Department of computer Applications

LIST OF COURSE OUTCOMES (2020 SCHEME)

SEMESTER	SUBJECT CODE	SUBJECT NAME	CO NO:	CO DESCRIPTION
			1	Understand mathematical reasoning in order to read, comprehend and construct mathematical arguments
	2 01 2 0 1 01	MATHEMATICA L FOUNDATIONS	2	Count or enumerate objects and solve counting problems and analyze algorithms
S1	20MCA101	FOR COMPUTING	3	Solve problems in almost every conceivable discipline using graph models
			4	Solve the linear system of equations and calculate the eigen values and eigen vectors of matrices.
			5	Apply the principles of correlation and regression in practical problems.
			1	Apply the basics of digital electronics to design and realize simple combinational logic circuits
			2	Apply the digital electronics principles to design sequential logic circuits.
S1	20MCA103	DIGITAL FUNDAMENTALS & COMPUTER ARCHITECTURE	3	Understand the different design features of computer architecture, five key components of a computer, processor and memory making technologies, addressing modes & instruction formats.
			4	Understand Processor logic design conventions and data path, pipelining and hazards, I/O organization, Interrupts and direct memory access
			5	Understand and different types of memories RAM/ROM/,Cache memory, Virtual memory etc. Apply the different memory design
			6	techniques. Understand the concept of single board computer like Arduino, Raspberry Pi etc. and apply the same in practical applications

				Domombor the Dasis Data Structure
S1	20MCA105	ADVANCED DATA		Remember the Basic Data Structures
51	201VICA103	STRUCTURES	1	and understand the Set Data Structure
				and its implementation.
			2	Understand Advanced Tree Structures
				for the design of efficient algorithms
				Understand Advanced Heap
			2	Structures suitable for solving
			3	Computational problems involving
				Optimisation and analysing these data
				structures using amortised analysis.
			4	Understand Advanced Graph
			4	algorithms suitable for solving
				advanced computational problems
			~	Understand the basic operation of
			5	Blockchaining along with the data structures used in it and the challenges
				in Blockchain data.
				Get a full view of the Software
			1	life cycle
				Gain a deep knowledge of Software
			2	Planning, Analysis and Design and
C1	2014/04/107	ADVANCED		Software Engineering Models
S1	20MCA107	SOFTWARE ENGINEERING		Have a great comprehension of
			3	Coding Practices, Version Control
				using 'git' and Software Quality
			4	Acquire ample grasp of Design
				Patterns
			5	Get deeply familiarised with Software Testing and its
				automation
			6	Start using Agile methodology
			6	
			7	Begin to apply CI/CD techniques in
				S/w development
				Understands basics of Python
			1	Programming language including
				input/output functions, operators,
				basic and collection data types
		PROGRAMMING	2	Implement decision making, looping
S1	20MCA131	LAB	2	constructs and functions
			3	Design modules and packages - built
			5	in and user defined packages
			4	Implement object-oriented
			4	programming and exception handling.
				Create files and form regular
			5	expressions for effective search
				operations on strings and files.

S120MCA133PROGRAMMING PROGRAMMING LAB1Explore markup languages features and creat interactive web pages using them.2Learn and design client-side validation using scripting languages. Design front end web page and connect to the back-end databases.4Do Client-side & Server-side scripting 55Develop Web Applications4Use Debuggers, Profilers and advanced Compiler options.2Implement the Set and Disjoint Set Data Structures.3Understand the practical aspects of Advanced Tree Structures.4Valuetres.3Implement Advanced Graph algorithms suitable for solving advanced computational problems.5120MCA102ADVANCED DATABASE MANAGEMENT5220MCA102ADVANCED TATABASE MANAGEMENT5220MCA102ADVANCED ATABASE MANAGEMENT5320MCA102ADVANCED Adatabase systems including: data models, database sortex including: data models, database sortex including: database systems including: database systems including: database systems and distributed database.54Vanderstand the toel stat databases pay in organizations and familiarize organization techniques.5520MCA102ADVANCED (S)5220MCA104ADVANCED COMPUTER5220MCA104ADVANCED (CMPUTER5220MCA104ADVANCED (CMPUTER5320MCA104ADVANCED (CMPUTER5420MCA104ADVANCED (CMPUTER5520MCA104ADVANCED (CMPUTER <th></th> <th>1</th> <th></th> <th>1</th> <th></th>		1		1	
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S2 20MCA104 COMPUTER transport layer protocols.				2	-
	S 2	20MCA104	COMPUTER		transport layer protocols.

		NETWORKS	3	Compare and contrast various routing
			5	algorithms in the network layer.
			4	Understand and analyse the concepts
				of link layer and physical layer.
			5	Understand how modern cellular and
			_	wireless networks work
			1	Identify synchronization problems in
S 2	20MCA172	ADVANCED OPERATING	1	operating systems and issues in
52	20101172	SYSTEMS		distributed systems.
			2	Explain classification of mutual
			2	exclusion algorithms and security violations
			3	Explain the design of distributed shared memory and issues in load
			5	distribution
				Explain design issues and
			4	synchronization in multiprocessor
				systems.
				Explain synchronization and
			5	concurrency control in database
				systems.
			1	Explain the fundamentals of
				IPR and patents
				Apply intellectual property
			2	Apply intellectual property related tools such as trademark
				and copying to real problems
S2			3	Discuss industrial designs,
	20MCA192	IPR and CYBER	5	trade secret and geographic
		LAWS		indications
			4	Describe laws governing
				cyberspace and analyze the role
				of internet governance in
				framing policies for internet
				security
			5	Discuss different types of
				cybercrimes and penalties
				under IT act
			1	Understand management as a process.
			2	Critically analyse and evaluate
		BUSINESS		management theories and practices
S2	20MCA182	MANAGEMENT	3	Perform planning and organising for
				an organisation
			4	Do staffing and related human
				resource development function
			5	Take proper decisions to get
				competitive advantage

