

Criterion : II – Teaching-Learning and Evaluation

Metric : 2.6.1 - Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and

Course Outcomes (COs) – M. SC. COMPUTER SCIENCE

Year : 2015 - 2020



FATIMA COLLEGE (AUTONOMOUS), MADURAI - 625018

NAME OF THE PROGRAMME: M. SC COMPUTER SCIENCE

PROGRAMME CODE: PSCS

PROGRAMME OUTCOMES:

Students will be able to

PO1: Apply acquired scientific knowledge to solve major and complex issues in the society/industry.

PO2: Attain research skills to solve complex cultural, societal and environmental issues.

PO3: Employ latest and updated tools and technologies to solve complex issues.

PO4: Demonstrate Professional Ethics that foster Community, Nation and Environment Building Initiatives.

PROGRAMME SPECIFIC OUTCOMES:

PSO1: To develop professionally competent citizens by applying the scientific knowledge of Computer Science with the ability to think clearly, rationally and creatively to support in evolving solutions to the social/public/scientific issues with responsible democratic participation.

PSO2: Enterprising resourcefulness to identify, plan, formulate, design and evaluate solutions for complex computing problems that address the specific needs with appropriate consideration for Societal, Cultural, Environmental and Industrial domains.

PSO3: Holistic development to ignite the lateral thinking ability in problem solving, acquisition of new skills, open-minded and organized way of facing problems with self awareness and evolving analytical solutions



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PSO4: Create and initiate innovations effectively and communicate efficiently with the computing community and society at large to bridge the gap between computing industry and academia

PSO5: Through Digital Literacy, understand, assess and commit to professional and ethical principles, norms and responsibilities of the cyber world and the ability for work efficacy as a part of a team and engage effectively with diverse stakeholders

PSO6: Ability and willingness to embark on new ventures and initiatives with critical thinking and desire for more continuous learning focusing on life skills.

PSO 7: Use research-based knowledge and research methods to design, analyse, and interpret data and to synthesize information to provide valid findings to serve community.





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2019 -2020			
Course Code	Course Title	Course Outcomes	
19PG1B1	Advanced Programming In Java	 CO1: Describe client/server applications, TCP/IP socket programming and distributed applications using RMI. CO2: Analyze and design Window based applications using Swing Objects. CO3: Develop and design Java programs using Swing components. CO4: Discuss the various JDBC drivers and demonstrate J2EE application using JDBC connection and server side programs with Servlets. CO5: Write component-based Java programs using JavaBeans. 	
19PG1B2	Distributed Operating Systems	CO1: Discuss the core concepts of distributed systems. CO2: Analyze various message passing mechanisms with its model.	

