



SYLLABUS FOR COMPUTER SCIENCE MAJOR WITH HONOURS

SEM. VIII

**4th Year [Four Year Under Graduate Program with Honours]
(FYUGPHONS)**

Under Single Major Single Minor

(To be implemented from Session 2023-24)

Proposed Syllabus for four years Computer Science (Major) Programme							
Year	Semester	Paper Code	Paper	Credits	Periods/Week	Exam. Marks	Total Marks
4 th Year	VIII	UCMSMAJ48020	Project / Dissertation	4	4		
		UCMSMAJ48021	Research Methodology	4	4		
		UCMSMAJ48022	Field Word / Case Studies	4	4		
		UCMSMAJ48023	Seminar Presentation / Group Discussion	4	4		

NOTE: Tutorials should involve problem solving session/activity related to the subject taught.

SYLLABUS FOR COMPUTER SCIENCE MAJOR WITH HONOURS

Discipline: Science ☒ Arts, Humanities & Social Science ☐
Commerce ☐ BBA ☐ BCA ☐

Subject Name: **COMPUTER SCIENCE**

Subject Code: **UCMSMAJ48020** (Will be provided by the University)

Semester: Semester I ☐ Semester II ☐ Semester III ☐ Semester IV ☐

Semester V ☐ Semester VI ☐ Semester VII ☐ Semester VIII ☒

Course Name: **PROJECT / DISSERTATION**

Course Code: (Will be provided by the University)

Course Credit: Theoretical **4** Practical/Tutorial

Marks Allotted: Theoretical Practical/Tutorial

Continuing Evaluation Attendance

Course Type (tick the correct alternatives):

Major Core ☒ AEC ☐

Interdisciplinary/ DSE ☐ SEC ☐

Minor / Generic Elective ☐ VAC ☐

Research Project/Dissertation ☐ Vocational ☐

Is the course focused on employability / entrepreneurship? YES ☒ NO ☐

Is the course focused on imparting life skill? YES ☒ NO ☐

Is the course based on Activity ? YES ☒ NO ☐

Remarks by Chairman, UG BOS, if any

UG BOS Meeting Reference Number: Date:

Course Code: **UCMSMAJ48020**

Course Name: **PROJECT / DISSERTATION**

Brief Course Description

The Project/Dissertation course provides students with an opportunity to apply the knowledge and skills acquired throughout their academic program to investigate, design, develop, and implement a solution to a real-world problem. Students undertake independent or guided research, software development, system design, data analysis, or interdisciplinary projects, culminating in a comprehensive report and presentation of their findings.

Prerequisite(s) and/or Note(s)

Students should have successfully completed the core courses of the program and possess a sound understanding of relevant theoretical and practical concepts. The project topic should be approved by the department and carried out under the supervision of a faculty guide. Regular progress reviews, documentation, and final presentation are mandatory components of the course.

Course Objectives

The course aims to develop students' ability to identify and analyze real-world problems, conduct independent research, apply appropriate methodologies and technologies, and produce innovative solutions. It also seeks to enhance critical thinking, project planning, technical writing, and professional communication skills.

Course Outcomes

Upon successful completion of the course, students will be able to formulate research or project objectives, apply domain knowledge to solve practical problems, utilize appropriate tools and techniques, prepare technical documentation, and effectively present and defend their work before an academic audience.

Knowledge Acquired

Students gain in-depth knowledge of a specific topic within their discipline through literature review, problem analysis, methodology selection, implementation, testing, and evaluation. They also acquire an understanding of research methods, project management principles, and professional standards relevant to their field.

Skills Gained

The course helps students develop analytical, technical, research, programming, design, documentation, and presentation skills. It also strengthens problem-solving abilities, teamwork, time management, decision-making, and the effective use of modern tools and technologies.

Competency Developed

Students develop the competency to independently plan, execute, and manage complex projects or research studies. They become capable of addressing real-world challenges, producing quality technical outputs, communicating results professionally, and demonstrating readiness for higher studies, research, entrepreneurship, or industry employment.

Detailed Syllabus**4th Year: Semester 8****UCMSMAJ48020****MINOR PROJECT / DISSERTATION****[4 Credits]****MINOR PROJECT / DISSERTATION GUIDELINES****1. GENERAL RULES AND ELIGIBILITY**

1.1 The Minor Project is compulsory for students enrolled in the final year/semester of the UG programme.

1.2 The project carries **4 credits** and is intended to provide practical exposure to problem-solving and application development.

1.3 Projects may be undertaken individually or in groups of not more than three students with departmental approval.

1.4 The project topic must be approved by the concerned faculty supervisor within the first three weeks of the semester.

1.5 The project should address a practical problem or application in Computer Science and related disciplines.

2. TOPIC SELECTION AND APPROVAL

2.1 Project topics may be selected from areas such as:

- Programming and Software Development
- Web Technologies
- Mobile Applications
- Database Systems
- Artificial Intelligence
- Data Science
- Cyber Security
- Cloud Computing
- Internet of Things (IoT)

2.2 Students shall submit a brief synopsis (1–2 pages) containing:

- Project Title
- Problem Statement
- Objectives
- Proposed Methodology
- Expected Outcome

