



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



## FATIMA COLLEGE (AUTONOMOUS), MADURAI – 625018

### B.C.A & P.G.D.C.A

**NAME OF THE PROGRAMME: B.C.A**

**PROGRAMME CODE: USCA**

#### PROGRAMME OUTCOMES:

The learners will be able to

- PO1:** Apply acquired scientific knowledge to solve complex issues.
- PO2:** Attain Analytical skills to solve complex cultural, societal and environmental issues.
- PO3:** Employ latest and updated tools and technologies to analyse complex issues.
- PO4:** Demonstrate Professional Ethics that foster Community, Nation and Environment Building Initiatives.

#### PROGRAMME SPECIFIC OUTCOMES:

- PSO 1:** To achieve significant understanding of theoretical and programming concepts in key areas of Computer Applications.
- PSO 2:** To expand and sharpen practical and problem solving skills to provide solutions to industry, society and



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business problems.

- PSO 3:** To apply modern practices and strategies in software project development using open source and other programming environments.
- PSO 4:** To inculcate the ability to analyze and interpret problems, make inferences from the resulting data and apply technical skills to solve real time problems.
- PSO 5:** To make graduates understand various professional, technical and ethical issues prevailing in the industry
- PSO 6:** To gain exposure in preventive, ethical hacking and security technologies in recent trends
- PSO 7:** To equip the students to meet the requirement of Corporate world and Industry standards
- PSO 8:** To engage in professional development and to pursue post graduate education in the fields of Information Technology and Computer Applications
- PSO 9:** To generate ideas of innovation and to identify, formulate and solve problems in software solutions, outsourcing services, public and private sectors
- PSO 10:** To engage the students technically on par with the societal and environmental responsibilities added with professional ethics



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## 2019 - 2020

COURSE CODE	COURSE TITLE	NATURE OF THE COURSE (LOCAL/NATIONAL/ REGIONAL/ GLOBAL)	COURSE DESCRIPTION	COURSE OUTCOMES
19J1CC1	Programming in C	Global	To learn the basic knowledge of structured programming in C control structures, data structures and functions along with basic problem solving techniques	CO1: Acquire basic understanding of C programming CO2: Illustrate how arrays and strings are implemented in C CO3: Utilize the knowledge of Functions and Pointers CO4: Analyze the memory management concept in C using structure and Unions CO5: Outline the file operations in C
19J1CC2	Lab In C	Global	To learn the practical	CO1: Acquire basic understanding of C



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	Programming		implementation of structured programming using control structures, data structures and functions along with basic problem solving techniques	<p>programming</p> <p>CO2: Illustrate how arrays and strings are implemented in C</p> <p>CO3: Utilize the knowledge of Functions and Pointers</p> <p>CO4: Analyze the memory management concept in C using structure and Unions</p> <p>CO5: Outline the file operations in C</p>
19J1NME	Non Major Elective – I Multimedia Lab – Flash	Global	This course helps to become familiar with the elements and tools in Flash that is used to create interactive animated media such as motion graphics, videos, presentations and websites	<p>CO1: Apply tweens and articulated motions to morph shapes</p> <p>CO 2: Design, create and edit flash based navigation menus and interactive movies</p> <p>CO3: Utilize flash components to create interactivity</p>



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				<p>CO4: Demonstrate load, control and remove movie clips and masks in movie content</p> <p>CO5: Utilize and understand different sounds and sound formats in flash movies Publish flash movies in numerous formats and contexts in a</p>
19J2CC3	Object Oriented Programming in C++	Global	To get better understanding in the OOPS Concept and to have basic knowledge in writing programs using C++ Programming	<p>CO1: Assess the object – oriented concepts in C++</p> <p>CO2: Illustrate the usage of Functions in C++</p> <p>CO3: Analyze advanced features of C++ specifically stream I/O and overloading</p>



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				<p>CO4: Demonstrate on Inheritance and Virtual Classes</p> <p>CO5: Outline the file operations in C++</p>
19J2CC4	Lab in C++	Global	<p>To learn the basic knowledge of Object Oriented Programming in C++ and write code in all aspects of C++ Language</p>	<p>CO1: Read, understand and trace the execution of programs written in C++ language</p> <p>CO2: Demonstrate class and object functions</p> <p>CO3; Assess operator overloading and function overloading to specific problem definition</p> <p>CO4: Demonstrate file operations in C++.</p> <p>CO5: Write C++ code to demonstrate each concept</p>