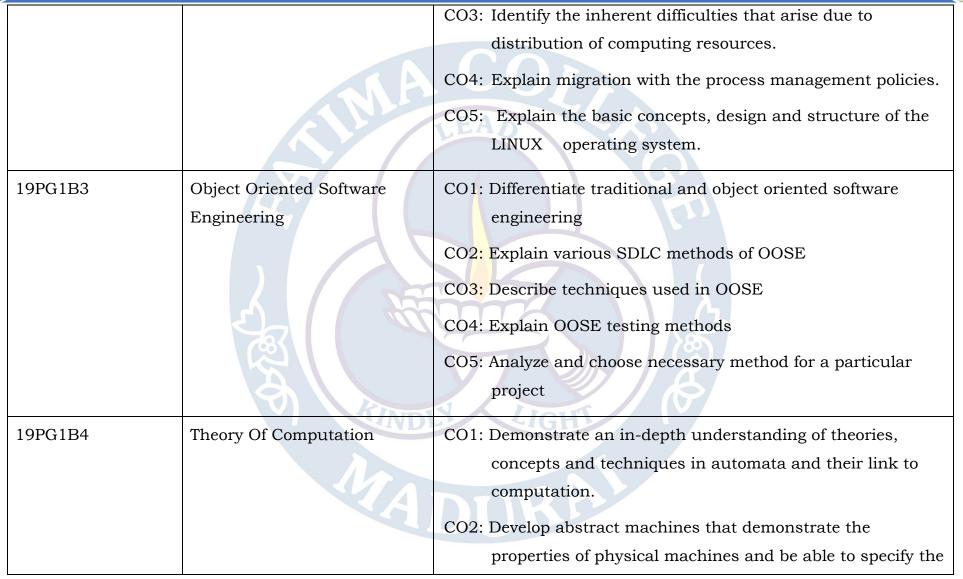
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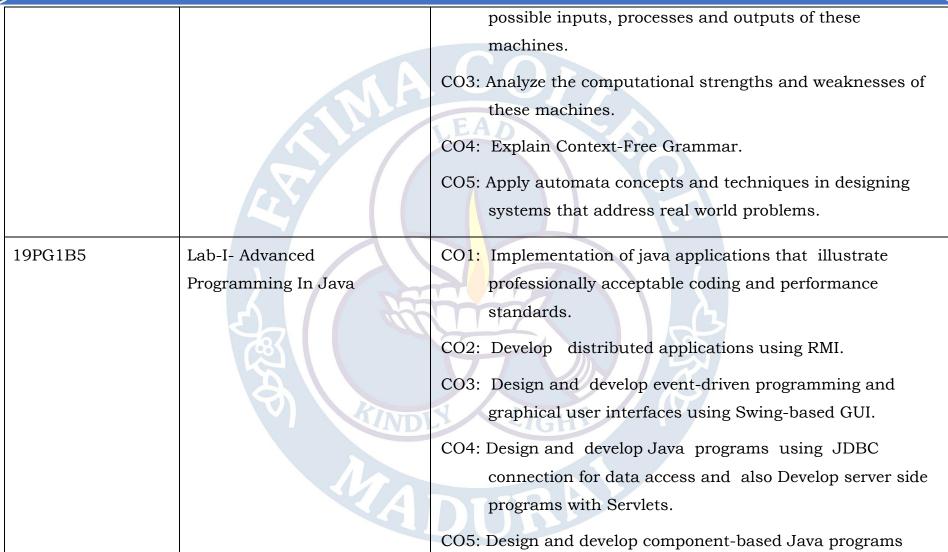


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		using JavaBeans.
19PG1B6	Lab-II- Operating System	CO1: Utilize basic LINUX Utilities.
		CO2: Write different LINUX shell scripts and execute various
		A shell programs.
		CO3: Apply LINUX system calls.
		CO4: Compute various file permissions and have a basic
		understanding of system security.
		CO5: Demonstrate the basic knowledge of Linux commands
		and file handling utilities by using Linux shell
	5	environment.
19PGBEDC	Web Development	CO1: Define various tags of HTML
	9)	CO2: Design a web page with attractive display
	TANDI	CO3: Create a Layout for a webpage using Block tags
		CO4: Explain how and where to apply CSS
		CO5: Design own website



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19PG2B7	Extreme Programming –	CO1: Explain the important facts of ASP.NET 3.5, analyze and
1910201	Asp.Net	evaluate Web Form processing stages.
		CO2: Demonstrate web application using different types of Server Controls with input validation. Analysis and Identify state management techniques. CO3: Discuss Data Access Technology using ADO.NET architecture. CO4: Formulate Data Sources using SQL Data Source, Object Data Source and process data with rich data controls. CO5: Discuss and demonstrate Themes and Master pages of Web site.
19PG2B8	Mobile Application Development Using Android Studio	CO1: Design scripts to meet given interface and media control requirements CO2: Utilize variables, properties and other code elements appropriately to implement the code design CO3: Implement and evaluate techniques for the installation of mobile applications



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		CO4: Explain the principles of technologies which support
		media production and delivery on a variety of platforms
	A A	CO5: Evaluate alternative mobile frameworks, and contrast
		different programming platforms
19PG2B9	Design And Analysis Of	CO1: Analyze the time and space complexity of given
	Algorithms	Algorithms.
		CO2: Demonstrate operations like searching, insertion, and
		deletion on various data structures.
		CO3: Identify appropriate sorting/searching technique for given
		problem.
	787	CO4: Apply the dynamic programming technique to solve the
	8	problems.
	AIND	CO5: Discuss advanced tree and graph applications.
19PG2B10	Lab-III - Extreme	CO1: Design and develop web applications using different
	Programming - Asp.Net	Server Controls.
		CO2: Implement web applications with different state
		managements.

