

ST JOSEPH'S UNIVERSITY, BENGALURU-27



DEPARTMENT OF MATHEMATICS

Syllabus for Bachelor of Science

(Basic/Hons.) Under National

Education Policy

For Batch 2022-26

Name of the Degree Programme : B.Sc./B.Sc. (Hons)

Open Elective : Mathematics Semester IV

MTOE - 10: How to Make the Right Decisions

Total Credits for the Programme : 176 (till 8 semesters)

Starting year of implementation : 2022 -23

Open Elective - 10

MTOE - 10: How to Make the Right Decisions	
Teaching Hours: 3 Hours/Week	Credits: 3
Total Teaching Hours: 42 Hours	Max.Marks:100 (S.A: 60+I.A: 40)

Course outcome: Learn by Doing: You'll be provided with the opportunity to make decisions. A lot of them. There are three important areas in life in which one can make decisions:

- Decisions About Personal Relationships.
- Decisions About What You Should Do with Your Life.
- Decisions About Organizations in Which You Participate.

Unit-I: Basics of Decision theory I:

Choices. Determining Payoffs (What is in it for me?). Types of decision. Four major decision criteria: Admissibility criterion. Worst case scenarios (Minimax Criterion). The long-term perspective (Baye's Criterion).

14

hours

Unit -II: Basics of Decision theory II:

Taking the plunge (Maximax Criterion). Guidelines in deciding which of the four criteria to use. Acquisition and use of information. The Balance of Power. People who need People. Hurts so Good.

14

hours

Unit-III: Modeling with Decision theory:

Probability and expected value: Rolling the dice, Life Insurance.

Sequential Decisions and Conditional probabilities: Las Vegas Casino Spinning Wheel.

Decisions Using Alternative Criteria: Investment versus Nature, Investment Strategy.

14

hours

Textbook:

1. James Stein. The Right Decision: A Mathematician Reveals How the Secrets of Decision Theory, First Edition, McGraw Hill, 2009.
2. F R. Giordano. A First Course in Mathematical Modeling, 5th Edition, Brooks/Cole Cengage learning, 2014.

Blueprint

	Unit-I	Unit -II	Unit- III	Answering	Total
2 Marks	1	3	5	6/9	12
6 Marks	2	4	6	8/12	48
					60

Note: The end semester question paper will have a weightage of 25% of the questions from the first half of the syllabus (the portions covered for the mid-semester examination) and a weightage of 75% of the questions from the second half of the syllabus (the portions not covered for the mid-semester examination).