



Program Outcomes (PO) & Course Outcomes (CO) for Academic Year-2023-24



Course: MCA

Semester-I

Subject Title	ASP.NET using C#			
Subject Ref. No.	MANC401	No. of Credits		4
		Assignments/Sessional		40
		Semester Examination		60

Course Outcomes (COs)

At the end of the course, students will be able to:

CO-1	Describe basic concepts of ASP.NET and identify components of a form.
CO-2	Use various validation controls on respective objects on the form.
CO-3	Establish connectivity with backend using ADO.NET.
CO-4	Implement stored procedures in ASP.NET.
CO-5	Describe use of Authentication services in ASP.NET.
CO-6	Create a mini-project using controls learnt.

**Mapping of Course Outcomes (COs) with Program Outcomes (POs)
(Course Articulation Matrix)**

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10
CO-1	X			X						
CO-2	X			X						
CO-3	X			X						
CO-4	X			X						
CO-5	X			X						
CO-6	X			X				X		X
AVG	X			X				X		X



SubjectTitle	MathematicsandProbability									
SubjectRef.No.	MANC402									
			No.ofCredits	:	4					
			Assignments/Sessional	:	40					
			SemesterExamination	:	60					
CourseOutcomes(COs)										
At theendofthecourse,studentswillbeableto:										
CO-1	To extend student’s logical and mathematical maturity & ability to deal withabstractionandtointroducemostofthebasicterminologiesusedincomputersciencourses andapplicationofideas tosolvepracticalproblems.									
CO-2	To understand the basic concepts of combinatorics, graph theory and to familiarizetheapplicationsof algebraicstructures.									
CO-3	Tounderstandtheconceptsandsignificanceoflatticesandbooleanalgebrawhicharewidelyusedin computerscienceandengineering.									
CO-4	To provide a foundationinprobability theory inorderto solve applied problemsandtoprepareformoreadvancedcourses inprobability.									
CO-5	Tolearnvariousdistributions,SamplingDistributionsthathelpstoenhancethequalityof researchapproach.									
Mapping of Course Outcomes (COs) with Program Outcomes (POs)(CourseArticulationMatrix)										
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10
CO-1										
CO-2										
CO-3										
CO-4										
CO-5										
CO-6										
AVG										



Subject Title	Advance Web Technology			
Subject Ref. No.	MANC403	No. of Credits		4
		Assignments	/	40
		Sessional		
		Semester Examination		60
Course Outcomes (COs) At the end of the course, students will be able to:				
CO-1	Design Web Pages using basic HTML tags & forms.			
CO-2	Apply different CSS to Web Pages.			
CO-3	Write basic script in JavaScript to perform different functionalities.			
CO-4	Validate the form input depending upon different events.			
CO-5	Write simple programs using jQuery & AJAX.			
CO-6	Design website using Dreamweaver tool.			



SubjectTitle	:	AdvancedOperatingSystem									
SubjectRef.No.	:	MANC404					No.ofCredits		:	4	
							Assignments/Sessional		:	40	
							SemesterExamination		:	60	
CourseOutcomes(COs) At theendofthecourse,studentswillbeableto:											
CO-1		Demonstrateunderstandingofdesignissuesofadvancedoperatingsystemsandcomparedifferen ttypesof operatingsystems									
CO-2		Analyzedesignaspectsandddatastructuresusedforfilesubsystem,memorysubsystemandproces									
CO-3		s subsystemof LinuxOS									
		Differentiatebetweenthreadsandprocessesandcomparedifferentprocessorschedulingalgo rithms									
CO-4		Masterconceptsofmemorymanagementincludingvirtualmemory&Mastersystemresources sharingamongtheusers									
Mapping of Course Outcomes (COs) with Program Outcomes (POs)(CourseArticulationMatrix)											
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	
CO-1	2										
CO-2		2	2								
CO-3			3	3							
CO-4			3								
AVG											