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			6	Understand basic concepts
				in book keeping and
				accounting
				Understand object-oriented concepts
			1	and design classes and objects to
				solve problems
			2	Implement arrays and strings.
		OBJECT ORIENTED		Implement object-oriented concepts
S2	20MCA132	PROGRAMMING	3	like inheritance, overloading and
		LAB		interfaces
				Implement packages, exception
			4	handling, multithreading and generic
				programming. Use java.util package
				and Collection framework
			~	Develop applications to handle events
			5	using applets
				Develop Applications using files and
			6	networking concepts
				Design and build a simple relational
				database system and demonstrate
			1	competence with the fundamentals
				tasks involved with modelling,
				designing and implementing
				a database.
		ADVANCED DBMS	2	Apply PL/SQL for processing
S2	20MCA134	LAB	Z	databases
		LAD		Comparison between relational and
			3	non-relational (NoSQL) databases and
				the configuration of NoSQL
				Databases.
				Apply CRUD operations and retrieve
			4	data in a NoSQL environment.
			5	Understand the basic storage
			architecture of distributed file	
				systems
			6	Design and deployment of NoSQL
			÷	databases with real time requirements.

S2	20MCA136	NETWORKING & SYSTEM	1	Install and configure common operating systems.
		ADMINISTRATION	2	Perform system administration tasks.
		LAB	3	Install and manage servers for
			5	web applications.
			4	Write shell scripts required for system
			т	administration.
			5	Acquire skill sets required for a
			5	DevOps.

			1	
				Discuss the fundamental concepts of
			1	data science and data visualization
				techniques.
				Explain the basics of machine
			2	learning and use lazy learning
				and probabilistic learning algorithms
		DATA SCIENCE &		to solve data science problems.
S3	20MCA201	MACHINE		Describe decision trees, classification
		LEARNING	3	rules & regression methods and how
				these algorithms can be applied to
				solve data science problems.
				Solve data science problems using
			4	neural networks and support vector
				machines.
				Discuss clustering using k-means
			5	algorithm and evaluate &
				improve the performance of machine
				learning classification models.
				Discuss the basic concepts in
			1	computer algorithms and their
		DESIGN & ANALYSIS OF ALGORITHMS		analysis & design using Divide and
				Conquer.
				Explain the concepts of Greedy
			2	Strategy and Dynamic Programming
62	201404202			to use it in solving real world
S3	20MCA203			problems.
			3	Explain the Branch & Bound
			5	technique, Backtracking technique
				and Lower bounds.
			4	Describe the fundamental concepts of
			4	Computational Complexity and Network Flows.
				Discuss the concepts of
			5	-
				Approximation and Randomized
				Algorithms.
			1	Understand the basic concepts in
S 3	20MCA265	CLOUD	1	cloud computing and OpenStack
65		COMPUTING		logical architecture
		COMPUTING	2	Discuss OpenStack cloud controller
				and common services
				Compare different OpenStack
			3	compute service components and
				storage types
				Describe the OpenStack Networking-
			4	Connection types and networking
			4	services
				Discuss orchestration, HA and
			5	failover in OpenStack

				Explain the fundamentals of
			1	Computational Biology and
				Bioinformatics.
GQ			2	Classify various biological
S3	20MCA287	BIOINFORMATICS	2	databases.
				Use suitable algorithm for
			3	Biological Sequence Analysis
				and
				make use of database search
				tools.
				Discuss Gene structure and expression
			4	of Prokaryotic and
				Eukaryotes.
			5	Apply data mining & machine learning
			5	methods to analyse and
				visualize biological data.
			1	Explain various types of security
			_	attacks, security
				mechanisms, security services and classical encryption
				techniques.
S3	20MCA263	CYBER SECURITY	2	Make use of Symmetric and
		&	2	Asymmetric encryption
		CRYPTOGRAPHY		techniques to solve cryptographic
				problems.
			3	Describe the concepts of message
				authentication codes, hash functions and digital signing
				techniques for ensuring
				secure transactions.
			4	Discuss security services in
			4	Application, Transport and
				Network layers.
			5	Explain common web application
				security vulnerabilities and various prevention mechanisms.
				Explain the basic concepts of deep
			1	learning.
			2	Design neural networks using
S 3	20MCA283	DEEP LEARNING		TensorFlow
			3	Solve real world problems with CNN
			4	Solve real world problems with RNN.
			5	Describe the concepts of GAN
			5	Design and develop user interfaces for
			1	mobile apps using basic building
				blocks, UI components and
				application structure using Emulator
		MOBILE	2	Write simple programs and develop
S 3	20MCA243	APPLICATION		small applications using the concepts
		DEVELOPMENT		of UI design, layouts and preferences