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J3CC7	Operating Systems	Global	To Study about the concepts, structure and mechanisms of operating systems. To examine the operations of processes and threads, scheduling, deadlock, memory management and file systems	<ul style="list-style-type: none"> <li>• Outline the structure of OS, basic architectural components</li> <li>• Analyze on the different scheduling algorithms and critical section problems</li> <li>• Critique device and resource management techniques by concentrating on deadlocks</li> <li>• Identify and know about memory management techniques</li> <li>• Interpret the mechanisms adopted for file sharing in distributed Applications</li> </ul>



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J3CC8	Relational Database Management System	Global	To have in-depth knowledge in the database concepts.	<ul style="list-style-type: none"> <li>• Understand the basic concepts of database and relational database management systems</li> <li>• Analyze the various normalization concepts</li> <li>• Disseminate SQL commands to create tables and indexes</li> <li>• Apply DDL and DML commands in real time applications</li> <li>• Write dynamic queries and programming language SQL to demonstrate the concept of RDBMS</li> </ul>
J3AC3	Management Information Systems	Global	To know the usage of information systems in the field of management	<ul style="list-style-type: none"> <li>• Understand the need and basic concept of MIS</li> <li>• Analyze MIS and various functional information system</li> <li>• Analyze MIS information and</li> </ul>



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				<p>system concepts</p> <ul style="list-style-type: none"> <li>• Outline kinds of decision making techniques</li> <li>• Apply business applications of information system</li> </ul>
J3CC9	Lab III – Relational Database Management System	National	To give in-depth practical approach to the database concepts.	<ul style="list-style-type: none"> <li>• Critique SQL commands to create tables and indexes</li> <li>• Apply DDL and DML commands in real time applications</li> <li>• Understand the needs of triggering applications</li> <li>• Disseminate knowledge of RDBMS and SQL, both in terms of design and implementation usage</li> <li>• Write dynamic queries to demonstrate the concepts of RDBMS</li> </ul>



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J3SB1	Skill Based – I Introduction to Photoshop	Global	To introduce and impart knowledge and skills about Photoshop.	<ul style="list-style-type: none"> <li>Understand the basic photoshop tools</li> <li>Outline the resizing options available in photoshop</li> <li>Explore various rotation operations</li> <li>Disseminate filter operations in photoshop</li> <li>Analyze various distort filter operations in photoshop</li> </ul>
J4CC10	Software Engineering	Global	Aims to provide a thorough knowledge about various phases involved in software development along with the testing techniques	<ul style="list-style-type: none"> <li>Compare the various software models</li> <li>Use knowledge, techniques, skills and modern tools necessary for software engineering practice</li> <li>Analyze on the design factors and guidelines</li> </ul>



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				<ul style="list-style-type: none"> <li>Understand the different types of testing used in software's</li> <li>Compare the various types of Testing styles</li> </ul>
J4CC11	Web Programming	Global	To impart knowledge on various concepts in internet – html – Active Server Pages.	<ul style="list-style-type: none"> <li>Select and apply mark-up languages for processing and presenting information in web pages.</li> <li>Design and implement dynamic websites with good aesthetic sense of designing.</li> <li>Use fundamental skills to maintain web server services required to host a website.</li> <li>Prepare the students to write a well formed DB connection</li> <li>Create WebPages for any application using database connectivity</li> </ul>



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J4AC4	Financial Accounting and Tally	Global	To define the set of accounting method and disclosure practices from which firms select when providing information to external parties. The primary emphasis of this course is to assist you in developing the skills required to interpret, analyze and evaluate information contained in published financial statements. To gain in-depth knowledge in Accounting package - Tally.	<ul style="list-style-type: none"> <li>• Understand the basic principles of accounting</li> <li>• Analyze the final accounts and its classification</li> <li>• Acquire knowledge in maintaining cash books</li> <li>• Disseminate thorough understanding of TALLY package</li> <li>• Perform and manage stock and go down entries in the form of vouchers</li> </ul>
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J4CC12	Lab IV – Web Programming	Global	To impart the practical aspects in the development of web pages.	<ul style="list-style-type: none"> <li>Select and apply mark-up languages for processing and presenting information in web pages.</li> <li>Design and implement dynamic websites with good aesthetic sense of designing.</li> <li>Use fundamental skills to maintain web server services required to host a website.</li> <li>Prepare the students to write a well formed DB connection</li> <li>Create WebPages for any application</li> </ul>
J4SB2	Skill Based – II Financial Accounting Software Package – Tally	Global	To gain in-depth knowledge in Accounting package – Tally	<ul style="list-style-type: none"> <li>Understand the basic concepts of company creation in tally</li> <li>Perform journal, ledger and trial balance entries in tally</li> <li>Perform tally entries in the form of</li> </ul>



