DEPARTMENT OF

INFORMATION TECHNOLOGY

Scheme

For

Master of Computer Applications (MCA)

INDIAN INSTITUTE OF INFORMATION TECHNOLOGY

BHOPAL, INDIA

2024

Contents

About the Programme

Indian Institute of Information Technology, Bhopal is proud to offer a exemplary Master of Computer Applications (MCA) programme under the Department of Information Technology. MCA is a three-year programme with one full semester devoted to industry internship. In addition to the core courses in Computer Applications covering the basic knowledge areas, there are courses from Mathematics, Business Management and Artificial Intelligence, which enable the students to acquire the required skills for a successful career. The elective courses offered in the emerging areas give them the opportunity to be in the forefront of technology and applications. Software ideas and techniques are heavily emphasized in order to help students succeed in their careers. The one-semester individual industrial project is expected to give the student an experience to tackle a problem from its specification through design, implementation and testing, to possible deployment and maintenance planning. The academic calendar comprises distinct odd semesters (from July to December) and even semesters (from January to June) for each academic session.

1 Programme Educational Objectives [PEOs]

PEO1: Alumni will have fundamental and advanced knowledge of core courses and computer application for developing effective computing solution by incorporating creative and logical reasoning.

PEO2: Alumni will have capabilities to develop software, understand the technical specification, design and provide innovative solutions for society by diligence, team work and lifelong learning.

PEO3: Alumni will have good leadership skill, ethical values and time management to get employment in industries or pursue higher studies or turn as researchers or entrepreneurs.

2 Programme Outcomes (POs)

PO1: To identify, formulate, design, evaluate, research literature and solve complex computing problems using fundamental principles of mathematics, computer applications, and relevant domain disciplines.

PO2: To utilize appropriate methods and cutting-edge computing technologies to complete computing tasks while being aware of their constraints.

PO3: To apply computer and management ideas to one's own work, as a team member and team leader, to manage projects, and in multidisciplinary environments.

PO4: To identify a timely opportunity and using innovation to pursue that opportunity to create value and wealth for the betterment of the individual and society at large.

3 Definition of Course Code

Course Code Conversion is carried out according to scheme mentioned in Figure 1.

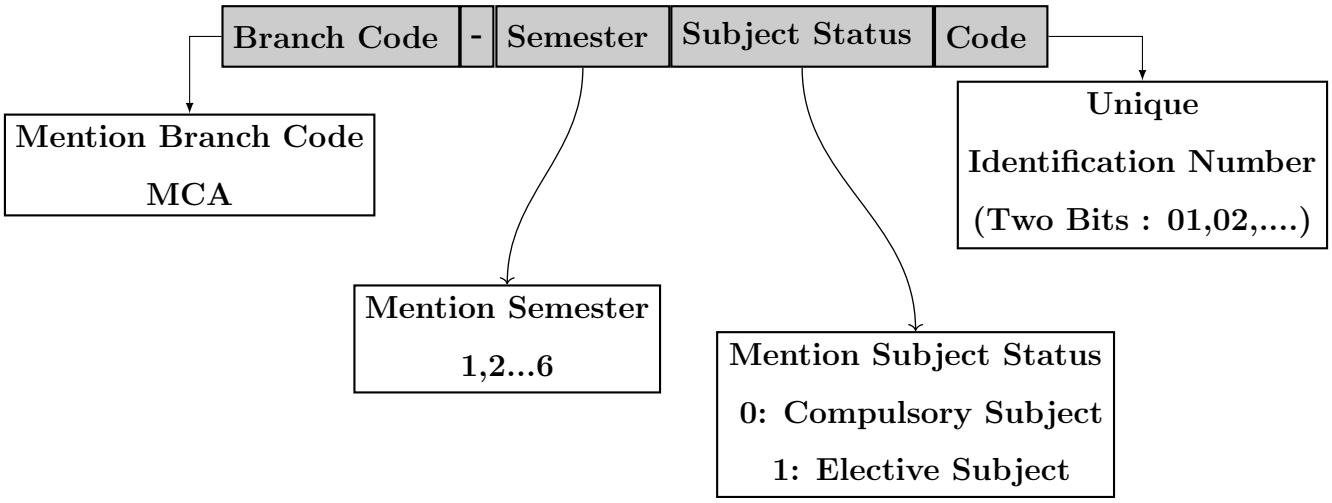

Figure 1: Course Code Conversion

4 Design of Curriculum

Total 130 Credit is required for this Program and distribution of Credits of program is shown in Table 1.

Table 1: Distribution of Credits Information

Semester	Periods Per Week			Credits
	L	T	P	
First Semester	15	3	8	22
Second Semester	15	3	8	22
Third Semester	15	3	8	22
Fourth Semester	15	3	8	22
Fifth Semester	15	4	6	22
Sixth Semester	4	0	32	20
Total	75	16	78	130

Credit structure of each course is given in L-T-P form (e.g., 2–1–0). The numbers corresponding to L, T and P denote the contact hours per week for Lecture, Tutorial and Practical respectively.