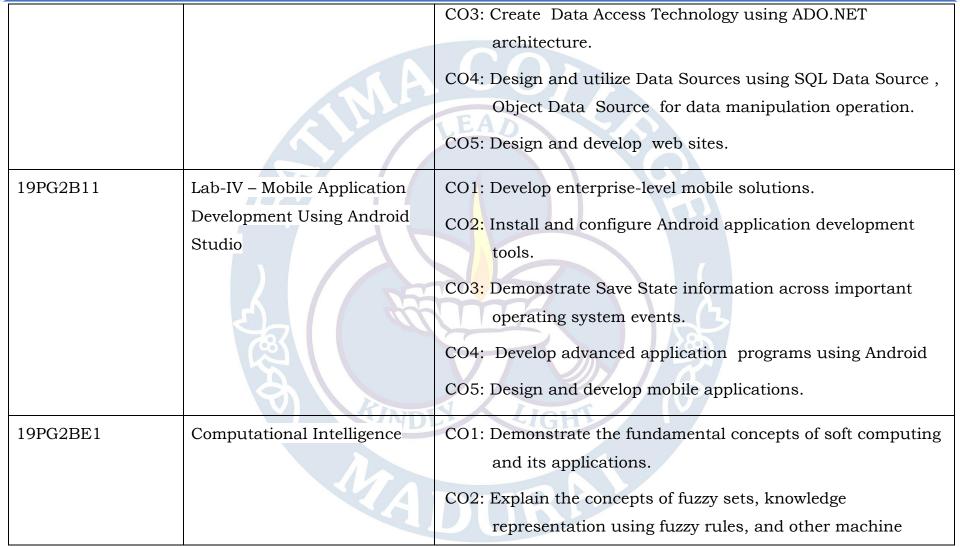


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		intelligence applications of fuzzy logic. CO3: Discuss the basics of an evolutionary computing CO4: Explain genetic algorithms for practical problems. CO5: Discuss the performance of granular computing in solving specific problems.
19PG2BE2	Neural Networks	CO1: Explain the basic concepts of Neural Networks. CO2: Describe the various Neural Network models. CO3: Explain Learning Rules of Neural Network CO4: Distinguish Feedback and Feed forward networks CO5: Compare Special networks and discuss the applications of Neural Network.
19PG2BE3	Software Testing	CO1: Discuss various software application domains and different process model used in software development. CO2: Demonstrate the basics of software quality assurance and defect prevention. CO3: Compare different testing strategies and tactics.

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	1 2013 2020	
		CO4: Describe the software testing techniques in different
		environments.
		CO5: Explain high performance testing using Jmeter.
19PG2BE4	Embedded Systems	CO1: Explain the concepts of embedded systems
		CO2: Analyze the architecture of embedded systems
	13.7	CO3: Describe about the processors and memory organization
		CO4: Distinguish when and where to apply embedded concepts
		CO5: Describe different embedded system design technologies
19PGBEDC	Web Development	CO1: Define various tags of HTML
		CO2: Analyze information to provide attractive display
		CO3: Create clear webpage for given data
	MI	CO4: Explain how and where to apply CSS
		CO5: Design own website
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Course Code	Course Title	Course Objectives
PG3B12	Digital Image Processing	 Explain the representation of digital image and its manipulations Analyze image sampling and quantization requirements and implications Describe various Transformation and Filtering Techniques Demonstrate Restoration And Reconstruction models Utilize Image Compression And Segmentation for efficient storage.
PG3B13	Data Mining And Data Warehousing	 Explain the fundamental concept of Data Mining and analyze and evaluate the data cleaning, integration, transformation and reduction techniques. Design multidimensional data using Data Warehouse architecture. Design and evaluate Classification algorithms.



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	MA	 Identify the types of data in Cluster Analysis and categorize the Cluster Methods. Utilize the Data Mining techniques in various real applications and in major issues
PG3B14	Lab-V- Digital Image Processing	 Demonstrate Fundamental Steps involved in Digital Image Processing Analyze and use Mathematical Tools for Digital Image Processing. Apply Intensity Transformation functions and Spatial filtering methods Utilize Color Image Processing with different Color Models Implement Image Segmentation Techniques and Image Compression Techniques using Huffman, Golomb and Arithmetic coding algorithms
PG3B15	Lab V1- Data Mining And Data Warehousing	 Utilize Weka tool to evaluate Data Mining algorithms. Demonstrate preprocessing steps involved in different



