone: (022) 25767060
Email: cep@iitb.ac.in
For further details: www.iitb.ac.in/~cep

CEP Short Term Course on

Optimization and Game Theory: From Basics to Latest Trends

(With examples from Telecom, Power & Logistics)

June 15 - 19, 2015

Coordinator

Prof Ankur A. Kulkarni
Systems and Control Engineering

Office of Continuing Education &
Quality Improvement Programmes
Indian Institute of Technology Bombay
Powai, Mumbai –
400 076.

CEP Short Term Course on

Optimization and Game Theory: From basics to Latest Trends

June 15 - 19, 2015

Registration Form

Name* (in block letters): _____

_____ Gender*: M / F

Designation*: _____

Organization*: _____

Mailing Address*: _____

_____

_____

Telephone*: _____ MOBILE _____

Fax: _____

Email*: _____

Educational Qualification*: _____

Experience*: _____

IIT Bombay Guest house accommodation required?: YES/NO

Payment information: DD no: Date Rs
(DD should be drawn in favour of "Registrar, IIT Bombay, (CEP Account)"

Date*:_____ Signature of Applicant*: _____
* Required.

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Date*:_____ Signature of Applicant*: _____
* Required.