2.3 The supervisor shall review and approve the topic before commencement of the work.

3. SUPERVISION AND PROGRESS MONITORING

3.1 Each student/group shall work under the guidance of a faculty supervisor.

3.2 Students shall meet the supervisor periodically to discuss project progress.

3.3 A simple progress record may be maintained containing:

- Date of Meeting
- Work Completed
- Future Plan
- Supervisor Remarks

3.4 A project review may be conducted during the middle of the semester.

4. DOCUMENTATION AND REPORT FORMAT

4.1 Students shall submit a project report in printed and PDF format.

4.2 The report should contain:

Chapter 1: Introduction

- Background
- Problem Statement
- Objectives

Chapter 2: System Design / Methodology

- Tools and Technologies Used
- System Architecture or Flowchart

Chapter 3: Implementation and Results

- Screenshots
- Output and Discussion

Chapter 4: Conclusion and Future Scope

References

4.3 Report Specifications

- Font: Times New Roman, 12 pt
- Line Spacing: 1.5
- Paper Size: A4
- Proper page numbering and headings

5. SUBMISSION SCHEDULE

5.1 Synopsis Submission: Week 3

5.2 Progress Review: Mid-Semester

5.3 Final Report and Project Submission: End of Semester

6. EVALUATION AND ASSESSMENT

The project shall be evaluated out of **80 marks** as follows:

Component	Weightage
Project Progress / Review	20 Marks
Final Report	40 Marks
Project Implementation and Demonstration	10 Marks
Viva-Voce and Final Presentation	10 Marks
Total	80 Marks

6.1 The final presentation shall be approximately **10–15 minutes**, followed by a brief viva-voce.

6.2 Students must demonstrate the working of the project during evaluation.

6.3 A minimum of **40% marks** is required to pass the project course.

7. DELIVERABLES

Students shall submit:

1. Project Report (Printed/PDF)
2. Source Code / Project Files
3. Presentation Slides (PPT/PDF)
4. Demonstration of the Project

8. GENERAL CONDUCT

8.1 Students shall maintain professional conduct throughout the project work.

8.2 All project-related decisions made by the Department and Supervisor shall be final.

Project/ Dissertation as assigned and advised by teacher(s).

SYLLABUS FOR COMPUTER SCIENCE MAJOR WITH HONOURS

Discipline: Science ☒ Arts, Humanities & Social Science ☐
 Commerce ☐ BBA ☐ BCA ☐
 Subject Name: **COMPUTER SCIENCE**
 Subject Code: **UCMSMAJ48021** (Will be provided by the University)
 Semester: Semester I ☐ Semester II ☐ Semester III ☐ Semester IV ☐
 Semester V ☐ Semester VI ☐ Semester VII ☐ Semester VIII ☒

Course Name: **RESEARCH METHODOLOGY**

Course Code: (Will be provided by the University)

Course Credit: Theoretical Practical/Tutorial

Marks Allotted: Theoretical Practical/Tutorial

Continuing Evaluation Attendance

Course Type (tick the correct alternatives):

Major Core	☒	AEC	☐
Interdisciplinary/ DSE	☐	SEC	☐
Minor / Generic Elective	☐	VAC	☐
Research Project/Dissertation	☐	Vocational	☐

Is the course focused on employability / entrepreneurship? YES ☒ NO ☐

Is the course focused on imparting life skill? YES ☒ NO ☐

Is the course based on Activity ? YES ☒ NO ☐

Remarks by Chairman, UG BOS, if any

UG BOS Meeting Reference Number: Date:

Course Code: **UCMSMAJ48021**

Course Name: **RESEARCH METHODOLOGY**

Brief Course Description

The Research Methodology course introduces students to the principles, methods, and techniques of scientific research. It covers the process of identifying research problems, formulating objectives and hypotheses, conducting literature reviews, collecting and analyzing data, and preparing research reports. The course emphasizes ethical research practices and equips students with the knowledge required to undertake academic, scientific, and industry-oriented research projects.

Prerequisite(s) and/or Note(s)

Students should have a basic understanding of their subject area and fundamental analytical skills. Familiarity with data interpretation, academic writing, and computer applications is desirable. The course may include practical exercises involving literature surveys, research proposal preparation, data analysis, and report writing to provide hands-on research experience.

Course Objectives

The course aims to develop an understanding of research concepts, methodologies, and ethical practices. It seeks to equip students with the ability to identify research problems, formulate research questions, design appropriate methodologies, collect and analyze data, and communicate research findings effectively through professional reports and presentations.

Course Outcomes

Upon successful completion of the course, students will be able to formulate research problems, conduct comprehensive literature reviews, select suitable research designs, apply qualitative and quantitative research methods, analyze data using appropriate techniques, and prepare well-structured research reports in accordance with academic and professional standards.

Knowledge Acquired

Students acquire knowledge of research philosophies, research designs, sampling techniques, data collection methods, statistical and analytical tools, hypothesis testing, research ethics, and scientific documentation. They also gain an understanding of the complete research process from problem identification to dissemination of findings.

Skills Gained

The course enhances research, analytical, critical thinking, problem-solving, data collection, data analysis, academic writing, and presentation skills. Students learn to use research tools and techniques effectively, evaluate information critically, and interpret findings for evidence-based decision-making.

Competency Developed

Students develop the competency to independently conduct systematic and ethical research, analyze complex problems using scientific methods, generate meaningful insights from data, and communicate research outcomes effectively. These competencies prepare them for higher studies, professional research careers, innovation, and evidence-based decision-making in academic and industry settings.