SubjectTitle		ResearchMethodology								
SubjectRef.No.		MANC405					No.ofCredits		:	3
							Assignments/Sessional		:	40
							SemesterExamination		:	60
CourseOutcomes(COs)										
At theendofthecourse,studentswillbeableto:										
CO-1		Understandtheroleandimportanceofresearch..								
CO-2		Studytheconcepts&cycleoftheresearchprocess.								
CO-3		IdentifythesamplingmethodsofResearchprocess								
CO-4		ToapplyvariousstatisticalmethodstotesttheHypothesis.								
Mapping of Course Outcomes (COs) with Program Outcomes (POs)(CourseArticulationMatrix)										
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10
CO-1	2									
CO-2		2	2							
CO-3			3	3						
CO-4			3							
AVG										



Subject Title	JAVA			
Subject Ref. No.	MANC407			
		No. of Credits	:	4
		Assignments/Sessional	:	40
		Semester Examination	:	60

Course Outcomes (COs)

At the end of the course, students will be able to:

CO-1	Write, compile, and execute Java programs that may include basic data types and control flow constructs using J2SE or other Integrated Development Environments (IDEs) such as Eclipse, NetBeans, and JDeveloper
CO-2	demonstrate the use of good object-oriented design principles including encapsulation, information hiding, Inheritance, Full Abstraction and Partial Abstraction
CO-3	Create GUI Application using Applet & HTML
CO-4	Implement the Multithreading Concept with real time application
CO-5	Control & Maintain Run-Time Exception occurred during web based software development
CO-6	Maintain the file using File handling concepts and provide the ability to inspect & modify the runtime behavior of application using Reflection

Mapping of Course Outcomes (COs) with Program Outcomes (POs) (Course Articulation Matrix)

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10
CO-1										
CO-2										
CO-3										
CO-4										
CO-5										
CO-6										
AVG										



Subject Title	Advance Web Technology LAB		
Subject Ref. No.	MANC451	No. of Credits	1
		Assignments/Sessional	20
		Semester Examination	30
Course Outcomes (COs)			
At the end of the course, students will be able to:			
CO-1	Design Web Pages using basic HTML tags & forms.		
CO-2	Apply different CSS to Web Pages.		
CO-3	Write basic script in JavaScript to perform different functionalities.		
CO-4	Validate the form input depending upon different events.		
CO-5	Write simple programs using jQuery & AJAX.		
CO-6	Design website using Dream View tool.		



SubjectTitle	ASP.NETusingC#Lab									
SubjectRef.No.	MANC452	No.ofCredits		1						
		Assignments/Sessional		20						
		SemesterExamination		30						
CourseOutcomes(COs)										
Attheendofthecourse,studentswillbeableto:										
CO-1	WriteSimple programsusingC#.									
CO-2	UsecalendarcontrolandTreeviewcontrolinforms.									
CO-3	Usingvariousvalidationcontrolson objectsontheforms.									
CO-4	ImplementDatagridcontrol,databindingandconnectivityusingC#.Net.									
CO-5	LearntousehyperlinkcontrolonForms.									
CO-6	Createaminorproject usingASP.NETandSQL Server.									
Mapping of Course Outcomes (COs) with Program Outcomes (POs)(CourseArticulationMatrix)										
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10
CO-1	X			X						
CO-2	X			X						
CO-3	X			X						
CO-4	X			X						
CO-5	X			X						
CO-6	X			X				X		X
AVG	X			X				X		X



Subject Title	JAVALAB			
Subject Ref. No.	MANC453	No. of Credits		1
		Assignments/Sessional		20
		Semester Examination		30

Course Outcomes (COs)

At the end of the course, students will be able to:

CO-1	Design the fundamental software of object-oriented application, and have the ability to apply the same
CO-2	Identify, formulate and solve problems by using object-oriented programming
CO-3	Use APIs (Application Programmer Interfaces) and design/program APIs
CO-4	Implement Inheritance, Association and Abstraction using OOPs concepts
CO-5	Maintain the Exceptions in Software Development & Design GUI using AWT controls
CO-6	Develop Web page using Applet & Implement multithreading concept in real application

