



ST. JOSEPH'S
COLLEGE OF ENGINEERING
AND TECHNOLOGY,
- PALAI -
AUTONOMOUS

Choondacherry P.O., Pala, Kottayam - 686579
Kerala, India



MCA / MCA (INTEGRATED)

-2024 SCHEME-

**Additional Electives for MCA (S2) and
MCA(Integrated)(S8)**

Organizational Behaviour (Elective 1)

Artificial Intelligence (Elective 2)

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Signed By:DEVASSIA V P
Approved by Academic
Council dtd.19.06.2026

24SJMCA164	ORGANIZATIONAL BEHAVIOUR	CATEGORY	L	T	P	CREDIT
		ELECTIVE	3	1	0	4

Preamble:	This course is designed primarily for students who are being exposed to Organizational Behaviour for the first time. Primary aim of this course is to help students to understand the organizational culture and its dynamics and to acquire skills to take rational decisions in groups or organizations
Prerequisite:	NIL

Course Outcomes: After the completion of the course the student will be able to:		K Level
CO1	Identify managers' challenges and opportunities in applying OB concepts.	K2
CO2	Analyse various characteristics of individual behaviour and its impact on organizational performance.	K3
CO3	Acquire knowledge about the complexities associated with management of individual behaviour in the organization.	K2
CO4	Understand group behaviour and develop inter-personal skills and group dynamics.	K2
CO5	Understand organizational structures and analyze the behavioral implications of different organizational designs.	K2

Mapping of course outcomes with program outcomes 3-High 2- Medium 1-Low								
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	1	2	1	1	2	1	2	2
CO2	1	3	2	1	2	1	2	2
CO3	1	3	2	1	2	1	2	2
CO4	1	2	2	1	3	1	2	2
CO5	1	3	2	1	2	2	2	2

Mark Distribution

Total Marks	Continuous Internal Evaluation (CIE)	End Semester Examination (ESE)	ESE Duration
100	40	60	3 hours

Continuous Internal Evaluation Pattern:

Attendance	: 8 marks
Continuous Assessment Test (2 numbers)	: 20 marks
Assignment/Quiz/Course Project	: 12 marks



End Semester Examination Pattern: There will be two parts; Part A and Part B. Part A contains 10 compulsory short answer questions, 2 from each module. Each question carries 3 marks. Part B contains 2 questions from each module of which student should answer any one. Each question can have a maximum 2 subdivisions and carry 6 marks.

Sample Course Level Assessment Questions

Course Outcome 1 (CO1):

1. Describe the importance of inter-personal skills in workplace.
2. Analyse the challenges and opportunities for managers in using OB concepts.
3. “The workplace discriminations undermine organisational performance”, Justify.

Course Outcome 2 (CO2):

1. Identify major job attitude and job satisfaction parameters.
2. How to apply concepts about emotions and moods to specific OB issues.
3. Differentiate between person fit for the job and person fit for the organisation.

Course Outcome 3(CO3):

1. What is learning and what are the theories of learning?
2. How do individual differences and organisational constraints influence decision making?
3. Identify how employee involvement measures motivate employees.

Course Outcome 4 (CO4):

1. Differentiate group and team.
2. Relate the contemporary theories of leadership to earlier foundational theories.
3. What are three types of conflicts and the three loci of conflict?

Course Outcome 5 (CO5):

1. What are the functional and dysfunctional effects of organisational culture?
2. What are your suggestions to overcome resistance to change in an organization?
3. Identify the potential environmental, organisational and personal sources of stress at work.