		LAB		Develop applications with multiple
			3	activities using intents, array adapter,
				exceptions and options menu.
				Implement activities with dialogs,
			4	spinner, fragments and navigation
				drawer by applying themes
			5	Develop mobile applications using SQLite.
			1	Identify a real-life project which is useful to society / industry
				Interact with people to identify the
			2	project requirements
S 3	20MCA245	MINI PROJECT		Apply suitable development
~			3	methodology for the development
				of the product / project
			4	Analyze and design a
			4	software product / project
			~	Test the modules at various
			5	stages of project development
			6	Build and Integrate different
			6	S/W modules
			7	Document and deploy the product /
			/	project
				Use different python packages to
			1	perform numerical calculations,
S3	20MCA241	DATA SCIENCE LAB		statistical computations and data
	20101011211	LAD		visualization
				Use different packages and
			2	frameworks to implement regression
				and classification algorithms.
				Use different packages and
			3	frameworks to implement text
				classification using SVM and
				clustering using k-means
				Implement convolutional neural
			4	network algorithm using Kera's
				framework.
				Implement programs for web data
			5	mining and natural language
				processing using NLTK

S4	20MCA242	COMPREHENSIVE VIVA	1Articulate the concepts in the core courses learned through this programme.2Attend technical interviews with confidence.
			3 Interpret questions and answer them with clarity.
			4 Make use of the concepts learned through this programme in future.
			1 Annotate the ideas presented in technical papers
			2 Comprehend a concept by referring different technical documents
S4	20MCA244	SEMINAR	3 Prepare technical documents
54	201010-72-44	SEMINAR	4 Present a topic before an audience
			5 Interact with the audience
			1 Identify a real-life project which is useful to society / industry
			2 Interact with people to identify the project requirements
			3 Apply suitable development methodology for the development of the product / project
S 4	20MCA246	MAIN PROJECT	4 Analyse and design a software product / project
			5 Test the modules at various stages of project development
			6 Build and integrate different software modules
			7 Document and deploy the product / project

Programme outcomes (POs)

Graduate Attributes (GA)	Programme outcomes (POs)
Computational Knowledge	Apply knowledge of mathematics, management, computing fundamentals, computing specialization and domain knowledge for the abstraction and conceptualization of computing models from defined problems to various real-life applications for any given requirements.
Problem analysis	Understand and analyze a given real-world problem and propose feasible computing solutions.
Design /Development of Solutions	Analyze customer requirements, create high-level design, and select modern computing tools and techniques and use them with dexterity and integrate it to all computer applications.
Conduct investigations of complex Computing problems	Transform complex business scenarios and contemporary issues to problems, investigate, understand and propose integrated solutions to meet desired needs within realistic constraints such as safety, security and applicability especially following cyber regulations using emerging technologies.
Modern Tool Usage	Develop the expertise in using modern hardware and software tools which can applied in professional career consecutively to provide innovative software solutions.
Professional Ethics	Recognize the social, professional, cultural and ethical issues involved in the use of computer technology and give them due consideration in developing software systems as broadly educated, expressive, ethical and responsible citizens with proven expertise to solve computer problems for the betterment of the society.
Life-long Learning	Recognize the importance of goal setting and to recognize the need for life-long learning for a continued career development and progress as a computer professional.
Project management and finance	Master fundamental project management skills, concepts and techniques, set attainable objectives and ensure positive results, meeting scope, time and budget constraints.
Communication Efficacy	Communicate technical information effectively, both orally and in writing such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and

	receive clear instructions.
Societal and Environmental Concern	An ability to devise and conduct experiments, interpret data and provide well informed conclusions for problems which will have high
	social and environmental impact.
Individual and Team Work	Work collaboratively as a member or leader in multidisciplinary teams with positive attitude to demonstrate computing and management skills and acquire good conflict resolutions skills.
Innovation and	Develop the talent to articulate innovative ideas and implement them
Entrepreneurship	using the acquired expertise and apply the inherent skills with absolute focus to function as an successful entrepreneur.

CO-PO mapping details

CO-I	PO M	[APP]	ING:	REG	ULA	R M(CA 2	YEA	R 202	0 SCE	IEME				
	Semester-1														
20MCA10	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO			
1	1	2	3	4	5	6	7	8	9	10	11	12			
CO 1	3	3	3	3	0	-	3								
CO 2	3	3	3	3	-	-	3								
CO 3	3	3	3	3	-	-	3								
CO 4	3	3	3	3	-	-	3								
CO 5	3	3	3	3	-	-	3								
AVG	3.0	3.0	3.0	3.0			3								
	0	0	0	0											
20MCA10	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	РО			
3	1	2	3	4	5	6	7	8	9	10	11	12			
CO 1	3	3	2	1			1								
CO 2	3	3	2	1			1								
CO 3	1	1		1			1								
CO 4	1	1					1								
CO 5	2	2	1	1			1								
CO 6	1	1	2		2		2	2	2		2	2			
AVG	1.8	1.8	1.7	1.0	2.0		1.1	2.0	2.0		2.00	2.00			
	3	3	5	0	0		7	0	0						
20MCA10	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO			
5	1	2	3	4	5	6	7	8	9	10	11	12			
CO 1	3	2	2		1										
CO 2	2	2	3	2	1		1								