**Mapping of Course Outcomes (COs) with Program Outcomes (POs)
(Course Articulation Matrix)**

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10
CO-1	X			X						
CO-2	X			X						
CO-3	X			X						
CO-4	X			X						
CO-5	X			X						
CO-6	X			X						
AVG	X			X						



Semester-II

Subject Title	:	Programming using Python			
Subject Ref. No.	:	MANC408	No. of Credits	:	4
			Assignments/Sessional	:	40
			Semester Examination	:	60

Course Outcomes (COs)

At the end of the course, students will be able to:

CO-1	Apply the principles of python programming.
CO-2	Write clear and effective python code.
CO-3	Create applications using python programming.
CO-4	Access database using python programming.
CO-5	Develop web applications using python programming.
CO-6	Develop and use Web Services using python.

Mapping of Course Outcomes (COs) with Program Outcomes (POs) (Course Articulation Matrix)

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10
CO-1										
CO-2										
CO-3										
CO-4										
AVG										



Subject Title:	Object Oriented Analysis And Design		
Subject Ref. No.	MANC409	No. of Credits:	04
Assignments/Sessional	:		40
Semester Exam.	:		60
Course Outcomes (COs)			
At the end of the course, students will be able to:			
CO-1	Design UML diagrams as Class, sequence, use case, activity, component, deployment, state.		
CO-2	Understand object oriented methodologies.		
CO-3	Generate the documentation associated with SDLC using UML.		



SubjectTitle	DSS &MIS			
SubjectRef.No.	MANC410		No.ofCredits	2
			InternalAssessment	100%
CourseOutcomes(COs) Attheendofthecourse,studentswillbeableto:				
CO-1		Describebasicconceptsof MISandimportanceofdecisionmaking.		
CO-2		Understandinformationanddiscussitsprocessing.		
CO-3		Learntoanalyzesystemand itsdevelopment lifecycle.		
Prerequisites		NA		



SubjectTitle	:	AdvancesinDataStructureandAlgorithm								
SubjectRef.No.	:	MANC411					No.ofCredits		:	4
							Assignments/Sessional		:	40
							SemesterExamination		:	60
CourseOutcomes(COs)										
At theendofthecourse,studentswillbeableto:										
CO-1	TointroducetheconceptsofAbstractdataTypeimplement lineardatastructuresuchasstacks,queuesandlists and theirapplications usingProgrammingLanguage									
CO-2	Toimplement varioussearchdatastructuresuchashashing,binarysearchtrees,AVLtrees,B+treesandB*-									
CO-3	treesusingprogramming languages To implement graph theory concept (Minimum Spanning Tree) in Civil Network									
CO-4	Planning,ComputerNetworkRoutingProtocolandsummarizesearchingand sortingtechniques									
CO-5	Abilitytoanalyzetheperformanceofalgorithms.									
Abilitytochooseappropriatealgorithmdesigntechniquesforsolvingproblems										
Mapping of Course Outcomes (COs) with Program Outcomes (POs)(CourseArticulationMatrix)										
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10
CO-1										
CO-2										
CO-3										
CO-4		3								
CO-5	2									
AVG										
PreRequisite	:	C&C++ProgrammingLanguages								



SubjectTitle		AdvancedDBMS							
SubjectRef.No.		MANC412	No.ofCredits		4				
			Assignments/Sessional		40				
			SemesterExamination		60				
CourseOutcomes(COs)									
Attheendofthecourse,studentswillbeableto:									
CO-1	DescribearchitectureofparallelDBsanddistributedDBs.								
CO-2	DescribeDatawarehousingandassociatedterms.								
CO-3	Discusslifecycleapproachtowardsprojectmanagementusingvariouschemas.								
CO-4	DescribeOLAPconcepts.								
CO-5	ImplementvariousODBMSconceptslike ADTs.								
CO-6	Implementconcepts learntinasmallproject.								
MappingofCourseOutcomes(COs)withProgramOutcomes(POs)									
(CourseArticulationMatrix)									
	PO-1			PO-5	PO-6	PO-7	PO-8		
CO-1	X		X						
CO-2	X		X						
CO-3	X		X						
CO-4	X		X						
CO-5	X		X						
CO-6	X		X				X		X
AVG	X		X				X		X



