

TEQIP III

short term course on

Operations Research for Business and Engineering: Concepts, Applications and Methods

(Online mode, Dec. 14-18, 2020)

Organized by

**Department of Management Studies
I.I.T. Delhi**



**Sponsored by TEQIP III,
Ministry of Education**

Course Coordinators:

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&

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Indian Institute of Technology Delhi

Introduction:

Operations Research (O.R.) techniques are widely used in applications that cover both engineering and management domains. Practically, any quantitative decision making problem can be modeled using O.R. techniques with some training and practice. Academicians, researchers and practitioners working in the domains of engineering and management often face difficulties in integrating O.R. techniques for their decision problems. In addition to this, recent issues of sustainability, flexibility, presence of multiple stakeholders and uncertainty quantification have to be incorporated in mathematical models to make it relevant and contemporary. These issues necessitate the need for educators and practitioners to develop a strong theoretical understanding of the subject and also the exposure to different mathematical models that are possible in O.R. so as to develop decision making models in their respective disciplines. For academicians, this course will be helpful in teaching courses such as Operations Research, Quantitative Decision Making, Operations Management, Production Management, and Supply Chain Management.

The short term course is an attempt to provide depth in terms of theory and breadth in terms of various modeling techniques possible through Operations Research. EXCEL/ LINGO software would be used to demonstrate some of the decision making models.

Course objectives:

The objective of the course is to familiarise the participants with various techniques tools and techniques in Operations Research. Specifically, the course would cover topics like Linear Programming, Integer Programming, Applications of these techniques in various industries like manufacturing, service, logistics and transportation. The participants will also be trained in modelling and solving Operations Research problems in EXCEL and LINGO software. The program will be conducted through online mode due to current pandemic.

Course contents:

The focus of the program is to cover both theory and applications of Operations Research. To provide briefly an understanding of the course, following topics would be covered.

Linear Programming: Modelling mathematical models as linear programs, Solving linear programming models, Duality theory, Shadow price and reduced costs and their economic interpretations.

Integer Programming: Modelling integer programming models, Theory of integer programming, Solving Integer Programs – Branch-and-Bound, Cutting plane methods.

Applications: Production Planning, Product selection, Distribution network

design, Location problems, Layout problems, Routing problems. Modeling uncertainty in optimization problems. Modeling multiple stakeholders using Bilevel/Multilevel Optimization, Multi-criteria decision making models such as AHP, IRP, TOPSIS, Quantitative models will be discussed using LINGO. In addition, applications of O.R. will be discussed using case study.

Faculty

The course will be conducted by the I.I.T. Delhi and other premiere institutes.

Who can participate?

The program is primarily designed for the faculty members from TEQIP III quality circle institutes under IIT Delhi and other IITs.

How to Apply?

The interested faculty members from quality circle institutes under I.I.T. Delhi and other I.I.T.s are required to fill the google form link provided along with this brochure.

Course fee

No course fee will be charged from the participants.

REGISTRATION FORM

Operations Research for Business and Engineering: Concepts, Applications and Methods

Dec. 14-18, 2020

You can register for the program at:
<https://forms.gle/bFJP8K6qSHkdoSPk7>

or

Scan the following QR code:



Important Dates

- Deadline of completed application form: **Nov. 20, 2020**
- Publication of selected participants: **Dec. 07, 2020**

CONTACT DETAILS

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