Detailed Svllabus**4th Year: Semester 8****UCMSMAJ48021****RESEARCH METHODOLOGY****[4 Credits]****UNIT-1 Introduction to Research****(7 Lectures)**

Concept of research, definition, characteristics of good research, Application of Research, Meaning and sources of Research problem, characteristics of good Research problem, Research process, outcomes, application of Research, Meaning and types of Research hypothesis, Review of Literature, importance of Review of Literature.

UNIT-2 Types of Research**(10 Lectures)**

Motivation and objectives – Research methods vs Methodology. Research Design- meaning, need, types of research design, features of good Research design, Experiments, surveys and case study. Types of research – Descriptive and Analytical, Applied and Fundamental, Quantitative and Qualitative, Conceptual and Empirical, concept of applied and basic research process, Criteria of good research.

UNIT-3 Sampling, Data Collection and analysis**(10 Lectures)**

Types and sources of data – Primary and secondary, Methods of collecting data, Concept of sampling and sampling methods – sampling frame, sample, characteristics of good sample, simple random sampling, purposive sampling, convenience sampling, snowball sampling, classification and tabulation of data, graphical representation of data, graphs and charts – Histograms, frequency polygon and frequency curves, bell shaped curve and its properties. Statistical Methods for Data Analysis: statically package (SPSS for student t-test, ANOVA, etc.), hypothesis testing.

UNIT-4 Research Report**(6 Lectures)**

Research report and its structure, journal articles – Components of journal article. Explanation of various components. Structure of an abstract and keywords, components and structure of thesis and dissertations. Referencing styles and bibliography.

UNIT-5 Ethics in Research**(5 Lectures)**

Plagiarism - Definition, different forms, consequences, unintentional plagiarism, copyright infringement, collaborative work, Intellectual property right (IPR) and patent law, Qualities of good Researcher.

UNIT-6 ICT Tools for Research**(7 Lectures)**

Role of computers/ITC in research, maintenance of data using software such as Mendeley, Zotero, Endnote, Overleaf, Tabulation and graphical presentation of research data and software tools. Web search : Use of Internet, using search engines and advanced search tools.

Suggested Readings:

- 1 Kothari C. R, Research Methodology
2. Donald Cooper & PS Schindler(2009)Business Research Methods, 9th edition, Tata McGraw Hill.
3. Uma Sekaran (2010) Research Methods for Business, 4th edition, Wiley.
- 4 Ranjit Kumar (2009) Research Methodology, 2nd edition, Pearson Education
- 5 Naresh Malhotra and S Dash (2009) Marketing Research, 5th edition, Pearson Prentice Hall.
- 6 Michael V. P, Research Methodology.
- 7 Fred N. Kerlinger : Foundations of Behavioral Research.

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RESEARCH METHODOLOGY

Research Methodology as assigned and advised by teacher(s).

SYLLABUS FOR COMPUTER SCIENCE MAJOR WITH HONOURS

Discipline: Science ☒ Arts, Humanities & Social Science ☐
Commerce ☐ BBA ☐ BCA ☐

Subject Name: **COMPUTER SCIENCE**

Subject Code: **UCMSMAJ48022** (Will be provided by the University)

Semester: Semester I ☐ Semester II ☐ Semester III ☐ Semester IV ☐
Semester V ☐ Semester VI ☐ Semester VII ☐ Semester VIII ☒

Course Name: **FIELD WORK / CASE STUDY**

Course Code: (Will be provided by the University)

Course Credit: Theoretical **4** Practical/Tutorial

Marks Allotted: Theoretical Practical/Tutorial

Continuing Evaluation Attendance

Course Type (tick the correct alternatives):

Major Core	☒	AEC	☐
Interdisciplinary/ DSE	☐	SEC	☐
Minor / Generic Elective	☐	VAC	☐
Research Project/Dissertation	☐	Vocational	☐

Is the course focused on employability / entrepreneurship? YES ☒ NO ☐

Is the course focused on imparting life skill? YES ☒ NO ☐

Is the course based on Activity ? YES ☒ NO ☐

Remarks by Chairman, UG BOS, if any

UG BOS Meeting Reference Number: Date:

Course Code: **UCMSMAJ48022**

Course Name: **FIELD WORK / CASE STUDIES**

Brief Course Description

The Field Work / Case Studies course provides students with practical exposure to real-world environments, organizations, industries, communities, or technology-based systems. Through field visits, observations, surveys, interviews, and case study analysis, students gain firsthand experience of professional practices and develop a deeper understanding of theoretical concepts by examining their application in actual situations.

Prerequisite(s) and/or Note(s)

Students should possess a basic understanding of the core concepts covered in their program of study. Field work and case study activities must be conducted under the guidance of faculty members or industry mentors. Students are required to maintain records of observations, prepare reports, and present their findings based on the assigned field visits or case studies.

Course Objectives

The course aims to bridge the gap between theory and practice by exposing students to real-world scenarios. It seeks to develop analytical thinking, observation skills, problem-solving abilities, and an understanding of professional practices through systematic investigation and evaluation of actual cases and field situations.

Course Outcomes

Upon completion of the course, students will be able to analyze real-world problems, collect and interpret relevant data, evaluate practical solutions, and prepare professional reports. They will also be able to relate theoretical knowledge to practical situations and effectively communicate their observations and recommendations.