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				<p>vouchers</p> <ul style="list-style-type: none"> <li>• Create and display single and multiple stock groups and stock categories</li> <li>• Explore voucher operations in tally</li> </ul>
J5CC11	Computer Networks	Global	<p>Aims to provide a thorough knowledge about various phases involved in software development along with the testing techniques</p>	<ul style="list-style-type: none"> <li>• Compare the various software models</li> <li>• Use knowledge, techniques, skills and modern tools necessary for software engineering practice</li> <li>• Analyze on the design factors and guidelines</li> <li>• Understand the different types of testing used in software's</li> <li>• Compare the various types of Testing styles</li> </ul>



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J5CC12	Java Programming	Global	To acquire knowledge on Object Oriented Programming using Multithreading, Exceptions, GUI & database Applications	<ul style="list-style-type: none"> <li>• Acquire in depth knowledge in Java programming concepts</li> <li>• Identify and analyze platform independent environment and byte code generation</li> <li>• Build, Execute and Debug java programs along with Exceptions</li> <li>• Design and Implement packages</li> <li>• Write, Compile and Execute applet programs which includes GUI</li> </ul>
J5CC13	Lab V – Java Programming	Global	To acquire practical knowledge on Object Oriented Programming using Multithreading, Exceptions, GUI & database Applications	<ul style="list-style-type: none"> <li>• Acquire in depth knowledge in Java programming concepts</li> <li>• Identify and analyze platform independent environment and byte code generation</li> <li>• Build, Execute and Debug java</li> </ul>



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				<p>programs along with Exceptions</p> <ul style="list-style-type: none"> <li>• Design and Implement packages</li> <li>• Write, Compile and Execute applet programs which includes GUI</li> </ul>
J5CC14	Lab VI – Dot Net Programming	Global	To know the rapid development of powerful Window applications and Web application which makes the web development easier	<ul style="list-style-type: none"> <li>• Use Dot Net Framework along with the features of C#</li> <li>• Create websites to explore database connectivity</li> <li>• Analyze debugging WebPages through case studies</li> <li>• Use the different types of master page creation</li> <li>• Create different dynamic websites for applications</li> </ul>
J5ME1	Dot Net Programming	Global	To know the rapid development of powerful Window applications	<ul style="list-style-type: none"> <li>• Understand the basic concept of dot net</li> </ul>



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			and Web application which makes the web development easier.	<ul style="list-style-type: none"> <li>Outline the control statements in dot net with sample programs</li> <li>Analyze procedures and structures in dot net with real time examples</li> <li>Disseminate knowledge in database with dot net</li> <li>Explore web application with vb.net and asp.net</li> </ul>
J5ME2	Computer Graphics	Global	To know about computer graphics techniques and to implement the technologies in computer world.	<ul style="list-style-type: none"> <li>Outline the need and basic concept of computer graphics</li> <li>Explore various algorithms and its designs</li> <li>Analyze the attributes of output primitives</li> <li>Disseminate knowledge in 2-Dimensional geometric transformations</li> </ul>



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				<ul style="list-style-type: none"> <li>Explore the concepts of 2-Dimensional viewing</li> </ul>
J5SB3	Skill Based – III CorelDraw	Global	To introduce the concept of essential graphics and visual communication skills.	<ul style="list-style-type: none"> <li>Outline the basic concepts of CorelDraw</li> <li>Explore drawing and colouring feature in CorelDraw</li> <li>Disseminate knowledge in mastering with text</li> <li>Outline the effects of applying in CorelDraw</li> <li>Explore how to work with bitmap commands</li> </ul>
J5SB4	Skill Based – IV PHP	Global	To be familiar with the structured approach by identifying the needs, interests and functionalities that	<ul style="list-style-type: none"> <li>Demonstrate how server – side programming works on the web</li> <li>Use PHP built – in functions and creating custom functions</li> </ul>



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			helps in creating dynamic websites	<ul style="list-style-type: none"> <li>• Create a database in phpMyAdmin</li> <li>• Create dynamic web pages</li> <li>• Design websites for various applications</li> </ul>
J6CC15	Python	Global	This course helps to get knowledge in python language and to know about the different types of data like lists, dictionaries and files handling	<ul style="list-style-type: none"> <li>• Identify different Python object types</li> <li>• Discuss how to use indexing and slicing to access data in Python programs</li> <li>• Assess structure and components of a Python program</li> <li>• Write programs to demonstrate loops and decision statements in Python</li> <li>• Build and package in Python modules for reusability</li> </ul>
J6CC16	Lab VII – Python Lab	Global	This course helps to get practical knowledge in python language and to	<ul style="list-style-type: none"> <li>• Identify different Python object types</li> <li>• Discuss how to use indexing and</li> </ul>