CO 3	2	3	3	2	1		1				I	
		3										
CO 4	3	-	2	1	2		1					
CO 5	3	2	2	2	3		1					
AVG	2.6	2.4	2.4	1.7 5	1.6		1					
20MCA10	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO1	PO1	PO1
7	1	2	3	4	5	6	7	8	9	0	1	2
CO 1		2	2					3			1	1
CO 2		3	3					3			-	-
CO 3		5			3				3	2	2	
CO 4			3		3				5			
CO 5			5		3					2	3	
CO 6					2			2	2	-	2	3
CO 0 CO 7					3			1		2		5
AVG			2.6		5			2.2		2		
		2.5	7		2.8			5	2.5	2	2	2
20MCA13	РО	PO	PO	РО	PO	PO	РО	PO	PO	PO	PO	PO
1	1	2	3	4	5	6	7	8	9	10	11	12
CO 1	2	2	2	1	2							
CO 2	3	3	3	2	2							
CO 3	3	3	3	3	3						1	
CO 4	3	3	3	3	3						1	
CO 5	3	3	3	3	3						1	
AVG	2.8	2.8	2.8	2.4	2.6						1	
20MCA13	PO	PO	PO	PO	PO	PO	PO	PO	PO	РО	PO	РО
3	1	2	3	4	5	6	7	8	9	10	11	12
CO 1	3	3	3	2	2		3	3				
CO 2	3	3	3	2	2		3	3	1			
CO 3	3	3	3	2	2		3	3				
CO 4	3	3	3	2	2		3	3				2
CO 5	3	3	3	3	3		3	3			2	2
AVG	3.0	3.0	3.0	2.2	2.2		3.0	3.0	1.0		2.00	2.00
	0	0	0	0	0		0	0	0			
20MCA13	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO
5	1	2	3	4	5	6	7	8	9	10	11	12
CO 1	2				3		1					
CO 2	3	2	2		1							
CO 3	2	2	3	2	1		1					
CO 4	2	3	3	2	1		1					
CO 5	3	3	2	1	2		1					
AVG	2.4	2.5	2.5	1.6	1.6		1					
				7								

Semester-2

										1		1
20MCA10	PO											
2	1	2	3	4	5	6	7	8	9	10	11	12

CO 1				1			1					
CO 2	3	3	3	2			2	2			2	2
CO 3	1	2	2	2		2					2	2
CO 4	-				1		1					_
CO 5	1			1	-		-					
CO 6	1			1								
AVG	1.5	2.5 0	2.5	1.5	1	2	1.3 3	2			2	2
20MCA10	РО	PO	РО	РО	РО	РО	PO	РО	PO	РО	РО	РО
4	1	2	3	4	5	6	7	8	9	10	11	12
CO 1	3	3	2		2	2	2		3		2	
CO 2	3	3	2		2	2			3		2	
CO 3	3	3			2	2	2		3		2	
CO 4	3	3				2			3		2	
CO 5	3	3				2			3			
AVG	3	3	2		2	2	2		3		2	
20MCA17	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO
2	1	2	3	4	5	6	7	8	9	10	11	12
CO 1	2	2			2				1			
CO 2	2	1							1			
CO 3	2	1							1			
CO 4	2	1							1			
CO 5	2	2			1		1		1			
	2.0	1.4			1.5							
AVG	0	0			0		1		1			
20MCA18	PO	PO	PO	PO	PO	PO	PO	PO	PO	РО	РО	РО
2	1	2	3	4	5	6	7	8	9	10	11	12
CO 1	3							2				
CO 2		3										
CO 3			3									3
CO 4											3	
CO 5					3	2						
CO 6	3							3				
AVG	3	3	3		3	2		2.5			3	3
20MCA19	PO	PO		DO					DO	РО	PO	PO
2011111	10			PO	PU	PO	PO PO	PO				10
	1	2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	10		12
CO 1		2	3	4		6					11	12
CO 1 CO 2	3	2 2	3 2	4		6 1						12
CO 2	3 3	2 2 3	3 2 2	4 1 1		6						12
CO 2 CO 3	3 3 3	2 2 3 2	3 2 2 1	4		6 1 1						12
CO 2 CO 3 CO 4	3 3 3 2	2 2 3 2 2	3 2 2 1 1	4 1 1 1 1		6 1 1 1						12
CO 2 CO 3 CO 4 CO 5	3 3 3 2 2	2 2 3 2 2 2 2	3 2 2 1 1 1	4 1 1 1 1 1 1 1		6 1 1 1 1						12
CO 2 CO 3 CO 4	3 3 3 2	2 2 3 2 2	3 2 2 1 1	4 1 1 1 1		6 1 1 1						12
CO 2 CO 3 CO 4 CO 5 AVG	3 3 2 2 2.6	2 3 2 2 2 2.2 2.2	3 2 1 1 1 1.4 0	4 1 1 1 1 1.0		6 1 1 1 1						12
CO 2 CO 3 CO 4 CO 5	3 3 2 2 2.6 0	2 2 3 2 2 2 2 2 2 2 2 2 2 2 2 2 0	3 2 1 1 1 1.4	4 1 1 1 1.0 0	5	6 1 1 1 1 1 1 1 1	7	8	9	10	11	
CO 2 CO 3 CO 4 CO 5 AVG 20MCA13	3 3 2 2 2.6 0 PO	2 2 3 2 2 2 2 2 2 2 2 2 2 2 0 PO	3 2 1 1 1 1 1.4 0 PO	4 1 1 1 1.0 0 PO	5 PO	6 1 1 1 1 1 1 1 PO	7 PO	8 	9 	10 	11 	PO
CO 2 CO 3 CO 4 CO 5 AVG 20MCA13 2	3 3 2 2 2.6 0 PO 1	2 3 2 2 2 2 2 2 2 2 0 PO 2	3 2 1 1 1 1.4 0 PO 3	4 1 1 1 1.0 0 PO 4	5 PO 5	6 1 1 1 1 1 1 1 PO	7 PO	8 	9 	10 	11 	PO
CO 2 CO 3 CO 4 CO 5 AVG 20MCA13 2 CO 1	3 3 2 2 2.6 0 PO 1 2	2 2 2 2 2 2 2 2 2 2 0 PO 2 2	3 2 1 1 1 1 1.4 0 PO 3 2	4 1 1 1 1.0 0 PO 4	5 PO 5 3	6 1 1 1 1 1 1 1 PO	7 PO	8 	9 	10 	11 	PO