Knowledge Acquired

Students acquire practical knowledge of organizational processes, industry practices, operational challenges, and real-life applications of concepts learned in the classroom. They also gain an understanding of data collection methods, case analysis techniques, and contemporary issues relevant to their discipline.

Skills Gained

The course enhances observation, communication, analytical, research, documentation, reporting, and presentation skills. Students also develop teamwork, interpersonal interaction, critical thinking, and decision-making abilities through direct engagement with real-world environments and case-based learning.

Competency Developed

Students develop the competency to investigate and evaluate practical situations, identify challenges, propose suitable solutions, and make informed decisions based on evidence and analysis. They become capable of applying academic knowledge in professional contexts and adapting effectively to workplace and societal requirements.

Detailed Svllabus

4th Year: Semester 8

UCMSMAJ48022

FIELD WORK / CASE STUDIES

GUIDELINES for FIELD WORK**DOCUMENT INFORMATION**

Item	Details
Programme	COMPUTER SCIENCE
Academic Level	4 th Year / 8 th Semester
Component	Field Work/ Case Studies
Credit	4 Credits (Recommended)
Full Marks	80
Engagement Hours	Approximately 60 Hours
Nature	Practical, Industry-Oriented, Research-Based
Evaluation Type	Continuous + Final Assessment
Submission Mode	Printed + Digital Soft Copy
Recommended Citation Style	Standard Journal's style

TABLE OF CONTENTS

1. Introduction
2. Rules and Regulations
3. Field Work Guidelines

1. INTRODUCTION

Field Work components are important academic requirements designed to bridge the gap between theoretical computer science education and real-world industrial practice. These components enable students to gain practical exposure, analytical skills, research competency and professional communication abilities. The topic of the Field Work will be decided by the institutional authority (Coordinator of Field Work).

2. RULES AND REGULATIONS

The following rules are mandatory for all students:

- a) **Attendance Requirement:** Students must attend at least 80% engagement hours.
- b) **Original Work Requirement:** Submissions must be original and independently prepared.
- c) **AI Tools may be used only for:** Grammar checking, Formatting assistance, Code debugging assistance and Literature exploration.

3. Students must NOT:

- a) Submit AI-generated reports directly
- b) Fabricate data or observations
- c) Use AI to generate fake interviews or findings

4. Confidentiality Obligation: Students must protect all confidential organizational information obtained during field work activities.

5. Supervisor Approval: Every topic must receive prior approval from Academic Supervisor / Departmental Coordinator.

6. Mandatory Documentation: Students must maintain

- (i) Weekly progress reports
- (ii) Attendance records and
- (iii) Evidence of work completed.

7. Ethical Conduct: Students must behave professionally while interacting with organizations, clients, employees and stakeholders.

8. Unauthorized Access Prohibition: Students must not Access restricted systems, Attempt penetration testing without authorization, Download sensitive data and Share internal information.

9. Academic Integrity: Plagiarism above the permitted limit shall lead to disciplinary action.

10. Presentation Requirement: All students must

- (i) Deliver oral presentation and/or
- (ii) Attend viva voce examination.

11. Minimum Report Quality: Reports must follow prescribed formatting.

12. Industry Interaction Etiquette: Students must

- (i) Communicate respectfully,
- (ii) Maintain punctuality and
- (iii) Follow workplace protocols.

13. Digital Submission: Soft copy submissions must include –

- (i) PDF report
- (ii) Source files
- (iii) Presentation slides
- (iv) Supporting appendices

3. FIELD WORK GUIDELINES

3.1 Field Work is a supervised practical engagement where students work with organizations, industries or research environments to gain real-world exposure related to their course. The topic of the Field Work will be decided by the institutional authority (Coordinator of Field Work).

3.2 Phase wise duration of suggested schedule

Phase	Activity	Duration
Phase 1	Topic Selection & Approval	1 Week
Phase 2	Organization Confirmation	1 Week
Phase 3	Proposal Submission	1 Week
Phase 4	Field Engagement	4–6 Weeks
Phase 5	Weekly Reviews	Continuous
Phase 6	Report Writing	2 Weeks
Phase 7	Final Submission	1 Week
Phase 8	Presentation & Viva	As Scheduled

3.3 RULES AND REGULATIONS FOR FIELD WORK

The following rules are strictly mandatory:

1. Students must obtain official approval before beginning field work.
2. Unauthorized organizations are not permitted.
3. Students must maintain daily attendance records.
4. Students must follow all organizational rules.
5. Mobile phone misuse during work hours is prohibited.
6. Sharing organizational information publicly is prohibited.
7. Students must not photograph restricted areas without permission.
8. All observations must be genuine and evidence-based.
9. Weekly reports must be submitted on time.
10. Students must maintain professional communication.
11. Proxy attendance is strictly prohibited.
12. Use of pirated or unauthorized software is prohibited.
13. Students must comply with cybersecurity laws and ethics.
14. Any misconduct may result in cancellation of field work.
15. Final evaluation requires supervisor certification.