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			<p>know about the different types of data like lists, dictionaries and files handling</p>	<p>slicing to access data in Python programs</p> <ul style="list-style-type: none"> <li>Assess structure and components of a Python program</li> <li>Write programs to demonstrate loops and decision statements in Python</li> <li>Build and package in Python modules for reusability</li> </ul>
J6ME3	Artificial Intelligence	Global	<p>To learn the need and basic concepts in artificial intelligence and their real time applications</p>	<ul style="list-style-type: none"> <li>Outline the needs and concepts of artificial intelligence in day-to-day life</li> <li>Explore various search techniques</li> <li>Disseminate various knowledge representation in AI</li> <li>Explore the uncertainty techniques involved in AI</li> <li>Analyze the learning concepts and</li> </ul>



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				methods
J6ME4	Data Mining	Global	On Successful Completion of this subject the students should have knowledge on Data mining Concepts	<ul style="list-style-type: none"> <li>Analyze data mining algorithms, methods, and tools</li> <li>Identify business applications of data mining</li> <li>Predict quantitative analysis report to make decisions</li> <li>Outline the developing areas web mining, text mining, and ethical aspects of data mining</li> <li>Compare the various applications of Data Mining</li> </ul>
J6ME5	Cloud Computing	Global	To give an introduction to cloud computing and its technologies	<ul style="list-style-type: none"> <li>Outline problems and evaluate various cloud computing solutions</li> <li>Outline Cloud service and deployment models</li> </ul>



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				<ul style="list-style-type: none"> <li>Identify the architecture and infrastructure of cloud computing including SaaS, PaaS, IaaS, public cloud, private cloud, hybrid cloud and community cloud</li> <li>Predict security issues and formulate recovery mechanisms</li> <li>Understand the concept of virtualization</li> </ul>
J6ME6	Mobile Computing	Global	On Successful Completion of this subject the students should have knowledge on Mobile Computing Concepts and emerging technologies and applications.	<ul style="list-style-type: none"> <li>Create the infrastructure to develop mobile communication systems</li> <li>Assess the characteristics of emerging technologies in mobile communication</li> <li>Critique new knowledge in the field of computer science by using appropriate search methodologies</li> </ul>



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				<ul style="list-style-type: none"> <li>Analyze on the various software kits available</li> <li>Assess the characteristics of Mobile Components and Applications</li> </ul>
J6SB5	Skill Based-V-Alice	Global	To develop programming skills and impart animation techniques using Alice.	<ul style="list-style-type: none"> <li>Explore the interface concepts in Alice</li> <li>Understand how to set the scene and characters in Alice</li> <li>Analyze the programming skills and expertise</li> <li>Disseminate various event handling techniques and methods</li> <li>Assess the characteristics of 3D and billboards and various sound effect options</li> </ul>
J6SB6	Skill Based Lab-	Global	To have a depth knowledge about the	<ul style="list-style-type: none"> <li>Analyze the inner workings of LINUX</li> </ul>



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	VI Linux		functionalities of the operating systems and have a thorough knowledge about the Linux programming.	<p>operating systems</p> <ul style="list-style-type: none"> <li>• Utilize Linux system to accomplish typical personal, office, technical, and software development tasks</li> <li>• Use Linux utilities to create and manage simple file processing</li> <li>• Use operations, organize directory structures with appropriate security</li> <li>• Formulate shell scripts to perform more complex tasks</li> </ul>
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**2018 - 2019**

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J1CC1	Digital Principles And Computer Organization	Global	To know about computers, learn the basics and take advantage of the latest technologies in the field of computers and information technology.	<ul style="list-style-type: none"> <li>• Acquire basic knowledge about classification and types of computers</li> <li>• Understand the primary and secondary storage input and output devices</li> <li>• Illustrate the number system with real time examples</li> <li>• Outline the Boolean algebra operations and explore various operations of gates</li> <li>• Explore the working methodologies</li> </ul>



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				of flip flop gates and transfer circuits
J1CC2	Programming in C	Global	To learn the basic knowledge of structured programming in C control structures, data structures and functions-along with basic problem solving techniques; to introduce software testing and to teach module testing techniques.	<ul style="list-style-type: none"> <li>• Acquire basic understanding of C programming</li> <li>• Illustrate how arrays and strings are implemented in C</li> <li>• Utilize the knowledge of Functions and Pointers</li> <li>• Analyze the memory management concept in C using structure and Unions</li> <li>• Outline the file operations in C</li> </ul>
J1CC3	Lab I-C	Global	To develop programming skills in C.To learn the practical implementation of structured programming	<ul style="list-style-type: none"> <li>• Acquire basic understanding of C programming</li> <li>• Illustrate how arrays and strings are implemented in C</li> </ul>



