

SYLLABUS STRUCTURE
FOR
THREE-YEAR MASTERS PROGRAMME
IN
MASTER OF COMPUTER SCIENCE AND
APPLICATION
(NBA Accredited)



NAAC – A Grade

DEPARTMENT OF COMPUTER SCIENCE AND
APPLICATION

COLLEGE OF ENGINEERING & TECHNOLOGY
(An Autonomous and Constituent College of BPUT, Odisha)

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COURSE: MCA (CSA-Master of Computer Application)
Duration: 3 years (Six Semesters)

Abbreviations Used: AR: Academic Regulation U = UG, I = Integrated, P = PG
 L = Lectures P = Practical or Laboratory IA = Internal Assessment
 T = Tutorial SE = Semester Examination EA = External Assessment

Subject Code Format:

1	2	3	4	5	6	7	8
Prog (U/I/P)	Type (PC/PE/OE/LC/MC/AC)	Department (CE/EE/IE/ME/...)	Semester (1/2/.../0)	Serial No. (1/2/3/.../99)			

1st SEMESTER

Sl. No.	Subject Type	Subject Code	Subject Name	Teaching Hours			Credit	Maximum Marks			
				L	T	P		IA	SE	EA	Total
1	Core 1	PPCCA101	Problem Solving and Program Design	4	0	0	4	30	70	-	100
2	Core 2	PPCCA102	Computer Organization and Architecture	3	0	0	3	30	70	-	100
3	Core 3	PPCCA103	Web Design and Development	3	0	0	3	30	70	-	100
4	Core 4	PPCCA104	Computational Mathematics	4	0	0	4	30	70	-	100
5	Mandatory 1	PMCMH105	Engineering Economics and Financial Accounting	3	0	0	3	30	70	-	100
6	Mandatory 2	PMCMH106	Business Communication	3	0	0	3	30	70	-	100
7	Lab 1	PLCCA101	Problem Solving and Program Design Lab	0	0	4	2	100	-	-	100
8	Lab 2	PLCCA102	Computer Organization and Architecture Lab	0	0	2	1	50	-	-	50
9	Lab 3	PLCCA103	Web Design and Development Lab	0	0	2	1	50	-	-	50
10	Lab 4	PLCMH104	Business Communication Lab	0	0	2	1	50	-	-	50
Total				20	0	10	25	430	420	-	850

2nd SEMESTER

Sl. No.	Subject Type	Subject Code	Subject Name	Teaching Hours			Credit	Maximum Marks			
				L	T	P		IA	SE	EA	Total
1	Core 5	PPCCA201	Data Structures	3	0	0	3	30	70	-	100
2	Core 6	PPCCA202	Programming with Java	3	0	0	3	30	70	-	100
3	Core 7	PPCCA203	Operating Systems	3	0	0	3	30	70	-	100
4	Core 8	PPCCA204	Database Management Systems	3	0	0	3	30	70	-	100
5	Core 9	PPCCA205	Software Engineering	3	0	0	3	30	70	-	100
6	Mandatory 3	PMCMH206	Organizational Behaviour	3	0	0	3	30	70	-	100
7	Lab 5	PLCCA201	Data Structures Lab	0	0	2	1	50	-	-	50
8	Lab 6	PLCCA202	Programming with Java Lab	0	0	4	2	100	-	-	100
9	Lab 7	PLCCA203	Operating Systems Lab	0	0	2	1	50	-	-	50
10	Lab 8	PLCCA204	Database Management Systems Lab	0	0	2	1	50	-	-	50
11	Lab 9	PLCCA205	Software Engineering Lab	0	0	2	1	50	-	-	50
Total				18	0	12	24	480	420	-	900

3rd SEMESTER

Sl. No.	Subject Type	Subject Code	Subject Name	Teaching Hours			Credit	Maximum Marks			
				L	T	P		IA	SE	EA	Total
1	Core 10	PPCCA301	Design and Analysis of Algorithms	4	0	0	4	30	70	-	100
2	Core 11	PPCCA302	Theory of Computation	4	0	0	4	30	70	-	100
3	Core 12	PPCCA303	Computer Networks	3	0	0	3	30	70	-	100
4	Core 13	PPCCA304	Cryptography and Network Security	3	0	0	3	30	70	-	100
5	Core 14	PPCCA305	Data Science with Python	3	0	0	3	30	70	-	100
6	Project 1	PPCCA306	Minor Project-I	0	0	4	3	100	-	-	100
7	Lab 10	PLCCA301	Computer Networks Lab	0	0	2	1	50	-	-	50
8	Lab 11	PLCCA302	Cryptography and Network Security Lab	0	0	2	1	50	-	-	50
9	Lab 12	PLCCA303	Data Science with Python Lab	0	0	4	2	100	-	-	100
			Total	17	0	12	24	450	350	-	800

