MCA/GEN/2/CC13 Software Lab: Based on MCA/GEN/2/CC8(Data Structures) using C/ C++							
Course Type	Course Credit	Contact Hours/Week	Delivery Mode	Maximum Marks		Exam Duration	Assessment Methods
				External	Internal		
Practical	02	04	Lab Work	50	-	3 Hours	TEE/ Practical File

Instructions to paper setter for Final-Term Examination: The Final-Term examination will be conducted by a panel of internal and external examiners. Examinees will be evaluated based on practical file, performance in practical exam and a viva voce exam.

Course Objectives: The objective of this course is to get the students familiar with various types of data structure and different techniques to implement the data structures using C and C++ based on **MCA/GEN/2/CC8.**

Course Outcomes	At the end of this course, the student will be able to:
CO1	define: abstract data types, algorithms, complexity of algorithms, linear data structures, non-linear data structures, searching, sorting, hashing.
CO2	calculate: (complexity of algorithm). use array , stack, queue, linked list, tree, graph, linear search, binary search, bubble sort, selection sort, insertion sort , radix sort, shell sort, merge sort, quick sort, heap sort , hash function to solve given problems.
CO3	differentiate: data structure, searching techniques, sorting techniques, hash functions; analyze: time and space complexity.
CO4	categorize: static and dynamic pages, client side and server side programming, server types, get post methods, servlet and jsp programming;
CO5	evaluate: the complexity of linear search, binary search, bubble sort, selection sort, insertion sort , radix sort, shell sort, merge sort, quick sort, heap sort , hash function and select the best one for given problem.
CO6	develop: various programs and algorithms using C and C++.

CO-PEO Mapping Matrix for Course MCA/GEN/2/CC13					
Cos	PEO1	PEO2	PEO3	PEO4	PEO5
CO1	1	3	3	3	3
CO2	2	3	3	3	3
CO3	3	3	3	3	3
CO4	3	3	3	3	3
CO5	3	3	3	3	3
CO6	3	3	3	3	3
Average	2.5	3	3	3	3

Cos	CO-PO Mapping Matrix for Course MCA/GEN/2/CC13
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	1	3	1	1	1	-	3	1	-	-	-	-
CO2	2	1	1	3	1	-	3	2	-	-	-	-
CO3	3	1	1	3	3	-	3	3	-	-	-	-
CO4	3	3	1	3	1	-	3	3	-	-	-	-
CO5	3	1	3	1	3	-	3	3	-	-	-	-
CO6	3	3	3	3	3	-	3	3	-	-	-	-
Average	2.5	2	1.66	2.33	2	-	3	2.5	-	-	-	-

CO-PSO Mapping Matrix for Course MCA/GEN/2/CC13

Cos	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	1	1	1	-
CO2	3	2	2	2	-
CO3	3	3	3	3	-
CO4	3	3	3	3	-
CO5	3	3	3	3	-
CO6	3	3	3	3	-
Average	3	2.5	2.5	2.5	-

MCA/GEN/2/CC14 Software Lab: Web Development using Servlet, JSP & ASP[dot]NET							
Course Type	Course Credit	Contact Hours/Week	Delivery Mode	Maximum Marks		Exam Duration	Assessment Methods
				External	Internal		
Practical	02	04	Lab Work	50	-	3 Hours	TEE/ Attendance/ Practical File

Instructions to paper setter for Final-Term Examination: The Final-Term examination will be conducted by a panel of internal and external examiners. Examinees will be evaluated based on practical file, performance in practical exam and a viva voce exam.

Course Objectives: The objective of this course is to get the students hands-on practice with ASP[dot]NET programming concepts covered in course **MCA/GEN/2/CC12**.

Course Objectives	At the end of this course, the student will be able to :
CO1	outline: basic html tags, cascading style sheet, javascript fundamentals, server side programming concepts, asp.net, secure socket layer, cookies, master pages, site navigation.
CO2	explain: tags in html, concepts of javascripts, secure connection using SSL, cookies working, visual studio environment, asp.net security model, controls in asp.net, master pages, site navigation.
CO3	apply: html, asp.net concepts controls in designing web pages.
CO4	categorize: static and dynamic pages, client side and server side programming, server types, get post methods, asp.net controls, security models.
CO5	choose: static or dynamic pages, client side or server side programming, server types, get or post method, asp.net controls, forms authentication.
CO6	develop: web application using javascript, html, asp.net.

CO-PEO Mapping Matrix for Course MCA/GEN/2/CC14

Cos	PEO1	PEO2	PEO3	PEO4	PEO5
CO1	1	3	3	3	3
CO2	2	3	3	3	3
CO3	3	3	3	3	3
CO4	3	3	3	3	3
CO5	3	3	3	3	3
CO6	3	3	3	3	3
Average	2.5	3	3	3	3

CO-PO Mapping Matrix for Course MCA/GEN/2/CC14

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	1	3	1	1	1	-	3	1	-	-	-	-
CO2	2	1	1	3	1	-	3	2	-	-	-	-
CO3	3	1	1	3	3	-	3	3	-	-	-	-
CO4	3	3	1	3	1	-	3	3	-	-	-	-

CO5	3	1	3	1	3	-	3	3	-	-	-	-
CO6	3	3	3	3	3	-	3	3	-	-	-	-
Average	2.5	2	1.66	2.33	2	-	3	2.5	-	-	-	-

CO-PSO Mapping Matrix for Course MCA/GEN/2/CC14

Cos	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	1	1	1	-
CO2	3	2	2	2	-
CO3	3	3	3	3	-
CO4	3	3	3	3	-
CO5	3	3	3	3	-
CO6	3	3	3	3	-
Average	3	2.5	2.5	2.5	-