CO 5	3	3	3		3	2			3		3	
CO 6	3	3	3		3	2			3		3	
AVG	2.8 3	2.3 3	2.3 3	2.0 0	3.0 0	2.0 0			3.0 0		3.00	
20MCA13	РО	РО	РО	PO	РО	РО	РО	РО	РО	PO	РО	РО
4	1	2	3	4	5	6	7	8	9	10	11	12
CO 1	3	2	3	2	2					1	1	
CO 2	2	2	2		1							
CO 3	2	2	2	2						1	1	
CO 4	2	2	3	1	2		1			1	1	1
CO 5	3	2	2				1				1	1
CO 6	2	2	3	1	1			1		1	1	2
AVG	2.3	2.0	2.5	1.5	1.5		1.0	1.0		1.00	1.00	1.33
AVG	3	0	0	0	0		0	0				
	PO	PO	PO	PO	PO					PO	PO	PO
20MCA13	1	2	3	4	5	PO	PO	РО	РО	10	11	12
6						6	7	8	9			
CO 1	1		2		2	U		0	9			
CO 1 CO 2	1		2		4							
CO 2 CO 3	1		2		2							
CO 3 CO 4			4		2							
CO 4 CO 5	-				2							
	• • •											
AVG	2 1.3		2.0		2.0							

SEMESTER-3

20MCA20	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO
1	1	2	3	4	5	6	7	8	9	10	11	12
CO 1	1	1					3					
CO 2	3	3	3	2			3					
CO 3	3	3	3	2			3					
CO 4	3	3	3	2			3					
CO 5	3	3	3	2			3					
AVG	2.6	2.6	3	2			3					
20MCA20	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO
3	1	2	3	4	5	6	7	8	9	10	11	12
CO 1	3	3	1	2			2					
CO 2	3	3	1	2			2					
CO 3	3	3	1	2			2					
CO 4	3	3	1	2			2					
CO 5	3	3	1	2			2					
AVG	3.0 0	3.0 0	1.0 0	2.0 0			2.0 0					
20MCA26	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	РО	РО
201v1CA20 3	1	2	3	4	5	6	7	8	9	10	11	10
CO 1	2	1	1	-1	5	U	1	5		10		
CO 2	2	2	2	1			1					