3.4. Structure of Weekly Progress Report

1. Week Number
2. Activities Completed
3. Learning Outcomes Achieved
4. Challenges Faced
5. Next Week Plan

3.5. Structure of Final Report

Preliminary Pages

1. Cover Page
2. Certificate
3. Declaration
4. Acknowledgement
5. Abstract
6. Table of Contents
7. List of Figures
8. List of Tables
9. List of Abbreviations

Chapter 1: Introduction

- Organization Overview
- Background
- Objectives
- Scope of Work

Chapter 2: Activities Performed

Chapter 3: Analysis and Findings

Chapter 4: Learning Outcomes

Chapter 5: Conclusion

References

Appendices

- Attendance Sheet
- Weekly Reports
- Screenshots
- Certificates
- Additional Evidence

3.6 PRESENTATION AND/OR VIVA-VOCE**Presentation Duration: 10–15 Minutes****Viva Duration : 10 Minutes****3.7 FIELD WORK ASSESSMENT**

Component	Marks
Proposal Quality	10
Attendance & Participation	10
Weekly Reports	10
Industry Supervisor Feedback	10
Final Report	20
Presentation	10
Viva Voce	10
TOTAL	80

3.8 Few sample topics of Field work**EDUCATION SECTOR**

1. **Study of Computer Laboratory Management in Educational Institutions**
 - Survey hardware, software, maintenance practices, and utilization.
2. **Digital Learning Tools Used in Schools and Colleges**
 - Analyze adoption, effectiveness, and challenges.
3. **ICT Infrastructure Assessment in Rural Schools**
 - Evaluate computer and internet availability.

BUSINESS & INDUSTRY

4. **Computerization of Small and Medium Enterprises (SMEs)**
 - Study software usage, record management, and automation levels.
5. **Use of ERP Systems in Local Industries**
 - Investigate benefits and implementation challenges.
6. **Digital Transformation in Retail Businesses**
 - Analyze billing systems, inventory software, and digital payments.

BANKING & FINANCE

7. **Adoption of Digital Payment Systems by Local Merchants**
 - Survey UPI, QR payments, and customer preferences.
8. **Computerized Banking Services and Customer Satisfaction**
 - Study online banking, mobile banking, and ATM services.

HEALTHCARE

- 9. Hospital Information Management Systems**
 - Examine digital patient records and appointment systems.
- 10. Use of Technology in Diagnostic Centers**
 - Study data management and reporting systems.

GOVERNMENT & PUBLIC SERVICES

- 11. E-Governance Services in Local Government Offices**
 - Analyze online citizen services and user experiences.
- 12. Digital Record Management in Municipal Offices**
 - Study data storage, retrieval, and security practices.

CYBERSECURITY

- 13. Cybersecurity Awareness Among College Students**
 - Conduct surveys and analyze awareness levels.
- 14. Information Security Practices in Small Organizations**
 - Study password policies, backups, and data protection methods.

TECHNOLOGY & SOCIETY

- 15. Internet Usage Patterns Among Students**
 - Analyze educational and recreational internet usage.
- 16. Impact of Social Media on Academic Performance**
 - Survey students and evaluate trends.
- 17. Smartphone Usage and Digital Dependency Among Youth**
 - Collect and analyze behavioral data.

IT INFRASTRUCTURE

- 18. Network Infrastructure Study of an Organization**
 - Analyze network design, security, and maintenance.
- 19. Cloud Computing Adoption in Local Businesses**
 - Study cloud services, benefits, and challenges.
- 20. IT Asset Management Practices in Institutions**
 - Examine procurement, maintenance, and disposal of IT equipment.

GUIDELINES for CASE STUDIES**DOCUMENT INFORMATION**

Item	Details
Programme	COMPUTER SCIENCE
Academic Level	4 th Year / 8 th Semester
Component	Case Studies
Credit	4 Credits (Recommended)
Full Marks	80
Engagement Hours	Approximately 60 Hours
Nature	Practical, Industry-Oriented, Research-Based
Evaluation Type	Continuous + Final Assessment
Submission Mode	Printed + Digital Soft Copy
Recommended Citation Style	Standard Journal's style

TABLE OF CONTENTS

1. Introduction
2. Rules and Regulation
3. Case Study Guidelines

1. INTRODUCTION

Case Study components are important academic requirements designed to bridge the gap between theoretical computer science education and real-world industrial practice. These components enable students to gain practical exposure, analytical skills, research competency and professional communication abilities. The topic of the Case Study will be decided by the institutional authority (Coordinator of Case Study).

2. RULES AND REGULATIONS**The following rules are mandatory for all students:**

- i. Attendance Requirement: Students must attend at least 80% engagement hours.
- ii. Original Work Requirement: Submissions must be original and independently prepared.
- iii. AI Tools may be used only for: Grammar checking, Formatting assistance, Code debugging assistance and Literature exploration.

a. Students must NOT:

- Submit AI-generated reports directly
- Fabricate data or observations
- Use AI to generate fake interviews or findings

b. Confidentiality Obligation: Students must protect all confidential organizational information obtained during case study activities.

c. Supervisor Approval: Every topic must receive prior approval from Academic Supervisor / Departmental Coordinator.

d. Mandatory Documentation: Students must maintain

- (i) Weekly progress reports
- (ii) Attendance records and
- (iii) Evidence of work completed.

e. Ethical Conduct: Students must behave professionally while interacting with organizations, clients, employees and stakeholders.

f. Unauthorized Access Prohibition: Students must not Access restricted systems, Attempt penetration testing without authorization, Download sensitive data and Share internal information.

g. Academic Integrity: Plagiarism above the permitted limit shall lead to disciplinary action.

h. Presentation Requirement: All students must

- (i) Deliver oral presentation and/or
- (ii) Attend viva voce examination.

i. Minimum Report Quality: Reports must follow prescribed formatting.

j. Industry Interaction Etiquette: Students must

- (i) Communicate respectfully,
- (ii) Maintain punctuality and
- (iii) Follow workplace protocols.

k. Digital Submission: Soft copy submissions must include –

- (i) PDF report
- (ii) Source files
- (iii) Presentation slides
- (iv) Supporting appendices

3. CASE STUDY GUIDELINES

3.1 Case study is a supervised practical engagement where students work with organizations, industries or research environments to gain real-world exposure related to their course. The topic of the Case study will be decided by the institutional authority (Coordinator of Case study).

