



DEPARTMENT OF COMPUTER APPLICATIONS

1 st Semester [2025-26]				
S. No.	Course Code	Course Name	Name of Course Coordinator	Signature of Course Coordinator
1	MA205L	Mathematical Foundation of Data Science	Mr. Saurabh Chaudhary	
2	CS206L	Operating System	Dr. Amit K. Gupta	
3	CA207L	Software Engineering	Mr. Rabi N. Panda	
4	IT103L	Design Thinking	Dr. Amit Kumar	
5	HS107L	Quantitative Aptitude & Logical Reasoning-I	Mr. Manish Kumar Gupta	
6	CA101B	Object-Oriented Programming Concepts using Java	Ms. Shruti Aggarwal	
7	CA102B	Web Development-I	Ms. Mahima Tayal	
8	EE111B	Essentials of IoT	Mr. Salim	
9	CS206P	Operating System Lab	Dr. Amit K. Gupta	
10	HS101B	Communication Skills	Dr. Babita Tyagi	

Dr. Neelam Rawat
OBE Coordinator
Department of Computer Applications

Department of Computer Applications

PROGRAM OUTCOMES

(FOR AUTONOMOUS INSTITUTIONS, w.e.f. 2024-25)

- **PO1 (Foundation Knowledge):** Apply knowledge of mathematics, programming logic and coding fundamentals for solution architecture and problem solving.
- **PO2 (Problem Analysis):** Identify, review, formulate and analyse problems for primarily focussing on customer requirements using critical thinking frameworks.
- **PO3 (Development of Solutions):** Design, develop and investigate problems with as an innovative approach for solutions incorporating ESG/SDG goals.
- **PO4 (Modern Tool Usage):** Select, adapt and apply modern computational tools such as development of algorithms with an understanding of the limitations including human biases.
- **PO5 (Individual and Teamwork):** Function and communicate effectively as an individual or a team leader in diverse and multidisciplinary groups. Use methodologies such as agile.
- **PO6 (Project Management and Finance):** Use the principles of project management such as scheduling, work breakdown structure and be conversant with the principles of Finance for profitable project management.
- **PO7 (Ethics):** Commit to professional ethics in managing software projects with financial aspects. Learn to use new technologies for cyber security and insulate customers from malware
- **PO8 (Life-long learning):** Change management skills and the ability to learn, keep up with contemporary technologies and ways of working.

DEPARTMENT OF COMPUTER APPLICATIONS

Program Name: MCA	Academic Session: 2025-26	Semester: 1 st Semester
Course name: Mathematical Foundation of Data Science	Course Code: MA205L	Faculty: Mr. Saurabh Chaudhary Mr. Roshan Mr. Vijay Kumar

Tagging COs with BLs & KCs			
CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
After completion of the course, the student will be able to			
CO1	Apply the concept of matrix in eigen vectors and Inner Product.	3	P
CO2	Apply the knowledge of matrix factorization in data decomposition.	3	P
CO3	Employ the probability distribution in the field of data science.	3	P
CO4	Apply the concept of statistics in testing hypothesis.	3	P
CO5	Apply the postulates of partial derivatives in optimization.	3	P

Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8
CO-1	2	2	1	1	-	-	-	1
CO-2	2	2	1	1	-	-	-	2
CO-3	2	2	1	1	-	-	-	1
CO-4	2	2	1	1	-	-	-	2
CO-5	2	2	1	1	-	-	-	1
PO Target								


 Signature of Course Coordinator


 Signature of Addl. HoD


 Signature of Dean

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria

DEPARTMENT OF COMPUTER APPLICATIONS

Program Name: MCA	Academic Session: 2025-26	Semester: 1st Semester
Course name: Design Thinking	Course Code: IT103L	Faculty: Dr. Amit Kumar

Tagging COs with BLs & KCs		
CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)
After completion of the course, the student will be able to		
CO1	Understand the basic requirements of a good design.	2
CO2	Empathies and ideate the solutions to problems in his environment	3
CO3	Prototype and test the developed solutions.	3
CO4	Apply the principles of design thinking on developing innovative solutions to the real-world problems.	3
		Knowledge Category (KC)
		C
		P
		P
		C

Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8
CO-1	1	3	3	2	2	-	-	2
CO-2	1	3	3	2	2	-	-	2
CO-3	1	3	3	2	2	-	-	2
CO-4	1	3	3	2	2	-	-	2
PO Target	1	3	3	2	2	-	-	2



Signature of Course Coordinator



Signature of Addl. HoD



Signature of Dean

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

DEPARTMENT OF COMPUTER APPLICATIONS

Program Name: MCA	Academic Session: 2025-26	Semester: 1 st Semester
Course name: Operating System	Course Code: CS206L	Faculty: Ms. Annu Yadav Dr. Amit Gupta Ms. Neha Tyagi Mr. Shish Pal