CO 3 2 CO 4 2 CO 5 2 AVG 0 20MCA26 PO 5 1 CO 1 2 CO 2 2 CO 3 2 CO 4 2 CO 2 2 CO 3 2 CO 4 2 CO 5 2 AVG 0 20MCA28 PO 3 1 CO 1 2 CO 2 3 CO 1 2 CO 2 3 CO 3 3 CO 4 3 CO 5 2 AVG 0 S20MCA2 PO 87 1 CO 1 3 CO 2 3 AVG 0 20MCA24 PO 1 1 CO 3 3 CO 4 3	1 1 1.2 0 PO 2 PO 2	2 2 2.0 0 PO 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1 1 1.2 0 PO 3	1.0 0 PO 4	PO 5 3 3	2 2.0 0 PO 6	1 1 1.0 0 PO					
CO 5 2 AVG 0 20MCA26 PO 5 1 CO 1 2 CO 2 2 CO 3 2 CO 4 2 CO 5 2 AVG 0 20MCA28 PO AVG 0 20MCA28 PO 3 1 CO 1 2 CO 2 3 CO 1 2 CO 2 3 CO 3 3 CO 4 3 CO 5 2 AVG 0 S20MCA2 PO 87 1 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA24 PO 1 1 CO 3 3 CO 4 3	1 1.2 0 PO 2 PO	2 2.0 0 PO 1 2 2 2 2 2 2 2 2 2 2 2 2 2 0	1 1.2 0 PO	0 PO	5 3	2 2.0 0 PO	1 1.0 0					
AVG 2.0 20MCA26 PO 5 1 CO 1 2 CO 2 2 CO 3 2 CO 4 2 CO 5 2 AVG 2.0 AVG 2.0 AVG 2.0 AVG 2.0 O 3 CO 5 2 AVG 0 20MCA28 PO 3 1 CO 1 2 CO 2 3 CO 3 3 CO 4 3 CO 5 2 AVG 0 S20MCA2 PO 87 1 CO 1 3 CO 2 3 AVG 0 20MCA24 PO 1 1 CO 3 3 CO 4 3 CO 5 3 AVG 0	0 PO 2	2.0 0 PO 1 2 2 2 2 2 2 2 2 2 2 2 2 2.0	0 PO	0 PO	5 3	0 PO	1.0 0					
AVG 0 20MCA26 PO 5 1 CO1 2 CO2 2 CO3 2 CO4 2 CO5 2 AVG 0 20MCA28 PO AVG 0 20MCA28 PO 3 1 CO1 2 CO2 3 CO3 3 CO3 3 CO4 3 CO3 3 CO4 3 CO5 2 AVG 0 S20MCA2 PO 87 1 CO1 3 CO2 3 CO3 3 CO4 3 CO3 3 CO3 3 CO3 3 CO3 3 CO3 3 CO3 3 CO	0 PO 2	0 PO 1 2	0 PO	0 PO	5 3	0 PO	0					
5 1 CO 1 2 CO 2 2 CO 3 2 CO 4 2 CO 5 2 AVG 0 20MCA28 PO 3 1 CO 1 2 CO 2 3 CO 1 2 CO 2 3 CO 3 3 CO 4 3 CO 5 2 AVG 0 S20MCA2 PO 87 1 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 5 3 CO 4 3 CO 5 3 AVG 0 20MCA24 PO 1 1 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA24 PO	2 PO	1 2.0			5 3		PO					
CO 1 2 CO 2 2 CO 3 2 CO 4 2 CO 5 2 AVG 0 20MCA28 PO 3 1 CO 1 2 CO 2 3 CO 1 2 CO 2 3 CO 3 3 CO 4 3 CO 3 3 CO 4 3 CO 5 2 AVG 0 S20MCA2 PO 87 1 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 1 1 CO 1 3 CO 2 3 Q 0 1 1 CO 3 3	PO	2 2 2 2 2 2 2.0	3	4	3	6		PO	PO	РО	РО	PO
CO 2 2 CO 3 2 CO 4 2 CO 5 2 AVG 0 20MCA28 PO 3 1 CO 1 2 CO 2 3 CO 1 2 CO 2 3 CO 3 3 CO 4 3 CO 5 2 AVG 0 S20MCA2 PO 87 1 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 3 CO 5 3 AVG 0 0 20MCA24 PO 1 1 1 1 CO 1 3 2 CO 3 3 2 Q0 1 1 CO 1 3 2 Q0		2 2 2 2 2.0					7	8	9	10	11	12
CO 3 2 CO 4 2 CO 5 2 AVG 0 20MCA28 PO 3 1 CO 1 2 CO 2 3 CO 3 3 CO 4 3 CO 2 3 CO 3 3 CO 4 3 CO 5 2 AVG 0 S20MCA2 PO 87 1 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 3 3 CO 4 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 1 1 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 5 3 Q 3		2 2 2 2.0			3		2					1
CO 4 2 CO 5 2 AVG 2.0 0 2 20MCA28 PO 3 1 CO 1 2 CO 2 3 CO 3 3 CO 4 3 CO 5 2 AVG 2.6 0 3 CO 4 3 CO 5 2 AVG 2.6 0 3 CO 5 2 AVG 0 S20MCA2 PO 87 1 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA24 PO 1 1 CO 1 3 CO 2 3 Q 1 CO 3 3 CO 4 3		2 2 2.0					2					1
CO 5 2 AVG 2.0 0 0 20MCA28 PO 3 1 CO 1 2 CO 2 3 CO 3 3 CO 4 3 CO 5 2 AVG 0 S20MCA2 PO 87 1 CO 1 3 CO 2 3 CO 3 3 CO 1 3 CO 3 3 CO 4 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA24 PO 1 1 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 5 3 Q0 3 Q0 3 Q0 3 Q0 3		2 2.0			3		2					1
AVG 2.0 20MCA28 PO 3 1 CO 1 2 CO 2 3 CO 3 3 CO 4 3 CO 5 2 AVG 0 S20MCA2 PO 87 1 CO 1 3 CO 2 3 CO 3 3 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA24 PO 1 1 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 5 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA243 0 0 0 20MCA243 1 <td></td> <td>2.0</td> <td></td> <td></td> <td>3</td> <td></td> <td>2</td> <td></td> <td></td> <td></td> <td></td> <td>1</td>		2.0			3		2					1
AVG 0 20MCA28 PO 3 1 CO 1 2 CO 2 3 CO 3 3 CO 4 3 CO 5 2 AVG 0 S20MCA2 PO 87 1 CO 1 3 CO 2 3 CO 3 3 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 5 3 CO 4 3 CO 5 3 AVG 0 1 1 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 3 3 CO 4 3 CO 5 3 CO 4 3 CO 5 3 CO 4 3 CO 5 3 AVG 0 20MCA243 0 <td< td=""><td></td><td></td><td></td><td></td><td>3</td><td></td><td>2</td><td></td><td></td><td></td><td></td><td>1</td></td<>					3		2					1
0 20MCA28 PO 3 1 CO 1 2 CO 2 3 CO 3 3 CO 4 3 CO 5 2 AVG 0 S20MCA2 PO 87 1 CO 1 3 CO 2 3 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 1 1 CO 1 3 CO 2 3 CO 4 3 CO 5 3 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 5 3 CO 4 3 CO 5 3 AVG 0 0		0			3.0		2.0					1.00
3 1 CO 1 2 CO 2 3 CO 3 3 CO 4 3 CO 5 2 AVG 0 S20MCA2 PO 87 1 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 2 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA24 PO 1 1 CO 1 3 CO 2 3 CO 3 3 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA243 0 0 20MCA243 1 1 CO 1 3		÷			0		0					1.00
CO 1 2 CO 2 3 CO 3 3 CO 4 3 CO 5 2 AVG 2.6 0 2 S20MCA2 PO 87 1 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 2 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA24 PO 1 1 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 3 3 CO 4 3 CO 5 3 Q 3 Q 3 Q 3 Q 3 Q 3 Q 3 Q 3 Q <td></td> <td>PO</td> <td>PO</td> <td>РО</td> <td>PO</td> <td>PO</td> <td>PO</td> <td>PO</td> <td>PO</td> <td>PO</td> <td>PO</td> <td>PO</td>		PO	PO	РО	PO	PO	PO	PO	PO	PO	PO	PO