Subject Title	Advances in Data Structure & Algorithms Lab			
Subject Ref. No.	MANC455	No. of Credits		1
		Assignments/Sessional		20
		Semester Examination		30

Course Outcomes (COs)

At the end of the course, students will be able to:

CO-1	To introduce the concepts of Abstract data Type, data structure, performance measures
CO-2	To implement linear data structures such as stacks, queues and lists and their applications
CO-3	To introduce various search data structures such as hashing, binary search trees, AVL
CO-4	To implement graph theory concept (Minimum Spanning Tree) in Civil Network Plan
CO-5	summarize searching and sorting techniques
CO-6	translate the algorithms of Data Structure to application using C++

Mapping of Course Outcomes (COs) with Program Outcomes (POs) (Course Articulation Matrix)

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10
CO-1										
CO-2										
CO-3										
CO-4										
CO-5										
CO-6										
AVG										



SubjectTitle	AdvancedDBMS Lab									
SubjectRef.No.	MANC456			No.ofCredits	1					
				Assignments/Sessional	20					
				SemesterExamination	30					
CourseOutcomes(COs)										
Attheendofthecourse,studentswillbeableto:										
CO-1	ExecuteandcreateTriggersandwriteAdvancedTriggers									
CO-2	ImplementCursorsManagementinPL/SQL									
CO-3	WriteSubprogramsandimplementthem.									
CO-4	WriteFunctionsandusetheminPL/SQL.									
CO-5	Writeprogramsto performErrorHandlingusingPL/SQL.									
MappingofCourseOutcomes(COs)withProgramOutcomes(POs)										
(CourseArticulationMatrix)										
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10
CO-1	X			X						
CO-2	X			X						
CO-3	X			X						
CO-4	X			X						
CO-5	X			X						
CO-6	X			X				X		X
AVG	X			X				X		X
Prerequisites						SQL				



OPENELECTIVE-I

Subject Title	Cloud Computing			
Subject Ref. No.	MANC421	No. of Credits		2
		Assignments/Sessional		20
		Semester End Examination		30

Course Outcomes (COs)

At the end of the course, students will be able to:

CO-1	Understand the concept & Architecture of Cloud Computing
CO-2	Understand the concept of Virtualization
CO-3	Understand the cloud computing risk issues
CO-4	Study the software used in Cloud Computing

Mapping of Course Outcomes (COs) with Program Outcomes (POs)
(Course Articulation Matrix)

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10
CO-1										
CO-2										
CO-3										
CO-4										
CO-5										
CO-6										
AVG										



SubjectTitle		InternetofThings(IoT)								
SubjectRef.No.		MANC422								
				No.ofCredits	:	2				
				Assignments/Sessional	:	20				
				SemesterExamination	:	30				
CourseOutcomes(COs)										
At theendofthecourse,studentswillbeableto:										
CO-1	UnderstandgeneralconceptsofInternetofThings									
CO-2	Tounderstandthesensors&boardstoimplementIoTinrealworld									
CO-3										
	Recognizevariousdevices,sensorsandapplicationsC									
O-4	ApplydesignconcepttoIoTolutions									
CO-5	To study IoT architectures & different									
	modelsCO-6 Design issues inIoTapplications									
MappingofCourseOutcomes(COs)withProgramOutcomes(POs)										
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10
CO-1										
CO-2										
CO-3										
CO-4										
CO-5										
CO-6										
AVG										