Syllabus

Module 1:
Nature of Organisational Behaviour: What are Organisations? – Why do Organisations Exist? – Nature of Organisational Behaviour – Foundations of OB – Contemporary OB – Scope of Organisational Behaviour – Contextual Perspectives of OB – Evolution of OB – OB Model Management and Managers: Functions of Management – Manager's Roles – Types of Managers – Evolution of Management Theory – Contemporary Trends in Management Thinking Challenges in OB: Managing Inclusivity / Diversity – Career Management – Talent Management – Globalisation
Module 2:
Foundations of Individual Behaviour: Personal Factors – Environmental Factors – Organisational Systems and Resources – Models of Individual Behaviour Intelligence: Nature of Intelligence – Types of Intelligence – Model, Theories, Measurement of Intelligence – Factors Influencing Intelligence Personality: Nature of Personality – The Shaping of Personality – Determinants of Personality – Personality Structure – OB Related Personality Traits Perception and Attribution: Perception: Meaning and Definition – Factors Influencing Perception – Perceptual Process – Perception and OB Learning: Explicit and Tacit Knowledge – How Learning Occurs? – Principles of Learning – Learning and OB
Module 3:
Attitudes and Values: Nature of Attitudes – Components of Attitudes – Formation of Attitudes – Functions of Attitudes – Changing Attitudes – Work-related Attitudes – Values Motivation: Nature of Motivation – Importance of Motivation – Motivational Challenges – Theories on Motivation Applied Motivational Practices: Rewards – Job Design – Behaviour Modification – Empowerment – Problem Employees – Quality of Work Life – Employee Engagement Work Stress: Work Stress Model – Burnout – Stress Management – Stress and Performance
Module 4:
Group Dynamics: Nature of Groups – Types of Groups – Group Development – Usefulness & Pitfalls of Groups – Determinants of Group Behaviour – Group Structuring – Group Decision Making Team Dynamics: Teams vs. Groups – Benefits from Teams – Types of Teams – Implementing Teams in Organisations – Team Properties – Effective Teamwork Workplace Behaviour: Nature of Conflict – Changing Views of Conflict – Functional and Dysfunctional Conflict – The Process of Conflict – Levels of Conflict – Conflict Resolution – Conflict Management Styles – Managerial Implications – Negotiation and Conflict Resolution Leadership: Nature of Leadership – Leadership and Management – Importance of Leadership – Formal and Informal Leadership – Leadership Styles and Their Implications – Theories of Leadership – Contemporary Issues on Leadership – Leadership Development Communication: Interpersonal Communication – Organisational Communication –



Communication Networks – Communication Roles – Informal Communication – Communication Media – Information Technologies – Managerial Implications

Module 5:

Organisations: Nature of Organisations – Organisational Structure – Key Factors of Organisational Structure – Types of Organisational Structures – Organisations for Future – Informal Organisations – Managerial Implications
Organisational Culture: Cultural Dimensions – How is Culture Created? – Sustaining Culture – Effects of Culture – Changing Organisational Culture – Creativity in Organisations – Innovation in Organisations
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Text Books

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5. Nelson, Quick and Khandelwal, “**ORGB: A South-Asian Perspective**”, Cengage Learning, New Delhi, 7th Edn, 2024.



Course Contents and Lecture Schedule

Sl. No.	Topic	No. of Lectures
1	Module 1	9 Hours
1.1	Nature of Organisational Behaviour	3
1.2	Management and Managers	3
1.3	Challenges in OB	3
2	Module 2	10 Hours
2.1	Foundations of Individual Behaviour	2
2.2	Intelligence	2
2.3	Personality	2
2.4	Perception and Attribution	2
2.5	Learning	2
3	Module 3	9 Hours
3.1	Attitudes and Values	2
3.2	Motivation	2
3.3	Applied Motivational Practices	3
3.4	Work Stress	2
4	Module 4	12 Hours
4.1	Group Dynamics	2
4.2	Team Dynamics	2
4.3	Workplace Behaviour	3
4.4	Leadership	2
4.5	Communication	3
5	Module 5	9 Hours
5.1	Organization	3
5.2	Organizational culture	3
5.3	Organizational change and development	3