CO 2 3 CO 3 3 CO 4 3 CO 5 2 AVG 0 S20MCA2 PO 87 1 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 2 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA24 PO 1 1 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 5 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 0 3 CO 5 3 AVG 0 20MCA243 1 CO 1 3	2	-	3	4	5	6	7	8	9	10	11	12
CO 3 3 CO 4 3 CO 5 2 AVG 2.6 0 2 S20MCA2 PO 87 1 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA24 PO 1 1 CO 1 3 CO 2 3 CO 3 3 CO 1 3 CO 3 3 CO 4 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA243 PO 1 CO 1 3	2	-										
CO 4 3 CO 5 2 AVG 2.6 0 S20MCA2 PO 87 1 CO 1 3 CO 1 3 CO 2 3 CO 2 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 3.0 0 20MCA24 PO 1 1 CO 1 3 CO 2 3 CO 1 3 CO 3 3 CO 2 3 CO 3 3 CO 3 3 CO 4 3 CO 4 3 CO 5 3 CO 5 3 3 O Q0 0 0 0 20MCA243 PO 0 0 20MCA243 1 CO 1 3	3		3		3		3					
CO 5 2 AVG 2.6 0 0 S20MCA2 PO 87 1 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA24 PO 1 1 CO 1 3 CO 2 3 CO 3 3 CO 1 3 CO 2 3 CO 3 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA243 0 Q 0 20MCA243 1 CO 1 3	3	3	3		3		3					
AVG 2.6 0 S20MCA2 PO 87 1 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA24 PO 1 1 CO 1 3 CO 5 3 AVG 0 20MCA24 PO 1 1 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA243 PO 1 1 CO 5 3 AVG 0 20MCA243 PO 1 1 CO 1 3	3	_	3		3		3					
AVG 0 S20MCA2 PO 87 1 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA24 PO 1 1 CO 1 3 CO 5 3 AVG 0 20MCA24 PO 1 1 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA243 PO 1 1 CO 1 3	3	2			2		2					
0 S20MCA2 PO 87 1 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA24 PO 1 1 CO 1 3 CO 2 3 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA243 PO 1 1 CO 5 3 AVG 0 20MCA243 1 CO 1 3	2.8		3.0		2.7		2.7					
87 1 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA24 PO 1 1 CO 1 3 CO 2 3 CO 3 3 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA243 PO 1 1 CO 1 3 CO 5 3 AVG 0 20MCA243 PO 1 CO 1 CO 1 3	0	0	0		5		5					
CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA24 PO 1 1 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA243 PO 1 CO 1 3	PO		PO	PO	PO	PO	PO	PO	PO	РО	PO	PO
CO 2 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA24 PO 1 1 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA243 PO 1 CO 1 CO 1 3	2	-	3	4	5	6	7	8	9	10	11	12
CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA24 PO 1 1 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA243 PO 1 CO 1 3	1		1				1					
CO 4 3 CO 5 3 AVG 3.0 0 20MCA24 PO 1 1 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA243 PO 1 CO 1 3	3	-	1				2					
CO 5 3 AVG 3.0 0 0 20MCA24 PO 1 1 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA243 PO 1 CO 1 3	3		2				2					
AVG 3.0 0 20MCA24 PO 1 1 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA243 PO 1 1	2		1				1					
AVG 0 20MCA24 PO 1 1 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA243 PO 1 CO 1	3	-	2		2		2					
0 20MCA24 PO 1 1 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA243 PO 1 CO 1	2.4		1.4		2.0		1.6					
1 1 CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA243 1 CO 1 3	0		0		0		0	-				
CO 1 3 CO 2 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA243 PO 1 CO 1 3	PO		PO	PO	PO	PO	PO	PO	PO	PO 10	PO	PO 12
CO 2 3 CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA243 PO 1 CO 1 3			3	4	5	6	7	8	9	10	11	12
CO 3 3 CO 4 3 CO 5 3 AVG 0 20MCA243 PO 1 CO 1	2		3	1	3	2	3		2			
CO 4 3 CO 5 3 AVG 3.0 0 0 20MCA243 PO 1 CO 1 3	3	1 1	3	2	3	2	3		2			
CO 5 3 AVG 3.0 0 0 20MCA243 PO 1 CO 1 3	3 3		3	2	3	2	3		2			
AVG 3.0 0 20MCA243 PO 1 CO 1 3	3 3 3	3		<u> </u>		2	3		2 2			
AVG 0 20MCA243 PO 1 CO 1	3 3 3 3	3 3	3	2		2						
20MCA243 PO 1 1 CO 1 3	3 3 3 3 3	3 3 3	3 3	2	3	3	3		2.0 0			
20MCA243 1 CO 1 3	3 3 3 3 3 3.0	3 3 3 3.0	3 3 3.0	2 1.8	3 3.0	2.2	3.0		U	РО	РО	РО
CO 1 3	3 3 3 3 3 3.0 0	3 3 3 3.0 0	3 3 3.0 0	2 1.8 0	3 3.0 0	2.2 0	3.0 0	PO	PO			
	3 3 3 3 3 3.0 0 PO	3 3 3 3.0 0 PO	3 3 3.0 0 PO	2 1.8 0 PO	3 3.0 0 PO	2.2 0 PO	3.0 0 PO	PO 8	PO 9	10 1	11	L Z
	3 3 3 3 3 3.0 0 PO 2	3 3 3.0 0 PO 1	3 3.0 0 PO 3	2 1.8 0 PO 4	3 3.0 0 PO 5	2.2 0 PO 6	3.0 0 PO 7	PO 8	9	10	11	12
	3 3 3 3 3 3 3 0 PO 2 3	3 3 3.0 0 PO 1 3	3 3.0 0 PO 3 3	2 1.8 0 PO 4 1	3 3.0 0 PO 5 3	2.2 0 PO 6 2	3.0 0 PO 7 3		9 2	10	11	12
	3 3 3 3 3 3 3 0 PO 2 3 3 3	3 3 3.0 0 PO 1 3 3	3 3.0 0 PO 3 3 3	2 1.8 0 PO 4 1 2	3 3.0 0 PO 5 3 3	2.2 0 PO 6 2 2	3.0 0 PO 7 3 3		9 2 2	10	11	
	3 3 3 3 3 3 3.0 0 PO 2 3 3 3 3	3 3 3 3 0 PO 1 3 3 3 3	3 3.0 0 PO 3 3 3 3 3	2 1.8 0 PO 4 1 2 2	3 3.0 0 PO 5 3 3 3 3	2.2 0 PO 6 2 2 2 2	3.0 0 PO 7 3 3 3 3		9 2 2 2 2	10	11	
30	3 3 3 3 3 3 3 3.0 0 PO 2 3 3 3 3 3 3	3 3 3 3.0 0 PO 1 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	3 3.0 0 PO 3 3 3 3 3 3 3	2 1.8 0 PO 4 1 2 2 2 2	3 3.0 0 PO 5 3 3 3 3 3	2.2 0 PO 6 2 2 2 2 2	3.0 0 PO 7 3 3 3 3 3		9 2 2 2 2 2 2 2	10	11	
AVG 0	3 3 3 3 3 3 3.0 0 PO 2 3 3 3 3	3 3 3 3 0 PO 1 3	3 3.0 0 PO 3 3 3 3 3	2 1.8 0 PO 4 1 2 2	3 3.0 0 PO 5 3 3 3 3	2.2 0 PO 6 2 2 2 2	3.0 0 PO 7 3 3 3 3		9 2 2 2 2		11	