4th SEMESTER

Sl. No.	Subject Type	Subject Code	Subject Name	Teaching Hours			Credit	Maximum Marks			
				L	T	P		IA	SE	EA	Total
1	Core 15	PPCCA401	Artificial Intelligence	3	0	0	3	30	70	-	100
2	Core 16	PPCCA402	Enterprise Java Technologies	3	0	0	3	30	70	-	100
3	Core 17	PPCCA403	Compiler Design and Language Processor	3	0	0	3	30	70	-	100
4	Core 18	PPCCA404	Quantitative Techniques	3	0	0	3	30	70	-	100
5	Elective 1 (Any One)	PPECA411	Computer Graphics	3	0	0	3	30	70	-	100
		PPECA412	Data Warehousing and Mining								
		PPECA413	Internet of Things								
6	Mandatory 4	PMCMH405	Personality and Soft Skill Development	0	0	4	2	100	-	-	100
7	Mandatory 5	PMCMH406	Group Discussion and Seminar	0	0	4	2	100	-	-	100
8	Lab 13	PLCCA401	Artificial Intelligence Lab	0	0	2	1	50	-	-	50
9	Lab 14	PLCCA402	Enterprise Java Technologies Lab	0	0	4	2	100	-	-	100
10	Lab 15	PLCCA403	Compiler Design and Language Processor Lab	0	0	2	1	50	-	-	50
11	Lab 16	PLCCA404	Elective-I Lab	0	0	2	1	50	-	-	50
			Total	15	0	18	24	600	350	-	950

Students must undertake a summer internship programme at the end of the 4th semester which will be evaluated in 5th semester.

5th SEMESTER

Sl. No.	Subject Type	Subject Code	Subject Name	Teaching Hours			Credit	Maximum Marks			
				L	T	P		IA	SE	EA	Total
1	Core 19	PCCA501	Models and Patterns for Web Development	3	0	0	3	30	70	-	100
2	Elective 2 (Any One)	PPECA521	Multimedia and Computer Animation	3	0	0	3	30	70	-	100
		PPECA522	Machine Learning								
		PPECA523	Mobile Computing								
		PPECA524	Software Project Management								
3	Elective 3 (Any One)	PPECA531	Virtual Reality	3	0	0	3	30	70	-	100
		PPECA532	Statistical Computing								
		PPECA533	Cloud Computing								
		PPECA534	Software Testing								
4	Elective 4 (Any One) Open	POECA541	Digital Image Processing	4	0	0	4	30	70	-	100
		POECA542	Big Data Analytics								
		POECA543	Natural Language Processing								
		POECA544	Wireless Sensor Networks								
		POECA545	Parallel and Distributed Systems								
		POECA546	Soft Computing								
		POECA547	Environmental Engineering and Green IT								
		POEMH548	Entrepreneurship Development								
		POEMH549	Marketing Management								
5	Mandatory 6	PMCMH505	Professional Ethics	2	0	0	2	30	70	-	100
	Project 2	PPRCA506	Minor Project-II	0	0	4	3	100	-	-	100
6	Project 3	PPRCA507	Summer Internship Evaluation	0	0	0	2	100	-	-	100
7	Lab 17	PLCCA501	Models and Patterns for Web Development Lab	0	0	2	1	50	-	-	50
8	Lab 18	PLCCA502	Elective-II Lab	0	0	2	1	50	-	-	50
9	Lab 19	PLCCA503	Elective-III Lab	0	0	2	1	50	-	-	50
			Total	15	0	10	23	500	350	-	850

6th SEMESTER

Sl. No.	Subject Type	Subject Code	Subject Name	Teaching Hours			Credit	Maximum Marks			
				L	T	P		IA	SE	EA	Total
1	Project 4	PPRCA601	Industrial Training cum Project	0	0	30	20	1000	-	-	1000
			Total	0	0	30	20	1000	-	-	1000