24SJINMCA464	ORGANIZATIONAL BEHAVIOUR	CATEGORY	L	T	P	CREDIT
		ELECTIVE	3	1	0	4

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CO5	Understand organizational structures and analyze the behavioral implications of different organizational designs.	K2

Mapping of course outcomes with program outcomes 3-High 2- Medium 1-Low								
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CO5	1	3	2	1	2	2	2	2

Mark Distribution

Total Marks	Continuous Internal Evaluation (CIE)	End Semester Examination (ESE)	ESE Duration
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Continuous Internal Evaluation Pattern:

Attendance	: 8 marks
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Assignment/Quiz/Course Project	: 12 marks



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Course Contents and Lecture Schedule

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1.2	Management and Managers	3
1.3	Challenges in OB	3
2	Module 2	10 Hours
2.1	Foundations of Individual Behaviour	2
2.2	Intelligence	2
2.3	Personality	2
2.4	Perception and Attribution	2
2.5	Learning	2
3	Module 3	9 Hours
3.1	Attitudes and Values	2
3.2	Motivation	2
3.3	Applied Motivational Practices	3
3.4	Work Stress	2
4	Module 4	12 Hours
4.1	Group Dynamics	2
4.2	Team Dynamics	2
4.3	Workplace Behaviour	3
4.4	Leadership	2
4.5	Communication	3
5	Module 5	9 Hours
5.1	Organization	3
5.2	Organizational culture	3
5.3	Organizational change and development	3



24SJMCA188	ARTIFICIAL INTELLIGENCE	CATEGORY	L	T	P	CREDIT
		ELECTIVE	3	1	0	4

Preamble:	This course introduces the techniques of Artificial Intelligence and analyses various methods of solving problems using it. The concept of expert system architecture & fuzzy operations is introduced. This course serves as a prerequisite for many advanced courses in Data Science areas.
Prerequisite:	Mathematical Foundations for Computing, Advanced Data structures

Course Outcomes: After the completion of the course the student will be able to:		K Level
CO1	Apply the steps needed to provide a formal specification for solving the problem.	K3
CO2	Apply and analyse the different types of control and heuristic search methods to solve problems.	K3
CO3	Understand various Game theory problems & Knowledge structures.	K2
CO4	Formulate knowledge representation and examine resolution in predicate and propositional logic.	K3
CO5	Apply feasible planning and learning techniques to solve non-trial problems.	K3
CO6	Analyse expert systems & fuzzy operations to solve real life problems.	K4

Mapping of course outcomes with program outcomes 3-High 2- Medium 1-Low								
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	2	2	1				1
CO2	3	3	2	2				1
CO3	2	2	1					1
CO4	3	3	2	1				1
CO5	2	3	3	2	1			1
CO6	2	3	3	2	1	1	2	1

Mark distribution

Total Marks	CIE	ESE	ESE Duration
100	40	60	3 hours

Continuous Internal Evaluation Pattern:

Attendance	: 8 marks
Continuous Assessment Test (2 numbers)	: 20 marks
Assignment/Quiz/Course project	: 12 marks



End Semester Examination Pattern: There will be two parts; Part A and Part B. Part A contain 10 questions with 2 questions from each module, having 3 marks for each question. Students should answer all questions. Part B contains 2 questions from each module of which student should answer any one. Each question can have maximum 2 sub-divisions and carry 6 marks.

Course Level Assessment Questions

Course Outcome 1 (CO1):

1. Describe the areas of Artificial intelligence.
2. List the problem formulations & production characteristics.
3. Solve the various problems such as 8 puzzle, Crypt arithmetic etc.

Course Outcome 2 (CO2):

1. Describe search strategies in solving problems.
2. List the disadvantages of hill climbing algorithm.
3. Illustrate A* algorithm for the graph.

Course Outcome 3 (CO3):

1. Demonstrate two player Zero sum game.
2. List and explain the knowledge representation methods in AI.
3. Explain how alpha-beta algorithm works in pruning of branches with an example.