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			using control structures and functions along with basic problem solving techniques	<ul style="list-style-type: none"> <li>Utilize the knowledge of Functions and Pointers</li> <li>Analyze the memory management concept in C using structure and Unions</li> <li>Outline the file operations in C</li> </ul>
J1NME1	Non Major Elective – I Multimedia Lab – Flash	Global	To develop Multimedia programming skills using Flash. This course helps to become familiar with the elements and tools in Flash that is used to create interactive animated media such as motion graphics, videos, presentations and websites	<ul style="list-style-type: none"> <li>Apply tweens and articulated motions to morph shapes</li> <li>Design, create and edit flash based navigation menus and interactive movies</li> <li>Utilize flash components to create interactivity</li> <li>Demonstrate load, control and remove movie clips and masks in movie content</li> <li>Utilize and understand</li> </ul>



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				different sounds and sound formats in flash movies Publish flash movies in numerous formats and contexts
J2CC4	Data Structures	Global	To familiarize students with the concept of various data structures and the logic behind their workings.	<ul style="list-style-type: none"> <li>• Understand the need and basic concepts involved in data structures</li> <li>• Explore the various tree operations in data structures</li> <li>• Outline the various operations of sets and sorting techniques</li> <li>• Analyze the cost and storage of data structures using graphs</li> <li>• Assess the efficiency of different algorithmic techniques</li> </ul>
J2CC5	Object Oriented Programming in	Global	To introduce Object Oriented Programming	<ul style="list-style-type: none"> <li>• Assess the object – oriented concepts in C++</li> </ul>



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	C++		concepts using C++ and improve OOP Skills.	<ul style="list-style-type: none"> <li>• Illustrate the usage of Functions in C++</li> <li>• Analyze advanced features of C++ specifically stream I/O and overloading</li> <li>• Demonstrate on Inheritance and Virtual Classes</li> <li>• Outline the file operations in C++</li> </ul>
J2CC6	Lab-II-Object Oriented Programming in C++	Global	To develop object oriented programming skills using C++.	<ul style="list-style-type: none"> <li>• Read, understand and trace the execution of programs written in C++ language</li> <li>• Demonstrate class and object functions</li> <li>• Assess operator overloading and function overloading to specific problem definition</li> <li>• Demonstrate file operations in C++.</li> </ul>



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				<ul style="list-style-type: none"> <li>Write C++ code to demonstrate each concept</li> </ul>
J3CC5	Operating Systems	Global	To have a depth knowledge about the functionalities of the operating systems and have a thorough knowledge about the Linux programming.	<ul style="list-style-type: none"> <li>Outline the structure of OS, basic architectural components</li> <li>Analyze on the different scheduling algorithms and critical section problems</li> <li>Critique device and resource management techniques by concentrating on deadlocks</li> <li>Identify and know about memory management techniques</li> <li>Interpret the mechanisms adopted for file sharing in distributed Applications</li> </ul>
J3CC6	Relational Database	Global	To have in-depth knowledge in the	<ul style="list-style-type: none"> <li>Understand the basic concepts of database and relational database</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



	Management Systems		database concepts.	<p>management systems</p> <ul style="list-style-type: none"> <li>Analyze the various normalization concepts</li> <li>Disseminate SQL commands to create tables and indexes</li> <li>Apply DDL and DML commands in real time applications</li> <li>Write dynamic queries and programming language SQL to demonstrate the concept of RDBMS</li> </ul>
J3AC3	Management Information Systems	Global	To know the usage of information systems in the field of management	<ul style="list-style-type: none"> <li>Understand the need and basic concept of MIS</li> <li>Analyze MIS and various functional information system</li> <li>Analyze MIS information and system concepts</li> <li>Outline kinds of decision making</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				<p>techniques</p> <ul style="list-style-type: none"> <li>• Apply business applications of information system</li> </ul>
J3CC7	Lab III- Relational Database Management System	Global	To give in-depth practical approach to the database concepts.	<ul style="list-style-type: none"> <li>• Critique SQL commands to create tables and indexes</li> <li>• Apply DDL and DML commands in real time applications</li> <li>• Understand the needs of triggering applications</li> <li>• Disseminate knowledge of RDBMS and SQL, both in terms of design and implementation usage</li> <li>• Write dynamic queries to demonstrate the concepts of RDBMS</li> </ul>
J3SB1	Introduction to Photoshop	Global	To introduce and impart knowledge and skills	<ul style="list-style-type: none"> <li>• Understand the basic photoshop tools</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