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	rear :	2015 - 2020		
		MA	•	datasets. Analyze Data Mining techniques for realistic data. Develop the decision tree algorithm using different datasets. Demonstrate the classification and clusters algorithms using large datasets
PG	3B16	Summer Internship/ Training/ Online Certification	• • • • • • • • • • • • • • • • • • • •	Identify employment contacts leading directly to a full-time job following course completion Create communication, interpersonal and other soft skills essential for the job interview process. Analyze the project requirements and engages in continuing professional development. Analyze a problem and identify the computing requirements appropriate to its solution. Utilizing a new software tool.
PG	3BE5	Mobile Computing	•	Determine solutions using problem solving principles, logic and systematic methodologies.



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		 Evaluate the architecture and principles of operation of computer systems and networks. Synthesize principles and theories of computer science and software engineering for application to different computing paradigms. Design and develop software systems for various application domains. Manage the development of software systems through a
PG3BE6	Cryptography And Network Security	 variety of development processes and methodologies. Explain the various symmetric encryption techniques and demonstrate the functionalities of DES algorithm. Analyze public key algorithms. Evaluate the authentication concept and hash algorithms. Apply the concepts of key management techniques. Analyze the vulnerabilities in data communication through networks.



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PG3BE7	Distributed Database	Compare normal and distributed DBMS and to explain
		various approaches of DDBMS.
		Formulate various kinds of retrieving statements to retrieve
		information from DDB.
		Explain multiple processes dealing with distributed
	137	database system without clash
		Describe the set of protocols used in DDBMS to make
		effective communication.
		Discuss object concepts and object models.
PG3BE8	Compiler Design	Describe the phases of Compiler.
	18	Explain the role and type of Parser
	AVADI	Analyze and use Intermediate languages
		Describe the design of code generation with register
	A Land	utilization.
		Demonstrate code optimization techniques.



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· ·	2013 2020	
PG3BE9	Cloud Computing	Identify and use different cloud computing services.
		 Explain the basic principles of cloud virtualization. Prepare the appropriate cloud computing solutions to meet the requirement of specific applications. Design application by utilizing cloud platforms such as Google app Engine and Amazon Web Services.
		Analyze different cloud programming models.
PG3BE10	Advanced Computer Graphics & Animation	 Explain the basic concepts in computer graphics. Analyze various algorithms and to convert the basic geometrical primitives. Demonstrate the importance of viewing and clipping. Discuss the fundamentals of animation Describe Interpolation-Based Animation
PG3BE11	Big Data Analytics	 Explain Characteristics and challenges of Big Data Describe Big Data Analytics



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		Utilize Hadoop for Big Data Technologies
		Demonstrate MAPREDUCE Programming
		Describe types of Recommendation Systems using Big Data
		Analytics.
PG3BE12	Deep Learning	Explain Deep learning
		Analyze different methods used for modeling
		Choose appropriate model according to application
		Compare various learning methods
	(3)	Explain Applications in Object Recognition and Computer
	(3)	Vision
PG4B17	Principles Of Internet Of	Explain the basic concepts of IoT.
	Things	Discuss physical and logical design of IoT enabled
		technologies.
	V/A	Analyze how and where IoT can be applied.
		Compare M2M and IoT.

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		Describe the features of Python used for IoT
		implementation.
PG4B18	Project	 Discuss project development and the associated business processes. Analyze problems and formulate solutions. Communicate with engineers and the community at large in written and oral forms. Create effective communication skills for presentation.
	5	Plan as an individual or in a team in development of technical projects.



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2018 -2019

Course Code	Course Title	Course Objectives
PG1B1	Advanced Programming In Java	 To understand the Java environment and OOP To learn Java application development using Swings and JSP To explore advanced Java concepts and to develop user friendly GUI based web Applications
PG1B2	Distributed Operating Systems	 To provide foundation on Operating Systems Concepts To stress the importance of client server architecture and how sharing of resources is done using OS
PG1B3	Object Oriented Software Engineering	 The trend being object oriented programming, the focus shifts to object oriented software engineering. To understand the nuances of object oriented software engineering. To reduce the academic-industry gap.