4.1 Definition of Credits

Teaching of the courses shall be reckoned in credits; Credits are assigned to the courses based on general pattern as shown in Table 2.

Table 2: Definition of Credits

1 hour of Lecture (L) per week	1 Credit
1 hour of Tutorial (T) per week	1 Credit
2 hours of Laboratory (P) per week	1 Credit

4.2 Scheme

Semester-wise scheme and credit distribution mentioned in Table 3-8.

Table 3: First Semester Scheme

Course Code	Subject Name	Periods Per Week			Credits
		L	T	P	
MCA-1001	Fundamentals of Computer Programming	3	-	2	4
MCA-1002	Discrete Mathematics	3	1	-	4
MCA-1003	Computer Organization and Architecture	3	1	-	4
MCA-1004	Operating System	3	-	2	4
MCA-1005	Fundamentals of Management	3	1	-	4
MCA-1006	Problem Solving Lab using Python	-	-	4	2
Total L=15,T=3,P =8		Total Credits			22

Table 4: Second Semester Scheme

Course Code	Subject Name	Periods Per Week			Credits
		L	T	P	
MCA-2001	Data Structure and Algorithms	3	-	2	4
MCA-2002	Numerical Analysis	3	1	-	4
MCA-2003	Object Oriented Programming	3	-	2	4
MCA-2004	Microprocessors	3	1	-	4
MCA-2005	Software Engineering	3	1	-	4
MCA-2006	Computational Techniques Lab	-	-	4	2
Total L=15, T=3, P =8		Total Credits			22

Table 5: Third Semester Scheme

Course Code	Subject Name	Periods Per Week			Credits
		L	T	P	
MCA-3001	Database Management System	3	-	2	4
MCA-3002	Data Analytics	3	1	-	4
MCA-3003	Formal Languages and Automata Theory	3	1	-	4
MCA-3004	Digital Image Processing	3	-	2	4
MCA-31XX	Elective-I	3	1	-	4
MCA-3005	Project Design	-	-	4	2
Total L=15, T=3, P =8		Total Credits			22

Note- XX replaced with Subject code mentioned in Table 9.

Table 6: Fourth Semester Scheme

Course Code	Subject Name	Periods Per Week			Credits
		L	T	P	
MCA-4001	Artificial Intelligence and Machine Learning	3	-	2	4
MCA-4002	Computer Networks	3	-	2	4
MCA-4003	Data Warehousing and Data Mining	3	1	-	4
MCA-41XX	Elective-II	3	1	-	4
MCA-41XX	Elective-III	3	1	-	4
MCA-4004	Project Implementation	-	-	4	2
Total L=15, T=3, P =8		Total Credits			22

Note- XX replaced with Subject code mentioned in Table 10.

Table 7: Fifth Semester Scheme

Course Code	Subject Name	Periods Per Week			Credits
		L	T	P	
MCA-5001	Cloud Computing	3	1	-	4
MCA-5002	Deep Learning	3	-	2	4
MCA-51XX	Elective-IV	3	1	-	4
MCA-51XX	Elective-V	3	1	-	4
MCA-51XX	Elective-VI	3	1	-	4
MCA-5003	Project Dissertation	-	-	4	2
Total L=15, T=4, P=6		Total Credits			22

Note- XX replaced with Subject code mentioned in Table 11.

Table 8: Sixth Semester Scheme

Course Code	Subject Name	Periods Per Week			Credits
		L	T	P	
MCA-6001	MOOC (12 Weeks)	4	-	-	4
MCA-6002	Industrial Internship / R & D Project	-	-	32	16
Total L=4, T=0, P =32		Total Credits			20

4.3 List of Elective Subjects

Table 9: Electives Level- I (Elective Subjects for III Semester)

Course Code	**Subject Name**
Elective I	
MCA-3101	Digital Marketing
MCA-3102	Digital Forensics and Cyber Law
MCA-3103	Real Time System
MCA-3104	Unix and Shell Programming

Table 10: Electives Level- II & III (Elective Subjects for IV Semester)

Course Code	**Subject Name**
Elective II	
MCA-4101	Agile Software Development
MCA-4102	Soft Computing
MCA-4103	DevOps
MCA-4104	Resource Management
Elective III	
MCA-4105	Brain Computer Interface
MCA-4106	Ethical Hacking
MCA-4107	Principles of Compiler Design
MCA-4108	Internet of Things

Table 11: Electives Level- IV, V, & VI (Elective Subjects for V Semester)

Course Code	**Subject Name**
Elective IV	
MCA-5101	Business Intelligence
MCA-5102	Natural Language Processing
MCA-5103	Pattern Recognition
MCA-5104	Next Generation Networks
Elective V	
MCA-5105	Cryptography & Network Security
MCA-5106	Modelling and Simulations
MCA-5107	Mobile Application Development
MCA-5108	Quantum Computing
Elective VI	
MCA-5109	Bioinformatics
MCA-5110	Blockchain Architecture Design
MCA-5111	Information Retrieval
MCA-5112	Mobile Computing