20MCA245	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	РО
201VICA245	1	2	3	4	5	6	7	8	9	10	11	12
CO 1	2	3	3	3	1	2	3	3	3	3	3	3
CO 2	2	3	2	3	2	3	2	1	3	2	3	
CO 3	3	3	3	3	3	1	3	3	1		2	
CO 4	3	3	3	3	3		3	3	1	1	2	
CO 5	3	3	3	3	3		2	3			1	
CO 6	3	3	3	3	3	2	3	3		2	3	3
CO 7	1	1	3	3	3	2	3	3	2	1	2	
AVG	2.4 3	2.7	2.8	3.0 0	2.5	2.0 0	2.7	2.7	2.0 0	1.80	2.29	3.00
	3	1	0	U	/	U	1	1	U			

SEMESTER-

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	PO	PO	PO	PO								
20MCA242	1	2	3	4	5	6	7	8	9	10	11	12
CO 1	3	3		2	2		2		3			
CO 2	3	3	1	2	3	2	3		3			
CO 3	1	2				2	2		3			
CO 4	3	2	3	2	2	3	3		2			
AVG	2.5	2.5	2.0	2.0	2.3	2.3	2.5		2.7			
AVG	0	0	0	0	3	3	0		5			
	PO	PO	PO	PO								
20MCA244	1	2	3	4	5	6	7	8	9	10	11	12
CO 1	2	3	1	3	2		3		3	2		2
CO 2	2	3	1	3	2		3		3	2		2
CO 3	2		1	2	3	2	3		3	2		2
CO 4	2	2			3	3			3		2	
CO 5	2	2			3	3			3		2	
AVG	2.0	2.5	1.0	2.6	2.6	2.6	3.0		3.0	2.00	2.00	2.00
AVG	0	0	0	7	0	7	0		0	2.00	2.00	2.00
20MCA246	PO	PO	PO	PO								
20101CA240	1	2	3	4	5	6	7	8	9	10	11	12
CO 1	2	3	3	3	1	2	3	3	3	3	3	3
CO 2	2	3	2	3	2	3	2	1	3	2	3	
CO 3	3	3	3	3	3	1	3	3	1		2	
CO 4	3	3	3	3	3		3	3	1	1	2	
CO 5	3	3	3	3	3		2	3			1	
CO 6	3	3	3	3	3		3	3		2	3	3
CO 7	1	1	3	3	3	2	3	3	2	1	2	
AVG	2.4 3	2.7 1	2.8 6	3.0 0	2.5 7	2.0 0	2.7 1	2.7 1	2.0 0	1.80	2.29	3.00