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PG1B4	Theory Of Computation	 To introduce the mathematical foundation of computation including automata theory, the theory of formal languages and grammars. To develop ability to understand and conduct mathematical proofs for computation and algorithms.
PG1B5	Lab-I- Advanced Programming In Java	 To understand the Java environment To learn Java application development using Swings and Middleware technology To explore advanced Java concepts To write web based programs using JSP
PG1B6	Lab-II- Operating System	 To familiarize students with the concepts, design and structure of the LINUX operating system. Understand different LINUX shell scripts and execute various shell programs. Use the Linux command line interface for basic user, file and system maintenance operations.



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		To manipulate file permissions and have a basic
		understanding of system security.
PGBEDC1	Web Development	To offer a job oriented course
		To help them design animated applications in Flash
		To teach the techniques in Photoshop for editing photos, designing cover for books and magazines
PG2B7	Extreme Programming –	To introduce and form a foundation on .Net platform
	Asp.Net	To reduce the industry academic gap meeting the industrial
	6	demands
PG2B8	Mobile Application Development Using Android	Develop high-level plans using script solutions for mobile and evaluate the post-production outcome
	Studio	Design scripts to meet given interface and media control requirements
	MA	Devise, carry out and evaluate functional test strategies of mobile design
		Implement and evaluate techniques for the installation of



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	AAA	 mobile applications and delivery via various channels Model and manage mobile application development using a range of methods
PG2B9	Design And Analysis Of Algorithms	 To stress the importance of the efficiency in writing programs To write algorithms efficient in terms of design and time complexity
PG2B10	Lab-III - Extreme Programming - Asp.Net	 To develop the skill of programming in .Net platform To develop platform independent web based applications
PG2B11	Lab-IV– Mobile Application Development Using Android Studio	 Develop enterprise-level mobile solutions, by taking full advantage of the capabilities of the adopted platform/framework Install and configure Android application development tools. Design and develop user Interfaces for the Android platform. Save state information across important operating system



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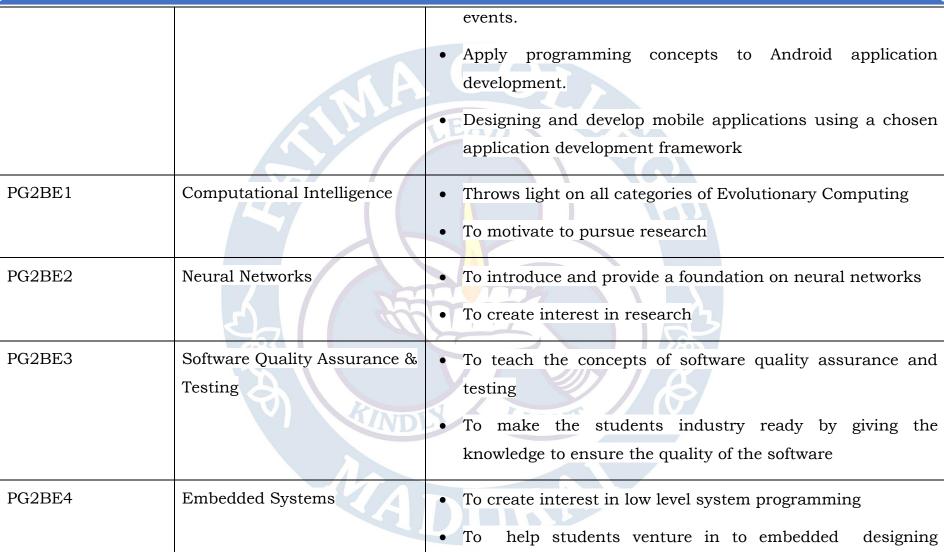
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Year	: 2015 - 2020	and the second s
		concepts
PGBEDC2	Web Development	 To offer a job oriented course To help them design animated applications in Flash To teach the techniques in Photoshop for editing photos, designing cover for books and magazines
PG3B10	Digital Image Processing	 To inculcate ideas and create interest in processing images techniques. To provide a research orientation inducing them to pursue research.
PG3B11	Data Mining And Data Warehousing	 To explore the concepts and techniques of knowledge discovery and data mining in a multi disciplinary perspective. To present an organized framework of data mining techniques, applications and research directions. To understand and implement classification and Clustering algorithms in Data Mining