Course Outcome 4 (CO4):

1. Translate the following sentence to predicate logic:
 - a) 'All pompeians were Roman'
 - b) 'All Romans were either loyal to Caesar or hated him'.
2. Explain the algorithm to convert WFF to clause.
3. Describe about resolution graph in predicate and propositional logic.

Course Outcome 5 (CO5):

1. Differentiate between Goal stack and Hierarchical planning in AI.
2. Discuss about neural net learning.
3. List out the steps in genetic learning.

Course Outcome 6 (CO6):

1. Specify the components in expert system.
2. Solve various fuzzy operations.

3. List out & explain various tools and languages in AI.

SYLLABUS

Module 1

Introduction to AI and Production Systems: –AI-Problem formulation, Problem Definition

-Production systems, Problem characteristics, Production system characteristics, Example AI Problems (8 Puzzle problem, Missionary Cannibals Problem, Crypt arithmetic Problems, block world Problem)

Module 2

Search Strategies: –Blind Search Strategies -Depth First Search, Breadth First Search, Best First Search, Iterative Deepening Search, Heuristic Search Strategies- Admissible Heuristics and examples - Simple Hill Climbing and Steepest Ascending Hill Climbing, Simulated Annealing, A* algorithm.

Module 3

Game playing: –Two Player Zero Sum Games, Modelling Two Player Zero Sum Games as search problems, Min-Max Algorithm, Optimizing Min Max Algorithm using $\alpha - \beta$ cut off, *Knowledge Representation Structures:* Frames, Semantic Networks and Conceptual Dependencies.

Module 4

Knowledge representation using Logic: –First Order Predicate Logic (FOPL), Well Formed Formula (WFF) in FOPL, Inference rules for FOPL, The Clause Form and conversion of WFFs to Clause Form, *Resolution:* Refutation, *Planning:* Overview, components of a planning system, Goal stack planning, Hierarchical planning, *Learning:* Forms of learning, neural net learning & genetic learning

Module 5

Expert systems: –Architecture of expert systems, Roles of expert systems, Languages and tools – Typical expert system examples. *Fuzzy Logic:* Fuzzy Variables, Fuzzy Sets and Fuzzy Set Operations, Typical Examples using Fuzzy Sets.

Text Books

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4. Denis Rothman, “*Modern Artificial Intelligence: A Comprehensive, Hands-On Guide*”, Packt / Independent, 2023.



Course Contents and Lecture Schedule

No.	Topic	No. of Lectures
1	<i>Module I: Introduction to AI</i>	9 hrs
1.1	AI-Problem formulation, Problem Definition -Production systems	3
1.2	Production system characteristics	2
1.3	AI Problems	4
2	<i>Module II: Search Strategies</i>	9 hrs
2.1	Blind search strategies	2
2.2	Heuristics search strategies	2
2.3	Simple Hill Climbing and Steepest Ascending Hill Climbing,	2
2.4	Simulated annealing	2
2.5	A* algorithm	1
3	<i>Module III: Game playing</i>	9 hrs
3.1	Zero sum game	2
3.2	Minimax algorithm	2
3.3	Alpha beta pruning	2
3.4	Knowledge representation structure	3
4	<i>Module IV: Knowledge representation using Logic</i>	12 hrs
4.1	First Order Predicate Logic (FOPL)	2
4.2	Well Formed Formula (WFF) in FOPL, Inference rules for FOPL	2
4.3	The Clause Form and conversion of WFFs to Clause Form	2
4.4	Resolution	2
4.5	Planning	2
4.6	Learning	2
5	<i>Module V: Applications</i>	6 hrs
5.1	Expert system Architecture	2
5.2	Fuzzy logic operations	2
5.3	Languages and tools	2



24SJINMCA488	ARTIFICIAL INTELLIGENCE	CATEGORY	L	T	P	CREDIT
		ELECTIVE	3	1	0	4

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Total Marks	CIE	ESE	ESE Duration
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