3.2 Step-by-step Case study Methodology

- Step 1: Topic Selection
- Step 2: Literature Review
- Step 3: Problem Definition
- Step 4: Data Collection
- Step 5: Technical Analysis
- Step 6: Comparative Evaluation
- Step 7: Findings and Recommendations
- Step 8: Report Writing
- Step 9: Presentation Preparation
- Step 10: Final Presentation and Viva

3.3 RULES AND REGULATIONS FOR CASE STUDY

The following rules are strictly mandatory:

- i. Students must obtain official approval before beginning Case study.
- ii. Unauthorized organizations are not permitted.
- iii. Students must maintain daily attendance records.
- iv. Students must follow all organizational rules.
- v. Mobile phone misuse during work hours is prohibited.
- vi. Sharing organizational information publicly is prohibited.
- vii. Students must not photograph restricted areas without permission.
- viii. All observations must be genuine and evidence-based.
- ix. Weekly reports must be submitted on time.
- x. Students must maintain professional communication.
- xi. Proxy attendance is strictly prohibited.
- xii. Use of pirated or unauthorized software is prohibited.
- xiii. Students must comply with cybersecurity laws and ethics.
- xiv. Any misconduct may result in cancellation of Case study.
- xv. Final evaluation requires supervisor certification.

3.4. Structure of Weekly Progress Report

- i. Week Number
- ii. Activities Completed
- iii. Learning Outcomes Achieved
- iv. Challenges Faced
- v. Next Week Plan

3.5. Structure of Final Report

Preliminary Pages

- i. Cover Page
- ii. Certificate
- iii. Declaration
- iv. Acknowledgement
- v. Abstract
- vi. Table of Contents
- vii. List of Figures
- viii. List of Tables
- ix. List of Abbreviations

Chapter 1: Introduction

- Background
- Problem statement
- Objectives
- Scope
- Research significance
- Limitations

Chapter 2: Literature Review

Chapter 3: Methodology

Chapter 4: Case Analysis: Findings and Discussion

Chapter 5: Conclusion

References

Appendices

- Attendance Sheet
- Weekly Reports
- Screenshots
- Certificates
- Additional Evidence

3.6 PRESENTATION AND/OR VIVA-VOCE**Presentation Duration: 10–15 Minutes****Viva Duration: 10 Minutes****3.7 CASE STUDY ASSESSMENT**

Component	Marks
Topic Selection & Proposal	10
Literature Review	10
Technical Analysis	20
Report Quality	15
Presentation	15
Viva Voce	10
TOTAL	80

3.8 Few sample topics of Case study**1. Impact of Artificial Intelligence on Education**

- Study AI tools used by students and teachers.
- Analyze benefits, challenges, and future trends.

2. Cybersecurity Awareness Among College Students

- Conduct surveys on password practices, phishing awareness, and online safety.

3. Analysis of UPI-Based Digital Payment Systems in India

- Compare security, usability, and adoption of different UPI apps.

4. Case Study of Cloud Computing Adoption in Small Businesses

- Investigate how local businesses use cloud services and their benefits.

5. Social Media Usage and Its Impact on Student Productivity

- Analyze screen time, study habits, and academic performance.

6. E-Commerce Growth and Consumer Behavior

- Study customer preferences on online shopping platforms.

7. Security Analysis of Public Wi-Fi Networks

- Identify risks and suggest security measures.

8. Role of IoT in Smart Home Automation

- Analyze popular IoT devices, applications, and security concerns.

9. Case Study of Online Learning Platforms

- Compare features, effectiveness, and student satisfaction.

10. Impact of Chatbots on Customer Service

- Evaluate chatbot performance in banking, e-commerce, or telecom sectors.

11. Analysis of Data Privacy Issues in Mobile Applications

- Study app permissions and user awareness regarding data collection.

12. Computerization of Hospital Management Systems

- Examine how hospitals manage patient records and appointments digitally.

13. Case Study of Railway Reservation Systems

- Analyze architecture, booking process, and challenges.

14. Impact of Automation on IT Jobs

- Study how AI and automation are changing job roles.

15. Comparative Study of Programming Languages for Beginners

- Compare Python, Java, C++, and JavaScript based on learning curve and applications.

16. Blockchain Technology in Banking and Finance

- Study applications, benefits, limitations, and future prospects.

17. Green Computing Practices in Educational Institutions

- Analyze energy-efficient computing methods and sustainability initiatives.

18. Cybercrime Trends and Prevention Strategies

- Study common cybercrimes and awareness levels among users.

19. Analysis of Mobile Banking Applications

- Compare security features, usability, and customer satisfaction.