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		To assess the strength and weakness of various algorithms
		and to analyze their behaviour.
PG3B12	Cryptography And Network	To know the methods of conventional encryption.
	Security	To understand the concepts of public key encryption
		To understand authentication and Hash functions.
		To know the network security tools and applications.
		To understand the system level security used.
PG3B13	Lab-III - Digital Image	To become proficient at image processing techniques.
	Processing	Concepts to be implemented using programming language
		only. No readymade tools to be used.
PG3BE5	Mobile Computing	To introduce the concept of mobile computing and provide a
	ATND	foundation for research.
PG3BE6	Cloud Computing	To learn distributed communication
		To understand distributed resource management
		To study the basics of cloud computing



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		• To study about virtualization and cloud resource
		management
PG3BE7	Advanced Computer Graphics & Animation	 To understand the basics of geometry processing. To understand the fundamentals of pipelined rasterization rendering of meshed objects and curved surfaces. To understand and work with advanced rendering methods such as radiosity. To design programs for advanced animation methods and To become proficient at graphics programming using OpenGL
PG3BE8	Distributed Database	 To learn the key concepts and techniques for distributed database implementation, such as data storage, indexing, query evaluation, query optimization, transaction management, concurrency control and cash recovery. To discuss the principles and techniques for database replication and reliability.

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PG3B14	Internship	To enrich them with real time work experience.
PG4B15	Principles Of Internet Of Things	 To understand the fundamentals of Internet of Things. To apply the concept of Internet of Things in the real world scenario.
PG4B16	Project	 To provide real time work experience and improve communication skills To develop real time problem solving skills





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2017 -2018		COA
Course Code	Course Title	Course Objectives
PG1B1	Advanced Programming In Java	 To understand the Java environment and OOP To learn Java application development using Swings and JSP To explore advanced Java concepts and to develop user friendly GUI based web Applications
PG1B2	Design And Analysis Of Algorithms	 To stress the importance of the efficiency in writing programs To write algorithms efficient in terms of design and time complexity
PG1B3	Object Oriented Software Engineering	 The trend being object oriented programming, the focus shifts to object oriented software engineering. To understand the nuances of object oriented software



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		engineering.
		To reduce the academic-industry gap.
PG1B4	Theory Of Computation	To introduce the mathematical foundation of computation
	33	including automata theory, the theory of formal languages
		and grammars.
	73.9	To develop ability to understand and conduct mathematical
		proofs for computation and algorithms.
PG1B5	Lab-I- Programming In Java	To understand the Java environment
		To learn Java application development using Swings and
		Middleware technology
		To explore advanced Java concepts
	AIND	To write web based programs using JSP
PGBEDC1	Multimedia Applications - I	To offer a job oriented course
	MA	To help them design animated applications in Flash
		• To teach the techniques in Photoshop for editing photos,



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		designing cover for books and magazines
PG2B6	Extreme Programming –	To introduce and form a foundation on .Net platform
	Asp.Net	
		To reduce the industry academic gap meeting the industrial
		demands
PG2B7	Compiler Design	To provide knowledge on system oriented concepts
		To help them to write efficient programs, understanding the
		implementation requirements
		N
PG2B8	Distributed Operating	To provide foundation on Operating Systems Concepts
	Systems	To stress the importance of client server architecture and
	787	how sharing of resources is done using OS
	The state of the s	
PG2B9	Lab-III - Extreme	To develop the skill of programming in .Net platform
	Programming - Asp.Net	To develop platform independent web based applications
		To division production and the dispersion of the
PG2BE1	Computational Intelligence	Throws light on all categories of Evolutionary Computing
		To motivate to pursue research
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PG2BE2	Neural Networks	To introduce and provide a foundation on neural networks
	A	To create interest in research
PG2BE3	Software Quality Assurance & Testing	To teach the concepts of software quality assurance and testing
		To make the students industry ready by giving the knowledge to ensure the quality of the software
PG2BE4	Embedded Systems	 To create interest in low level system programming To help students venture in to embedded designing concepts
PGBEDC2	Multimedia Applications - II	 To offer a job oriented course To help them design animated applications in Flash To teach the techniques in Photoshop for editing photos, designing cover for books and magazines
PG3B10	Digital Image Processing	To inculcate ideas and create interest in processing images techniques.



