

<b>COURSE TITLE</b>	<b>OPERATION RESEARCH FOR INTERNATIONAL BUSINESS</b>
<b>COURSE CODE</b>	<b>04MB0118</b>
<b>COURSE CREDITS</b>	<b>2</b>

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Grasp the fundamental concepts and historical development of Operations Research, recognizing its significance in solving real-world business problems.
- 2 Learn various problem-solving methods like Linear Programming, Transportation and Assignment Problems, and Network Analysis to optimize resource allocation and decision-making processes
- 3 Apply techniques such as Integer Programming and Nonlinear Programming to solve complex business problems, considering both linear and nonlinear constraints

**Pre-requisite of course:** Understanding of mathematical concepts and analytical techniques used in operations research, including linear programming, optimization methods, decision analysis, and simulation modeling.

#### Teaching and Examination Scheme

<b>Theory Hours</b>	<b>Tutorial Hours</b>	<b>Practical Hours</b>	<b>ESE</b>	<b>IA</b>	<b>CSE</b>	<b>Viva</b>	<b>Term Work</b>
2	0	0	50	30	20	0	0

<b>Contents : Unit</b>	<b>Topics</b>	<b>Contact Hours</b>
1	<b>Introduction to Operations Research and Decision Making</b> Introduction to Operations Research (OR) Definition and scope of OR Historical development of OR Importance of OR in international business decision making, Mathematical Foundations of OR Linear algebra review Optimization concepts and techniques, Linear programming formulation and solution methods Decision Analysis	15
2	<b>Advanced Topics in Operation Research</b> Integer Programming (IP) Formulation of IP problems Solution methods: Branch and Bound, Cutting Plane Method, Nonlinear Programming (NLP) Decision Analysis Decision trees, Expected value of perfect information (EVPI) and expected value of sample information (EVSI) Inventory Management	15
<b>Total Hours</b>		<b>30</b>

**Textbook :**

- 1 Operations Research: Theory and Applications, J.K. Sharma, Macmillan Publishers India, 2019
- 2 Operations Research: An Introduction, Hamdy A. Taha (Adapted by K. V. Mital), Prentice Hall India Learning Private Limited, 2020
- 3 Introduction to Operations Research, Frederick S. Hillier, Gerald J. Lieberman, McGraw-Hill Education, 2021
- 4 Operations Research: An Introduction, Hamdy A. Taha, Pearson, 2021

**References:**

- 1 Operations Research: Theory, Methods, and Applications, Operations Research: Theory, Methods, and Applications, Kanti Swarup, P.K. Gupta, and Man Mohan, Sultan Chand & Sons, 2020
- 2 Operations Research: Principles and Applications, Operations Research: Principles and Applications, Richard C. Larson, Amiram G. Melamed, McGraw-Hill Education, 2019
- 3 Quantitative Analysis for Management, Quantitative Analysis for Management, Barry Render, Ralph M. Stair Jr., Michael E. Hanna, Pearson, 2020

**Suggested Theory Distribution:**

The suggested theory distribution as per Bloom’s taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery					
Remember / Knowledge	Understand	Apply	Analyze	Evaluate	Higher order Thinking / Creative
10.00	10.00	20.00	20.00	20.00	20.00

**Instructional Method:**

- 1 Lectures, Interactive discussions, Case studies, Workshops, Group projects, Guest lectures,

**Supplementary Resources:**

- 1 <https://link.springer.com/book/10.1007/978-3-319-33003-7>
- 2 <http://zalamsyah.staff.unja.ac.id/wp-content/uploads/sites/286/2019/11/9-Operations-Research-An-Introduction-10th-Ed.-Hamdy-A-Taha.pdf>
- 3 <https://www.springerprofessional.de/en/lecture-notes-in-operations-research/19852470>
- 4 [https://www.amirajcollege.in/wp-content/uploads/2020/10/3151910-operations-research-theory-and-applications-by-j.-k.-sharma-z-lib.org\\_.pdf](https://www.amirajcollege.in/wp-content/uploads/2020/10/3151910-operations-research-theory-and-applications-by-j.-k.-sharma-z-lib.org_.pdf)
- 5 <https://nibmehub.com/opac-service/pdf/read/Operations%20Research%20A%20Practical%20Approach%20by%20Michael%20W.%20Carter-%202ed.pdf>
- 6 <http://ndl.ethernet.edu.et/bitstream/123456789/77009/1/7.pdf>