20. Role of Computer Science in Smart City Development

- Study digital infrastructure, traffic management, and e-governance systems.

SYLLABUS FOR COMPUTER SCIENCE MAJOR WITH HONOURS

Discipline: Science ☒ Arts, Humanities & Social Science ☐
Commerce ☐ BBA ☐ BCA ☐

Subject Name: **COMPUTER SCIENCE**

Subject Code: **UCMSMAJ48023** (Will be provided by the University)

Semester: Semester I ☐ Semester II ☐ Semester III ☐ Semester IV ☐
Semester V ☐ Semester VI ☐ Semester VII ☐ Semester VIII ☒

Course Name: **GROUP DISCUSSION / SEMINAR PRESENTATION**

Course Code: (Will be provided by the University)

Course Credit: Theoretical Practical/Tutorial

Marks Allotted: Theoretical Practical/Tutorial

Continuing Evaluation Attendance

Course Type (tick the correct alternatives):

Major Core	☒	AEC	☐
Interdisciplinary/ DSE	☐	SEC	☐
Minor / Generic Elective	☐	VAC	☐
Research Project/Dissertation	☐	Vocational	☐

Is the course focused on employability / entrepreneurship? YES ☒ NO ☐

Is the course focused on imparting life skill? YES ☒ NO ☐

Is the course based on Activity ? YES ☒ NO ☐

Remarks by Chairman, UG BOS, if any

UG BOS Meeting Reference Number: Date:

Course Code: **UCMSMAJ48023**

Course Name: **GROUP DISCUSSION / SEMINAR PRESENTATION**

Brief Course Description

The Group Discussion/ Seminar Presentation course is designed to enhance students' communication, presentation, critical thinking, and collaborative learning abilities. Students are required to study contemporary topics, emerging technologies, research trends, or discipline-specific issues and present their findings through seminars and structured group discussions. The course promotes active participation, knowledge sharing, and professional interaction.

Prerequisite(s) and/or Note(s)

Students should possess a basic understanding of the subject area and demonstrate the ability to gather, analyze, and present information from credible sources. Topics may be assigned by faculty members or selected by students with prior approval. Active participation, presentation delivery, discussion involvement, and submission of relevant reports or presentation materials are essential requirements of the course.

Course Objectives

The course aims to develop students' ability to investigate and understand contemporary issues, communicate ideas effectively, engage in meaningful academic discussions, and present information in a clear and organized manner. It also seeks to foster confidence, teamwork, leadership, and analytical thinking through collaborative learning activities.

Course Outcomes

Upon successful completion of the course, students will be able to prepare and deliver effective presentations, participate constructively in group discussions, critically evaluate different viewpoints, communicate ideas with clarity and confidence, and demonstrate professional presentation and interpersonal skills in academic and professional settings.

Knowledge Acquired

Students acquire knowledge of current developments, emerging trends, research findings, and practical issues related to their field of study. They also gain an understanding of presentation techniques, discussion methodologies, information gathering, and effective communication strategies used in academic and professional environments.

Skills Gained

The course enhances public speaking, presentation, communication, listening, research, analytical, and teamwork skills. Students develop the ability to organize information, defend viewpoints with logical arguments, participate in discussions effectively, and utilize presentation tools and technologies for professional communication.

Competency Developed: Students develop the competency to communicate complex ideas effectively, collaborate with peers, lead and participate in discussions, evaluate information critically, and present findings confidently before diverse audiences. These competencies prepare them for professional careers, higher education, research activities, and leadership roles in multidisciplinary environments.

GROUP DISCUSSION (GD): GUIDELINES AND EVALUATION FRAMEWORK

The Group Discussion (GD) aims to develop students' communication skills, critical thinking ability, teamwork, leadership qualities, and confidence in expressing ideas on academic, social, technological, and contemporary issues.

Learning Outcomes

Upon successful completion of the Group Discussion activity, students will be able to:

1. Communicate ideas effectively in a group setting.
2. Present logical arguments supported by relevant facts and examples.
3. Listen actively and respond constructively to others' viewpoints.
4. Demonstrate leadership, teamwork, and decision-making skills.
5. Analyze and discuss contemporary issues from multiple perspectives.
6. Develop confidence in public speaking and interpersonal communication.

GUIDELINES FOR CONDUCTING GROUP DISCUSSION**1. Group Formation**

- Each group shall consist of **4–6 students**.
- Groups may be formed by the instructor.
- Every student must actively participate in the discussion.

2. Topic Selection

Topics should be selected by the instructor and the domains are given below:

- Emerging technologies and innovations
- Artificial Intelligence and Machine Learning
- Environmental and sustainability issues
- Education and social development
- Current national and international affairs
- Ethical and professional issues in technology
- Entrepreneurship and innovation
- Any other topic approved by the instructor

3. Discussion Procedure

- The topic shall be announced before the discussion session.
- Students may be given **5–10 minutes** for preparation.
- The discussion duration shall be **10–15 minutes** per group.
- One student may initiate the discussion, but all members are expected to contribute.
- Participants should support their opinions with logical reasoning, examples, and relevant facts.
- Students should avoid personal remarks, interruptions, and aggressive behavior.
- The discussion should conclude with a summary of key points and findings.