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		To provide a research orientation inducing them to pursue
		research.
PG3B11	Data Mining And Data	To explore the concepts and techniques of knowledge
	Warehousing	discovery and data mining in a multi disciplinary perspective.
		To present an organized framework of data mining techniques, applications and research directions.
		To understand and implement classification and Clustering algorithms in Data Mining
		• To assess the strength and weakness of various algorithms and to analyze their behaviour.
PG3B12	Cryptography And Network	To know the methods of conventional encryption.
	Security	To understand the concepts of public key encryption
	10	To understand authentication and Hash functions.
		To know the network security tools and applications.
		To understand the system level security used.



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1 901	2013 2020	
PG3B13	Lab-III- Digital Image Processing	 To become proficient at image processing techniques. Concepts to be implemented using programming language only. No readymade tools to be used.
PG3BE5	Mobile Computing	To introduce the concept of mobile computing and provide a foundation for research.
PG3BE6	Cloud Computing	 To learn distributed communication To understand distributed resource management To study the basics of cloud computing To study about virtualization and cloud resource management
PG3BE7	Advanced Computer Graphics & Animation	 To understand the basics of geometry processing. To understand the fundamentals of pipelined rasterization rendering of meshed objects and curved surfaces. To understand and work with advanced rendering methods such as radiosity.



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	AAA	 To design programs for advanced animation methods and To become proficient at graphics programming using OpenGL
PG3BE8	Distributed Database	 To learn the key concepts and techniques for distributed database implementation, such as data storage, indexing, query evaluation, query optimization, transaction management, concurrency control and cash recovery. To discuss the principles and techniques for database replication and reliability.
PG3B14	Internship	To enrich them with real time work experience.
PG4B15	Principles Of Internet Of Things	 To understand the fundamentals of Internet of Things. To apply the concept of Internet of Things in the real world scenario.
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2016 -2017

Course Code	Course Title	Course Objectives
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PG1B2	Advanced Programming In Java	 To understand the Java environment and OOP To learn Java application development using Swings and JSP To explore advanced Java concepts and to develop user friendly GUI based web Applications
PG1B3	Object Oriented Software Engineering	 The trend being object oriented programming, the focus shifts to object oriented software engineering. To understand the nuances of object oriented software engineering.



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Year : 2015 - 2020

		To reduce the academic-industry gap.
PG1B4	Theory Of Computation	 To introduce the mathematical foundation of computation including automata theory, the theory of formal languages and grammars. To develop ability to understand and conduct mathematical proofs for computation and algorithms.
PG1B5	Lab-I- Advanced Programming In Java	 To understand the Java environment To learn Java application development using Swings and Middleware technology To explore advanced Java concepts To write web based programs using JSP
PGBEDC1	Multimedia Applications-I	 To offer a job oriented course To help them design animated applications in Flash To teach the techniques in Photoshop for editing photos,



Criterion

: II — Teaching-Learning and Evaluation

Metric

: 2.6.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and

Course Outcomes (COs) – M. SC. COMPUTER SCIENCE

Year

		designing cover for books and magazines
PG2B6	Extreme Programming – Asp.Net	 To introduce and form a foundation on .Net platform To reduce the industry academic gap meeting the industrial demands
PG2B7	Compiler Design	 To provide knowledge on system oriented concepts To help them to write efficient programs, understanding the implementation requirements
PG2B8	Distributed Operating Systems	 To provide foundation on Operating Systems Concepts To stress the importance of client server architecture and how sharing of resources is done using OS
PG2B9	Lab-II- Extreme Programming	 To develop the skill of programming in .Net platform To develop platform independent web based applications
PG2BE1	Computational Intelligence	 Throws light on all categories of Evolutionary Computing To motivate to pursue research