Tagging COs with BLs & KCs			
CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
After completion of the course, the student will be able to			
CO1	Discuss the role of operating systems and their types.	2	C
CO2	Apply the concept of CPU scheduling algorithms for execution of programs.	3	P
CO3	Apply the concept of inter-process communication, process synchronization and deadlock handling.	3	P
CO4	Analyze various memory management techniques.	4	P
CO5	Illustrate the concept of I/O management and file system.	3	P

Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8
CO-1	1	1	-	-	-	-	-	3
CO-2	3	3	-	-	-	-	-	2
CO-3	3	3	-	-	-	-	-	2
CO-4	3	3	-	-	-	-	-	2
CO-5	3	2	-	-	-	-	-	2
PO Target								

[Signature]
Signature of Course Coordinator

[Signature]
Signature of Addl. HoD

[Signature]
Signature of Dean

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

DEPARTMENT OF COMPUTER APPLICATIONS

Program Name: MCA	Academic Session: 2025-26	Semester: 1 st Semester
Course name: Software Engineering	Course Code: CA207L	Faculty: Mr. R.N.Panda Dr. Neelam Rawat Ms. Hunny Gaur

Tagging COs with BLs & KCs		
CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)
After completion of the course, the student will be able to		
CO1	Understand the fundamental concepts of the software development process.	2
CO2	Demonstrate the concept of requirement engineering in the SRS document.	3
CO3	Demonstrate the concepts of software design.	3
CO4	Elaborate concept of software maintenance and software project management.	3
CO5	Illustrate the fundamental concepts of Agile models.	3
		Knowledge Category (KC)
		C
		P
		C
		C
		C

Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8
CO-1	2	-	-	-	-	-	-	1
CO-2	2	3	2	-	1	-	-	3
CO-3	3	3	3	3	2	-	-	3
CO-4	3	2	1	1	1	-	-	3
CO-5	2	1	1	-	1	3	-	2
PO Target								



Signature of Course Coordinator



Signature of Addl. HoD



Signature of Dean

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses, project having credits 3 to 6 should have 5 number of COs. The laboratory course, mini project, seminar, industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.



DEPARTMENT OF COMPUTER APPLICATIONS

Program Name: MCA	Academic Session: 2025-26	Semester: 1st Semester
Course name: Quantitative Aptitude & Logical Reasoning-I	Course Code: HS107L	Faculty: Mr. Manish Kumar Gupta

Tagging COs with BLs & KCs		
CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)
CO1	After completion of the course, the student will be able to Analyze problems, identify relevant information, and apply appropriate mathematical methods to reach solutions.	4
CO2	Analyze tasks and activities by following a chain of thought process and find logical solutions to a problem.	4
CO3	Analyze trends, patterns, and relationships within the data.	4

Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8
CO-1	2	2	-	-	-	-	-	1
CO-2	2	2	-	-	-	-	-	1
CO-3	1	1	-	-	-	-	-	1
PO Target	1.7	1.7	-	-	-	-	-	1

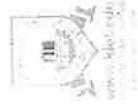
Signature of Course Coordinator

Signature of Addl. HoD

Signature of Dean

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.



DEPARTMENT OF COMPUTER APPLICATIONS

Program Name: MCA	Academic Session: 2025-26	Semester: 1 st Semester
Course name: Object Oriented Programming Concepts using Java	Course Code: CA101B	Faculty: Ms. Shruti Aggarwal Ms. Sonam Jain

Tagging COs with BLs & KCs		Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
CO No.	Statement of Course Outcome		
After completion of the course, the student will be able to			
CO1	Understand programming concepts using Java.	2	C
CO2	Explain object-oriented programming concepts using Java.	3	C
CO3	Apply exception handling and file I/O operations in Java to develop robust and error-resilient applications.	3	P
CO4	Illustrate multi-threading programs in Java to solve concurrent processing problems efficiently.	3	P
CO5	Analyze Java programs to optimize data structures using the Collection Framework.	4	P

Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8
CO-1	1	2	1	2	-	-	-	1
CO-2	2	2	2	2	-	-	-	2
CO-3	2	2	2	2	1	-	-	3
CO-4	1	2	1	2	1	-	-	1
CO-5	2	2	3	3	2	-	-	3
PO Target	1.6	2	1.8	2.2	1.33	-	-	2


