MASTER OF COMPUTER APPLICATIONS

CURRICULUM

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY
CALICUT 673601

KERALA, INDIA

Semester 1

Sl. No.	Code	Title	L	T	P	C
1	CS2001D	Logic Design	4	0	0	4
2	CS2003D	Introduction to Programming	3	0	2	4
3	MA6223D	Discrete Mathematics	3	0	0	3
4	MA6020D	Statistical Methods	3	1	0	3
5	MS1001D	Professional Communication	3	0	0	3
6	CS2092D	Programming Laboratory	1	0	3	3
		Total Credits				**20**

Semester 2

Sl. No.	Code	Title	L	T	P	C
1	CS2004D	Computer Organization	4	0	0	4
2	CS2005D	Data Structures and Algorithms	4	0	0	4
3	MA6224D	Graph Theory and Combinatorics	3	1	0	3
4		Elective I				*
5		Elective II				*
6	CS2094D	Data Structures Laboratory	1	0	3	3
		Total Credits				**20-22**

Semester 3

Sl. No.	Code	Title	L	T	P	C
1	CS3002D	Database Management Systems	3	0	2	4
2	CS3003D	Operating Systems	3	0	2	4
3	CS3007D	Object Oriented Systems	3	0	2	4
4		Elective III				*
5		Elective IV				*
6	CS4097D	Object Oriented Systems Laboratory	1	0	3	3
		Total Credits				**21-23**

Semester 4

Sl. No.	Code	Title	L	T	P	C
1	CS3004D	Software Engineering	3	0	2	4
2	CS3006D	Computer Networks	3	0	2	4
3		Elective V				*
4		Elective VI				*
5		Elective VII				*
6	CS4096D	Software Engineering Laboratory	1	0	3	3
		Total Credits				**20-23**

Semester 5

Sl. No.	Code	Title	L	T	P	C
1	ME3104D	Principles of Management	3	0	0	3
2	MA6005D	Optimization Techniques I	3	0	0	3
3		Elective VIII				*
4		Elective IX				*
5		Elective X				*
6		Elective XI				*
		Total Credits				**18-22**

Semester 6

Sl. No.	Code	Title	L	T	P	C
1	CS3099D	Project				15
		Total Credits				**15**

List of Laboratory Elective Courses:

Sl. No.	Code	Title	L	T	P	C
1	CS3091D	Compiler Laboratory	1	0	3	3
2	CS3092D	Operating Systems Laboratory	1	0	3	3
3	CS3093D	Networks Laboratory	1	0	3	3
4	CS3094D	Systems Programming Laboratory	1	0	3	3
5	CS3095D	Database Management Systems Laboratory	1	0	3	3
6	CS4090D	Computer Security Laboratory	1	0	3	3
7	CS4091D	Data Analytics laboratory	1	0	3	3
8	CS4092D	Machine Learning Laboratory	1	0	3	3
9	CS4093D	Image Processing Laboratory	1	0	3	3
10	CS4094D	Advanced Computer Networks Laboratory	1	0	3	3

List of Elective Courses:

Sl. No.	Code	Title	L	T	P	C
1	CS4021D	Number Theory and Cryptography	3	0	2	4
2	CS4022D	Principles of Programming Languages	3	0	2	4
3	CS4023D	Artificial Intelligence	3	0	2	4
4	CS4024D	Information Theory	3	0	0	3
5	CS4025D	Randomized algorithms	3	0	2	4
6	CS4026D	Combinatorial Algorithms	3	0	2	4
7	CS4027D	Topics in Algorithms	3	0	2	4
8	CS4028D	Quantum Computation	3	0	0	3
9	CS4029D	Topics in Complexity	3	0	0	3
10	CS4030D	Computational Complexity	4	0	0	4
11	CS4031D	Computational Algebra	3	0	2	4
12	CS4032D	Computer Architecture	3	0	2	4
13	CS4033D	Distributed Computing	3	0	2	4
14	CS4034D	Middleware Technologies	3	0	2	4
15	CS4035D	Computer Security	3	0	2	4
16	CS4036D	Advanced Database Management Systems	3	0	2	4
17	CS4037D	Cloud Computing	3	0	2	4
18	CS4038D	Data Mining	3	0	2	4
19	CS4039D	Multi Agent Systems	3	0	2	4
20	CS4040D	Bioinformatics	3	0	2	4
21	CS4041D	Natural Language Processing	3	0	2	4
22	CS4042D	Web Programming	3	0	2	4
23	CS4043D	Image Processing	3	0	2	4
24	CS4044D	Machine Learning	3	0	2	4
25	CS4045D	Medical Image processing	3	0	2	4
26	CS4046D	Computer Vision	3	0	2	4

27	CS4047D	Computer Graphics	3	0	2	4
28	CS4048D	Mathematical Foundations of Machine Learning	3	0	0	3
29	CS4049D	Advanced Computer Networks	3	0	2	4
30	CS4050D	Design and Analysis of Algorithms	3	0	2	4
31	CS4051D	Coding Theory	3	0	0	3
32	CS4052D	Logic for Computer Science	3	0	2	4
33	CS4053D	Topics in Logic	3	0	0	3
34	CS4054D	Parameterized Algorithms	3	0	2	4
35	CS4055D	Parameterized Complexity Theory	3	0	0	3
36	CS4056D	Introduction to High Performance Computing	3	0	2	4
37	CS4057D	Embedded Systems	3	0	2	4
38	CS4058D	Computational Geometry	3	0	2	4
39	CS4059D	Topics in Computational Geometry	3	0	0	3
40	CS4060D	Introduction to Data Science	3	0	2	4
41	CS4061D	Topics in Data Analytics	3	0	2	4
42	CS4062D	Introduction to information security	3	0	0	3
43	CS4063D	Topics in Cryptography	3	0	2	4
44	CS4064D	Program Analysis	3	0	2	4
45	CS4065D	Formal Semantics	3	0	2	4
46	CS4066D	Algorithmic Decision Making	3	0	2	4
47	CS4067D	Foundations of Programming	3	0	2	4
48	CS4068D	DNA computing Models	3	0	0	3
49	CS4069D	Hashing Techniques for Big Data	3	0	0	3
50	CS4070D	Topics in Computer Networks	3	0	0	3
51	CS4071D	Network Analysis in Bioinformatics	3	0	0	3
52	CS4089D	Term Paper	0	0	8	3
53	MA6301	Real Analysis	4	0	0	4
54	MA6302	Linear Algebra	4	0	0	4
55	MA6324	Abstract Algebra	4	0	0	4
56	MA7365	Multivariable Calculus	3	0	0	3
57	MA7369	Stochastic Processes	3	0	0	3
58	CS4072D	Advanced Programming and Data Structures for Engineers	3	0	0	3
59	CS4073D	Computing Systems for Engineers	3	0	0	3

Notes:

1. Since the credits for elective courses may vary, the total credits acquired in a semester can vary. However a student is required to credit the number of courses stipulated in the curriculum and also complete a minimum of 120 credits for the award of the MCA degree.
2. Elective courses may be credited from the list of elective courses and laboratory elective courses.
3. Any third year / fourth year B.Tech Computer Science and Engineering theory / laboratory core course may be offered as elective course for the MCA programme.
4. In addition to the electives listed in the curriculum, a student may be permitted to credit as an elective any other graduate level course offered in the institute, subject to consent from the Programme Coordinator.