Metric

PG3B10

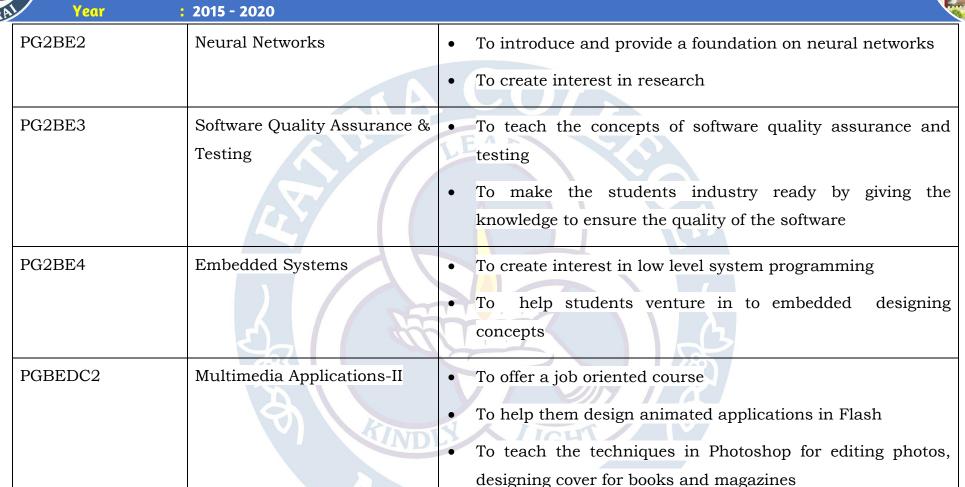
Criterion: II - Teaching-Learning and Evaluation

Computer Graphics And

Image Processing

: 2.6.1 - Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and

Course Outcomes (COs) – M. SC. COMPUTER SCIENCE



techniques.

To inculcate ideas and create interest in processing images



Criterion : II - Tead

: II — Teaching-Learning and Evaluation

Metric

: 2.6.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and

Course Outcomes (COs) – M. SC. COMPUTER SCIENCE

Year : 2015 - 2020

PG3B11	Mobile Computing	 To provide a research orientation inducing them to pursue research. To introduce the concept of mobile computing and provide a foundation for research.
PG3B12	Distributed Database	 To learn the key concepts and techniques for distributed database implementation, such as data storage, indexing, query evaluation, query optimization, transaction management, concurrency control and cash recovery. To discuss the principles and techniques for database replication and reliability.
PG3B13	Lab-III-Computer Graphics And Image Processing	 To develop the skill of programming in graphics and image processing techniques. Concepts to be implemented using programming language only. No readymade tools to be used.
PG3BE5	Cryptography	 To introduce the concepts of secure communication To make them learn through case studies



Criterion : II - Teaching-Learning and Evaluation

Project

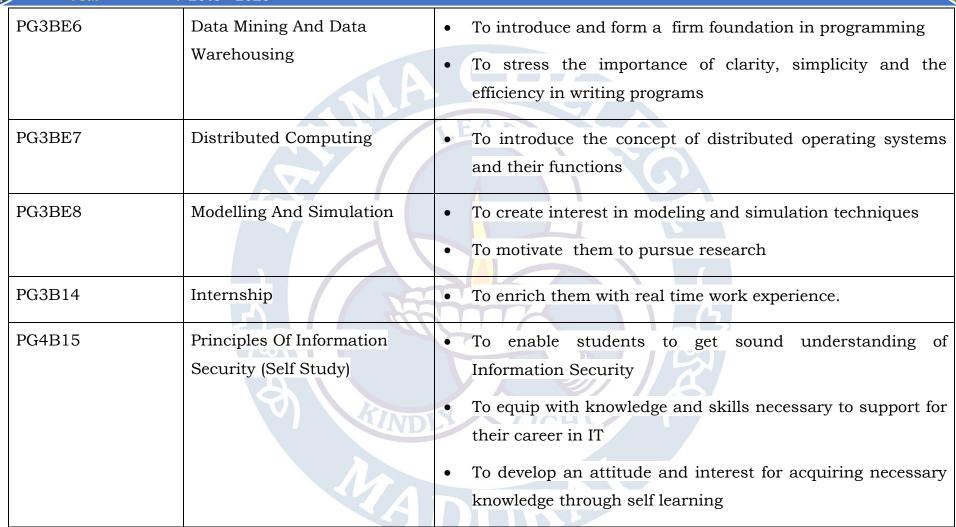
: 2.6.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and

Course Outcomes (COs) – M. SC. COMPUTER SCIENCE

Year : 2015 - 2020

Metric

PG4B16



To provide real time work experience and improve

ZIMA COLLEGE

Criterion : II — Teaching-Learning and Evaluation

: 2.6.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and

Course Outcomes (COs) – M. SC. COMPUTER SCIENCE

Year : 2015 - 2020

communication skills
To develop real time problem solving skills