4. Code of Conduct

Students shall:

- Respect differing opinions and viewpoints.
- Use professional and appropriate language.
- Listen attentively to other participants.
- Encourage balanced participation among group members.
- Maintain discipline and decorum throughout the discussion.
- Focus on the topic and avoid irrelevant arguments.

Evaluation Criteria

Criterion	Marks
Subject Knowledge and Content Relevance	20
Communication Skills and Clarity of Expression	10
Logical Reasoning and Analytical Ability	20
Teamwork, Listening, and Interaction Skills	10
Leadership, Initiative, and Confidence	10
Overall Participation and Professional Conduct	10
Total	80

Expected Outcomes

Students are expected to demonstrate:

- Effective oral communication skills.
- Analytical and critical thinking abilities.
- Confidence in expressing and defending ideas.
- Respect for diverse opinions and collaborative problem-solving.
- Professional behaviour suitable for academic and workplace environments.

Recommended Books and Reference Materials for Group Discussion

Reference Books

1. Raman, M., & Sharma, S. (2018). *Technical Communication: Principles and Practice* (3rd ed.). New Delhi: Oxford University Press.
2. Rizvi, A. M. (2017). *Effective Technical Communication* (2nd ed.). New Delhi: McGraw Hill Education.
3. Carnegie, D. (2019). *The Art of Public Speaking*. Courier Dover Publications.

SEMINAR PRESENTATION: GUIDELINES AND EVALUATION FRAMEWORK

The Seminar Presentation component aims to develop students' abilities in technical communication, literature review, independent learning, critical analysis, presentation skills, and professional interaction. It provides an opportunity for students to explore emerging topics, synthesize information from scholarly sources, and present their findings effectively.

Learning Outcomes

Upon successful completion of the Seminar Presentation activity, students will be able to:

1. Conduct independent study on a selected technical or interdisciplinary topic.
2. Analyze and synthesize information from scholarly articles, books, and technical reports.
3. Prepare professional-quality presentation materials.
4. Deliver technical presentations with confidence and clarity.
5. Respond effectively to questions and engage in academic discussions.
6. Demonstrate ethical use of information through proper citation and referencing.

GUIDELINES FOR CONDUCTING SEMINAR PRESENTATION**1. Topic Selection**

- The seminar topic should be relevant to the student's discipline or an emerging interdisciplinary area.
- Topics should be selected from recent developments, research articles, industrial applications, technological innovations, or societal challenges.
- Students are encouraged to consult reputed journals, conference proceedings, and technical magazines.
- The topic must be approved by the faculty supervisor before preparation begins.

2. Preparation of Seminar

- Students should thoroughly understand the selected topic before preparing the presentation.
- The seminar should be based on a critical review of relevant literature rather than simple compilation of information.
- Presentation slides should contain concise points, diagrams, charts, tables, figures, and illustrations instead of lengthy paragraphs.
- All sources of information, figures, and data must be properly acknowledged.
- A seminar synopsis/report may be submitted before the presentation, as prescribed by the department.

3. Preparation of Presentation Slides

- Use a simple, professional, and readable slide design.
- Font size should be sufficiently large (preferably 20 points or above) for clear visibility.
- Slides should not be overcrowded with text or graphics.
- Each slide should have an appropriate title and slide number.
- Graphs, charts, and figures should be clearly labelled and easily readable.
- Animations and transition effects should be used minimally and only when they improve understanding.
- Images and figures should maintain proper aspect ratios and visual quality.
- A conclusion slide and a references slide should be included.

4. Presentation Procedure

- Each student shall deliver a seminar presentation of **10 minutes**, followed by a **5 minutes question-and-answer session**.
- Students should introduce themselves and provide an overview of the topic at the beginning.
- The significance, objectives, methodology, findings, and conclusions should be clearly presented.
- Students should maintain eye contact with the audience and avoid reading directly from slides or notes.
- Voice projection, clarity of speech, and effective body language are expected.
- Time management should be strictly maintained.

5. Question and Answer Session

- Students should listen carefully to each question before responding.
- Responses should be clear, concise, and technically sound.
- Students should address the entire audience while answering questions.
- Constructive academic discussion should be encouraged.
- Differences of opinion should be handled professionally and respectfully.

Evaluation Criteria

Criterion	Marks
Topic Selection and Literature Survey	10
Technical Content and Subject Knowledge	20
Organization and Quality of Presentation Slides	15
Communication Skills and Delivery	10
Critical Analysis and Interpretation	10
Ability to Answer Questions	10
Professional Conduct and Time Management	5
Total	80

Expected Outcomes

Students are expected to demonstrate:

- Ability to independently explore technical topics.
- Effective presentation and communication skills.
- Critical thinking and analytical abilities.
- Competence in reviewing and synthesizing literature.
- Confidence in public speaking and academic interaction.
- Professional and ethical conduct in technical communication.

Recommended Books and Reference Materials

Reference Books

1. Alley, M. (2013). *The Craft of Scientific Presentations* (2nd ed.). Springer.
2. Reynolds, G. (2019). *Presentation Zen: Simple Ideas on Presentation Design and Delivery* (3rd ed.). New Riders.
3. Duarte, N. (2012). *HBR Guide to Persuasive Presentations*. Harvard Business Review Press

Online Resources

1. [IEEE Xplore Digital Library](#)
2. [SpringerLink](#)
3. [ScienceDirect \(Elsevier\)](#)
4. [Google Scholar](#)
5. [MIT OpenCourseWare](#)