			about Photoshop.	<ul style="list-style-type: none"> <li>Outline the resizing options available in photoshop</li> <li>Explore various rotation operations</li> <li>Disseminate filter operations in photoshop</li> <li>Analyze various distort filter operations in photoshop</li> </ul>
J4CC8	Software Engineering	Global	Aims to provide a thorough knowledge about various phases involved in software development along with the testing techniques	<ul style="list-style-type: none"> <li>Compare the various software models</li> <li>Use knowledge, techniques, skills and modern tools necessary for software engineering practice</li> <li>Analyze on the design factors and guidelines</li> <li>Understand the different types of testing used in software's</li> <li>Compare the various types of</li> </ul>



**Criterion** : I – Curricular Aspects

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**Year** : 2015 - 2020



				Testing styles
J4CC9	Web Programming	Global	To impart knowledge on various concepts in internet – html – Active Server Pages.	<ul style="list-style-type: none"> <li>Select and apply mark-up languages for processing and presenting information in web pages.</li> <li>Design and implement dynamic websites with good aesthetic sense of designing.</li> <li>Use fundamental skills to maintain web server services required to host a website.</li> <li>Prepare the students to write a well formed DB connection</li> <li>Create WebPages for any application using database connectivity</li> </ul>
J4AC4	Financial	Global	To define the set of	<ul style="list-style-type: none"> <li>Understand the basic principles of</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



	Accounting and Tally		accounting method and disclosure practices from which firms select when providing information to external parties. The primary emphasis of this course is to assist you in developing the skills required to interpret, analyze and evaluate information contained in published financial statements. To gain in-depth knowledge in Accounting package - Tally.	<p>accounting</p> <ul style="list-style-type: none"> <li>Analyze the final accounts and its classification</li> <li>Acquire knowledge in maintaining cash books</li> <li>Disseminate thorough understanding of TALLY package</li> <li>Perform and manage stock and go down entries in the form of vouchers</li> </ul>
J4CC10	Lab IV- Web Programming	Global	To impart the practical aspects in the	<ul style="list-style-type: none"> <li>Select and apply mark-up languages for processing and</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



			development of web pages.	<p>presenting information in web pages.</p> <ul style="list-style-type: none"> <li>• Design and implement dynamic websites with good aesthetic sense of designing.</li> <li>• Use fundamental skills to maintain web server services required to host a website.</li> <li>• Prepare the students to write a well formed DB connection</li> <li>• Create WebPages for any application</li> </ul>
J4AC4	Financial Accounting and Tally	Global	To define the set of accounting method and disclosure practices from which firms select when providing information to external	<ul style="list-style-type: none"> <li>• Understand the basic principles of accounting</li> <li>• Analyze the final accounts and its classification</li> <li>• Acquire knowledge in maintaining</li> </ul>



**Criterion** : I – Curricular Aspects

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**Year** : 2015 - 2020



			parties. The primary emphasis of this course is to assist you in developing the skills required to interpret, analyze and evaluate information contained in published financial statements. To gain in-depth knowledge in Accounting package - Tally.	<p>cash books</p> <ul style="list-style-type: none"> <li>Disseminate thorough understanding of TALLY package</li> <li>Perform and manage stock and go down entries in the form of vouchers</li> </ul>
J4SB2	Skill Based – II Financial Accounting Software Package- Tally	Global	To gain in-depth knowledge in Accounting package – Tally	<ul style="list-style-type: none"> <li>Understand the basic concepts of company creation in tally</li> <li>Perform journal, ledger and trial balance entries in tally</li> <li>Perform tally entries in the form of vouchers</li> </ul>



**Criterion** : I – Curricular Aspects

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**Year** : 2015 - 2020



				<ul style="list-style-type: none"> <li>• Create and display single and multiple stock groups and stock categories</li> <li>• Explore voucher operations in tally</li> </ul>
J5CC11	Computer Networks	Global	To become an efficient administrator in networking side, the concept of data communication is being introduced.	<ul style="list-style-type: none"> <li>• Outline the functionalities of OSI reference model</li> <li>• Discuss guided and unguided media and its real time usage and applications</li> <li>• Analyze on the design issues of DLL</li> <li>• Demonstrate various routing algorithms through case studies</li> <li>• Assess real time web and network security mechanisms</li> </ul>
J5CC12	Java Programming	Global	To develop OOPS Programming, To develop Multithreaded	<ul style="list-style-type: none"> <li>• Acquire in depth knowledge in Java programming concepts</li> </ul>