Subject Title	:	Cyber Security		
Subject Ref. No.	:	MANC423	No. of Credits	: 2
			Assignments/Sessional	: 20
			Semester Examination	: 30
Course Outcomes (COs)				
At the end of the course, students will be able to:				
CO-1	Understand the broad set of technical, social & political aspects of			
CO-2	Computer Security			
CO-3	Describe the operational and organizational security aspects			
CO-4	Have understood the fundamentals of cryptography			
CO-5	Explain Authentication Methods			



SubjectTitle	:	EntrepreneurshipDevelopment								
SubjectRef.No.	:	MANC424	No.ofCredits	:	2					
			Assignments/Sessional	:	20					
			SemesterExamination	:	30					
CourseOutcomes(COs)										
CO-1	At the end of the course, students will be able to: Understanding the Entrepreneurship process									
CO-2	Gaining the knowledge about creativity, innovation in business									
CO-3	Identify key risks and most effective processes in bringing different types of products or Services to market									
CO-4	Determine methods that can be used to minimize uncertainties at different stages of the entrepreneurial process									
Mapping of Course Outcomes (COs) with Program Outcomes (POs)(Course Articulation Matrix)										
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10
CO-1										
CO-2										
CO-3										
CO-4										
AVG										



Subject Title:	Digital Marketing		
Subject Ref. No.	MANC425	No. of Credits :	2
Assignments/Sessional	:		20
Semester Exam.	:		30
Course Outcomes (COs)			
At the end of the course, students will be able to:			
CO-1	Understand digital marketing tools & techniques.		
CO-2	Understand social media marketing using Facebook, Twitter, and Instagram.		
CO-3	Create different advertising strategies using Google AdWords.		



SubjectTitle	:	IT&DisasterManagement								
SubjectRef.No.	:	MANC426					No.ofCredits		:	2
							Assignments/Sessional		:	20
							SemesterExamination		:	30
CourseOutcomes(COs)										
At theendofthecourse,studentswillbeableto:										
CO-1	TounderstandbasicconceptsofT									
CO-2	ToeducatestudentsaboutrecentITtechnologiesinthefieldofDisasterManagement									
CO-3	Toprovideageneralconceptinthedimensionsofdisasterscausedbynaturebeyondthehuman controlaswellasthedisasters									
CO-4	Tostudytheconcept ofTanditsapplicationsinthefield ofDisasterManagement									
CO-5	Tounderstandddisasterpreparedness,responseandrecovery.									
Mapping of Course Outcomes (COs) with Program Outcomes (POs)(CourseArticulationMatrix)										
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10
CO-1										
CO-2										
CO-3										
CO-4										
AVG										



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SubjectTitle	:	GIS &RemoteSensing								
SubjectRef.No.	:	MANC427				No.ofCredits		:	2	
						Assignments/Sessional		:	20	
						SemesterExamination		:	30	
CourseOutcomes(COs) At theendofthecourse,studentswillbeableto:										
CO-1	To perform data processing and visualization methods for number of earth science applications,including GeographicalInformationSystem.									
CO-2	TogetacquaintedwiththeconceptsofEarthobservationandremotedataacquisitiontechniques.									
CO-3	Tounderstandtheconceptsofremotelysenseddataprocessingandvisualization.									
CO-4	ToperformRemoteSensedImageanalysisand classification.									
Mapping of Course Outcomes (COs) with Program Outcomes (POs)(CourseArticulationMatrix)										
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10
CO-1										
CO-2										
CO-3										
CO-4										
AVG										



SEMESTER - III

Subject Title :	Mobile Application Development Using Android			
Subject Ref. No.	MANC501	No. of Credits	:	04
Assignments/Sessional			:	40%
Semester Exam.			:	60%
Course Outcomes (COs)				
At the end of the course, students will be able to:				
CO-1	Write code for implementing concept of Android as different layouts, Services, components, activities			
CO-2	Design User interface using Menus, labels, text control, button control, toggle button, images etc.			
CO-3	Write the programs using concepts of JAVA + SQLite			
CO-4	Write the programs using concepts of JAVA + PHP + MYSQL.			
CO-5	Write programs for handling Bluetooth, camera, GPS services.			
CO-6	Design Android applications.			