Signature of Course Coordinator


Signature of Addl. HoD


Signature of Dean

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

DEPARTMENT OF COMPUTER APPLICATIONS

Program Name: MCA	Academic Session: 2025-26	Semester: 1 st Semester
Course name: Web Development-1	Course Code: CA102B	Faculty: Mr. Vijay Kumar Dr. Ankit Verma Ms. Vaishali Sisaudia Ms. Mahima Tayal

Tagging COs with BLs & KCs		
CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)
CO1	Demonstrate static web pages using HTML.	3
CO2	Apply CSS to design responsive web pages.	3
CO3	Analyze client-side scripting using JavaScript.	4
CO4	Develop interactive web page using ES6.	5
CO5	Create dynamic website using React JS.	5
		P
		P
		P
		P
		P

Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8
CO-1	3	3	2	3	-	-	1	1
CO-2	3	2	2	3	-	-	1	1
CO-3	3	2	2	3	-	-	1	1
CO-4	3	2	2	3	-	-	1	1
CO-5	3	2	1	3	-	-	1	2
PO Target	3	2.2	1.8	3	-	-	1	1.2

Signature of Course Coordinator

Signature of Addl. HoD

Signature of Dean

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.



DEPARTMENT OF COMPUTER APPLICATIONS

Program Name: MCA	Academic Session: 2025-26	Semester: 1 st Semester
Course name: Essentials of IoT	Course Code: EE111B	Faculty: Mr. Salim Mr. Ankur Maheshwari

Tagging COs with BLs & KCs			
CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
	After completion of the course, the student will be able to		
CO1	Understand the basic concepts of sensors and transducers.	2	C
CO2	Understand basics of embedded system and different IoT boards.	2	C
CO3	Apply basic operations and programming techniques of IoT devices.	3	P
CO4	Apply smart technology knowledge through case studies.	3	P

Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8
CO-1	2	-	-	-	2	2	2	-
CO-2	2	-	2	-	2	2	2	-
CO-3	3	-	3	2	3	2	2	-
CO-4	3	2	3	3	3	2	2	-
PO Target	2.5	2	2.67	1.5	2.5	2	2	-

Signature of Course Coordinator

Signature of Addl. HoD

Signature of Dean

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

DEPARTMENT OF COMPUTER APPLICATIONS

Program Name: MCA	Academic Session: 2025-26	Semester: 1st Semester
Course name: Operating System Lab	Course Code: CS206P	Faculty: Ms. Annu Yadav Dr. Amit Gupta Ms. Neha Tyagi Mr. Shish Pal

Tagging COs with BLs & KCs		
CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)
After completion of the course, the student will be able to		
CO1	Discuss the role of operating systems and their types.	3
CO2	Apply the concept of CPU scheduling algorithms for execution of programs.	3
CO3	Apply the concept of inter-process communication, process synchronization and deadlock handling.	3
CO4	Analyze various memory management techniques.	4
CO5	Illustrate the concept of I/O management and file system.	3
		Knowledge Category (KC)
		C
		P
		P
		C
		C

Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8
CO-1	1	1	-	-	-	-	-	3
CO-2	3	3	-	-	-	-	-	2
CO-3	3	3	-	-	-	-	-	2
CO-4	3	3	-	-	-	-	-	2
CO-5	3	2	-	-	-	-	-	2
PO Target	2.6	2.4	-	-	-	-	-	2.2


Signature of Course Coordinator


Signature of Addl. HoD


Signature of Dean

Please Note (Reference: OBE Guidelines w.e.f. Session 2021 – 22)

- ❖ The theory courses, project having credits 3 to 6 should have 5 number of COs. The laboratory course, mini project/ seminar, industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

DEPARTMENT OF COMPUTER APPLICATIONS

Program Name: MCA	Academic Session: 2025-26	Semester: 1 st Semester
Course name: Communication Skills	Course Code: HS101B	Faculty: Dr. Soniya Verma Dr. Sharaddha Srivastava

Tagging COs with BLs & KCs		Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
CO No.	Statement of Course Outcome		
CO1	After completion of the course, the student will be able to Understand the essentials of communicating in a professional setting.	2	C
CO2	Employ correct English usage and formal style of Listening - speaking.	3	P
CO3	Apply the usage of verbal and non-verbal cues in presentation and day-to-day communication.	3	P
CO4	Illustrate Communication skills that meet the nature and objectives of the workplace.	3	P

Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8
CO-1	-	-	-	-	3	-	1	2
CO-2	-	-	-	-	3	-	1	2
CO-3	-	-	-	-	3	-	1	2
CO-4	-	-	-	-	3	-	1	2
PO Target	-	-	-	-	3	-	1	2

Beend

Signature of Course Coordinator

Rakhi

Signature of Addl. HoD

Sahar

Signature of Dean

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses' project having credits 3 to 6 should have 5 number of COs. The laboratory course' mini project/seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.