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**Year** : 2015 - 2020



			Programs, To develop GUI Applications	<ul style="list-style-type: none"> <li>Identify and analyze platform independent environment and byte code generation</li> <li>Build, Execute and Debug java programs along with Exceptions</li> <li>Design and Implement packages</li> <li>Write, Compile and Execute applet programs which includes GUI</li> </ul>
J5CC13	Lab V- Java Programming	Global	To acquire practical knowledge on Object Oriented Programming using Multithreading, Exceptions, GUI & database Applications	<ul style="list-style-type: none"> <li>Acquire in depth knowledge in Java programming concepts</li> <li>Identify and analyze platform independent environment and byte code generation</li> <li>Build, Execute and Debug java programs along with Exceptions</li> <li>Design and Implement packages</li> <li>Write, Compile and Execute applet</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				programs which includes GUI
J5CC14	Lab VI- Dot Net Programming	Global	To develop web programming skills through the use of Dot Net Frameworks.	<ul style="list-style-type: none"> <li>• Use Dot Net Framework along with the features of C#</li> <li>• Create websites to explore database connectivity</li> <li>• Analyze debugging WebPages through case studies</li> <li>• Use the different types of master page creation</li> <li>• Create different dynamic websites for applications</li> </ul>
J5ME1	Dot Net Programming	Global	To know the rapid development of powerful Window applications and Web application which makes the web development easier.	<ul style="list-style-type: none"> <li>• Understand the basic concept of dot net</li> <li>• Outline the control statements in dot net with sample programs</li> <li>• Analyze procedures and structures</li> </ul>



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**Year** : 2015 - 2020



				<p>in dot net with real time examples</p> <ul style="list-style-type: none"> <li>• Disseminate knowledge in database with dot net</li> <li>• Explore web application with vb.net and asp.net</li> </ul>
J5ME2	Computer Graphics	Global	To know about computer graphics techniques and to implement the technologies in computer world.	<ul style="list-style-type: none"> <li>• Outline the need and basic concept of computer graphics</li> <li>• Explore various algorithms and its designs</li> <li>• Analyze the attributes of output primitives</li> <li>• Disseminate knowledge in 2-Dimensional geometric transformations</li> <li>• Explore the concepts of 2-Dimensional viewing</li> </ul>



**Criterion** : I – Curricular Aspects

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J5SB3	Skill Based – III - Corel Draw	Global	To introduce the concept of essential graphics and visual communication skills.	<ul style="list-style-type: none"> <li>• Outline the basic concepts of CorelDraw</li> <li>• Explore drawing and colouring feature in CorelDraw</li> <li>• Disseminate knowledge in mastering with text</li> <li>• Outline the effects of applying in CorelDraw</li> <li>• Explore how to work with bitmap commands</li> </ul>
J5SB4	Skill Based IV - Php	Global	To be familiar with the structured approach by identifying the needs, interests and functionalities that helps in creating dynamic websites	<ul style="list-style-type: none"> <li>• Demonstrate how server – side programming works on the web</li> <li>• Use PHP built – in functions and creating custom functions</li> <li>• Create a database in phpMyAdmin</li> <li>• Create dynamic web pages</li> </ul>



**Criterion** : I – Curricular Aspects

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**Year** : 2015 - 2020



				<ul style="list-style-type: none"> <li>Design websites for various applications</li> </ul>
J6CC15	Python	Global	To introduce open source programming language and to develop object oriented programs.	<ul style="list-style-type: none"> <li>Identify different Python object types</li> <li>Discuss how to use indexing and slicing to access data in Python programs</li> <li>Assess structure and components of a Python program</li> <li>Write programs to demonstrate loops and decision statements in Python</li> <li>Build and package in Python modules for reusability</li> </ul>
J6CC16	Lab VII- Python	Global	This course helps to get practical knowledge in python language and to know about the different	<ul style="list-style-type: none"> <li>Identify different Python object types</li> <li>Discuss how to use indexing and slicing to access data in Python</li> </ul>



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**Year** : 2015 - 2020



			types of data like lists, dictionaries and files handling	<p>programs</p> <ul style="list-style-type: none"> <li>Assess structure and components of a Python program</li> <li>Write programs to demonstrate loops and decision statements in Python</li> <li>Build and package in Python modules for reusability</li> </ul>
J6ME3	Artificial Intelligence	Global	To learn the need and basic concepts in artificial intelligence and their real time applications	<ul style="list-style-type: none"> <li>Outline the needs and concepts of artificial intelligence in day-to-day life</li> <li>Explore various search techniques</li> <li>Disseminate various knowledge representation in AI</li> <li>Explore the uncertainty techniques involved in AI</li> <li>Analyze the learning concepts and</li> </ul>