Subject Title	:	Android LAB			
Subject Ref. No.	:	MANC551	No. of Credits	:	1
			Internal	:	40 %
			External	:	60 %
Course Outcomes (COs)					
At the end of the course, students will be able to:					
CO-1	Write code for implementing concept of Android as different layouts, Services, components, activities				
CO-2	Design User interface using Menus, labels, text control, button control, toggle button, images etc.				
CO-3	Write the programs using concepts of JAVA + SQLite				
CO-4	Write the programs using concepts of JAVA + PHP + MYSQL.				
CO-5	Design Android applications.				
Content	:	Assignment based on the Android will be covered.			



Subject Title :		Web Development Using PHP			
Subject Ref. No.	MANC502	No. of Credits		:	04
Assignments/Sessional		:			40%
Semester Exam.		:			60%
Course Outcomes (COs)					
At the end of the course, students will be able to:					
CO-1	Write code for implementing basic concept of PHP as loops, conditions, arrays, strings.				
CO-2	Connect the My Sql database with PHP for performing operations such as insert, update, delete, retrieve.				
CO-3	Implement the concepts of COOKIES and SESSION handling using PHP.				
CO-4	Write the programs using concepts of HTML + JAVASCRIPT + PHP + MYSQL.				
CO-5	Design the Web portals to fulfill the requirements.				



Subject Title	:	PHP LAB		
Subject Ref. No.	:	MANC552	No. of Credits	: 1
			Internal	: 40%
			External	: 60%
Course Outcomes (COs)				
At the end of the course, students will be able to:				
CO-1	Write code for implementing basic concept of PHP as loops, conditions, arrays, strings.			
CO-2	Connect the My Sql database with PHP for performing operations such as insert, update, delete, retrieve.			
CO-3	Implement the concepts of COOKIES and SESSION handling using PHP.			
CO-4	Write the programs using concepts of HTML + JAVASCRIPT + PHP + MYSQL.			
CO-5	Design the Web portals to fulfill the requirements.			
Content	:	Assignment based on the PHP & supporting languages will be covered.		



Subject Title	:	Data Science Using Python		
Subject Ref. No.	:	MANC503	No. of Credits	: 4
			Assignments / Sessional	40
			Semester Examination	60
Course Outcomes (COs)				
At the end of the course, students will be able to:				
CO-1	Use Python for Data Science and Machine Learning			
CO-2	Learn to use NumPy for Numerical Data, Pandas for Data Analysis, Matplotlib for Python Plotting			
CO-3	K-Means Clustering Logistic Regression			



Subject Title	:	Data Science Using Python Lab		
Subject Ref. No.	:	MANC553	No. of Credits	: 1
			Assignments / Sessional	20
			Semester Examination	30
Course Outcomes (COs)				
At the end of the course, students will be able to:				
CO-1	Use Python for Data Science and Machine Learning			
CO-2	Learn to use NumPy for Numerical Data, Pandas for Data Analysis, Matplotlib for Python Plotting			
CO-3	K-Means Clustering Logistic Regression			
As per necessity of Data Science using Python Theory				



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Subject Title	Optimization Techniques		
Subject Ref. No.	MANC504	No. of Credits	4
		Assignments / Sessional	40
		Semester Examination	60
Course Outcomes (COs)			
At the end of the course, students will be able to:			
CO-1	apply the techniques used in operations research to solve real life problem in industry		
CO-2	Develop a report that describes the model and the solving technique, analyse the results and propose recommendations in language understandable to the decision-making processes in Management Engineering (Transportation / Assignment / replacement Models).		
CO-3	Formulate Nonlinear and Linear Programming Model		
CO-4	Formulation and solution of network problems using graph optimization algorithms		
CO-5	Construct linear integer programming models and discuss the solution techniques to solve the integer programming models using branch-and-bound method.		
CO-6	Study and develop game theory, practical use of game theory in real life, types of game theory.		



OPEN ELECTIVE - II

Subject Title	Advance JAVA		
Subject Ref. No.	MANC521	No. of Credits	4
		Assignments / Sessional	40
		Semester Examination	60
Course Outcomes (COs)			
CO-1	At the end of the course, students will be able to: Develop Swing-based GUI application & understand the real application of Collections in Software Development		
CO-2	Develop the server side programming using Servlet		
CO-3	Connect the server side database and its implementation in client server terminology using JDBC		
CO-4	Develop client/server application and TCP/IP socket programming using Networking Technology		
CO-5	Develop component-based Java software using JavaBeans		
CO-6	Develop distributed applications using Remote Method Invocation		



Subject Title	Advance JAVA Lab		
Subject Ref. No.	MANC555	No. of Credits	1
		Assignments / Sessional	20
		Semester Examination	30
Course Outcomes (COs)			
At the end of the course, students will be able to:			
CO-1	Develop Swing-based GUI application & understand the real application of Collections in Software Development		
CO-2	Develop the server side programming using Servlet		
CO-3	Connect the server side database and its implementation in client server terminology using JDBC		
CO-4	Develop client/server application and TCP/IP socket programming using Networking Technology		
CO-5	Develop component-based Java software using JavaBeans		
CO-6	Develop Distributed Applications using Remote Method Invocation		



Subject Title	Linux Administration and Server Config		
Subject Ref. No.	MANC522	No. of Credits	4
		Assignments Sessional	40
		Semester Examination	60
Course Outcomes (COs) At the end of the course, students will be able to:			
CO-1	Understanding the basic set of commands and utilities in Linux/UNIX systems.		
CO-2	Learn the important Linux library functions and system calls		
CO-3	Understand the inner workings of Linux operating systems		
CO-4	Design Live Servers.		



Subject Title	Linux Admin & Server Config. Lab			
Subject Ref. No.	MANC556	No. of Credits		1
		Assignments Sessional	/	20
		Semester Examination	End	30
Course Outcomes (COs) At the end of the course, students will be able to:				
CO-1	Understanding the basic set of commands and utilities in Linux/UNIX systems.			
CO-2	Learn the important Linux library functions and system calls			
CO-3	Understand the inner workings of Linux operating systems			
CO-4	Design Live Servers.			



Subject Title	:	ASP.NET with MVC		
Subject ref. No.	:	MANC523		
		No. of credits	:	4
		Assignment/Sessionals	:	40%
		Semester Exam	:	60%
Course Objectives	:	C01: Build an understanding of the fundamental concepts of MVC C02: Understand and explain the integration of SQL Server with MVC C03: Enumerate about forms and its implementation. C04: Familiarize the student with Razor and it's working. C05: Familiarity with the project deployment.		



Subject Title :	Machine Learning Using R			
Subject Ref. No.	MANC524	No. of Credits	:	04
Assignments/Sessional			:	40%
Semester Exam.			:	60%
Course Outcomes (COs)				
CO-1	At the end of the course, students will be able to: Understanding Machine Learning with its Techniques.			
CO-2	Understand the Basics of Fundamentals of R.			
CO-3	Understand the loading retrieval techniques of Data.			
CO-4	Covers how to use different functions in R.			



Subject Title	:	Machine Learning Using R Lab			
Subject Ref. No.	:	MANC558	No. of Credits	:	1
			Internal	:	40 %
			External	:	60 %
Course Outcomes (COs)					
At the end of the course, students will be able to:					
CO-1	Enable to build programming Logic and thereby developing skills in programming.				
CO-2	Demonstrate the use of basics functions.				
CO-3	Learn to understand new data sets.				



SEMESTER - IV

Subject Title	:	Software Project Management		
Subject ref. No.	:	MANC506		
		No. of credits	:	2
		No. of periods per week	:	2
		Internal	:	100%
Course Objectives	:	C01: Build an understanding of the fundamental concepts of SPM. C02: Understand and explain the concept of Project estimation and various methods to evaluate it. C03: Enumerate Quality testing and its importance.		