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**Year** : 2015 - 2020



				methods
J6ME4	Data Mining	Global	On Successful Completion of this subject the students should have knowledge on Data mining Concepts	<ul style="list-style-type: none"> <li>Analyze data mining algorithms, methods, and tools</li> <li>Identify business applications of data mining</li> <li>Predict quantitative analysis report to make decisions</li> <li>Outline the developing areas web mining, text mining, and ethical aspects of data mining</li> <li>Compare the various applications of Data Mining</li> </ul>
J6ME5	Cloud Computing	Global	To give an introduction to cloud computing and its technologies	<ul style="list-style-type: none"> <li>Outline problems and evaluate various cloud computing solutions</li> <li>Outline Cloud service and deployment models</li> </ul>



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**Year** : 2015 - 2020



				<ul style="list-style-type: none"> <li>Identify the architecture and infrastructure of cloud computing including SaaS, PaaS, IaaS, public cloud, private cloud, hybrid cloud and community cloud</li> <li>Predict security issues and formulate recovery mechanisms</li> <li>Understand the concept of virtualization</li> </ul>
J6ME6	Mobile Computing	Global	On Successful Completion of this subject the students should have knowledge on Mobile Computing Concepts and emerging technologies and applications.	<ul style="list-style-type: none"> <li>Create the infrastructure to develop mobile communication systems</li> <li>Assess the characteristics of emerging technologies in mobile communication</li> <li>Critique new knowledge in the field of computer science by using appropriate search methodologies</li> </ul>



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**Year** : 2015 - 2020



				<ul style="list-style-type: none"> <li>Analyze on the various software kits available</li> <li>Assess the characteristics of Mobile Components and Applications</li> </ul>
J6SB5	Skill Based-V-Alice	Global	To develop programming skills and impart animation techniques using Alice.	<ul style="list-style-type: none"> <li>Explore the interface concepts in Alice</li> <li>Understand how to set the scene and characters in Alice</li> <li>Analyze the programming skills and expertise</li> <li>Disseminate various event handling techniques and methods</li> <li>Assess the characteristics of 3D and billboards and various sound effect options</li> </ul>
J6SB6	Skill Based Lab-VI	Global	To have a depth knowledge about the	<ul style="list-style-type: none"> <li>Analyze the inner workings of LINUX</li> </ul>



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**Year** : 2015 - 2020



	Linux		functionalities of the operating systems and have a thorough knowledge about the Linux programming.	<p>operating systems</p> <ul style="list-style-type: none"> <li>• Utilize Linux system to accomplish typical personal, office, technical, and software development tasks</li> <li>• Use Linux utilities to create and manage simple file processing</li> <li>• Use operations, organize directory structures with appropriate security</li> <li>• Formulate shell scripts to perform more complex tasks</li> </ul>
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**Criterion** : I – Curricular Aspects

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**Year** : 2015 - 2020



## 2017-2018

COURSE CODE	COURSE TITLE	NATURE OF THE COURSE (LOCAL/ NATIONAL/ REGIONAL/ GLOBAL)	COURSE DESCRIPTION	COURSE OBJECTIVES
J1CC1	Programming in C	Global	To learn the basic knowledge of structured programming in C control structures, data structures and functions-along with basic problem solving techniques; to introduce software testing and to teach module testing techniques.	<ul style="list-style-type: none"> <li>• Acquire basic understanding of C programming</li> <li>• Illustrate how arrays and strings are implemented in C</li> <li>• Utilize the knowledge of Functions and Pointers</li> <li>• Analyze the memory management concept in C using structure and Unions</li> <li>• Outline the file operations in C</li> </ul>



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J1CC2	Lab I- Programming in C	Global	To develop programming skills in C.To learn the practical implementation of structured programming using control structures and functions along with basic problem solving techniques	<ul style="list-style-type: none"> <li>• Acquire basic understanding of C programming</li> <li>• Illustrate how arrays and strings are implemented in C</li> <li>• Utilize the knowledge of Functions and Pointers</li> <li>• Analyze the memory management concept in C using structure and Unions</li> <li>• Outline the file operations in C</li> </ul>
J1NME1	Non Major Elective – I Multimedia Lab – Flash	Global	To develop Multimedia programming skills using Flash.This course helps to become familiar with the elements and tools in Flash that is used to create interactive animated media	<ul style="list-style-type: none"> <li>• Apply tweens and articulated motions to morph shapes</li> <li>• Design, create and edit flash based navigation menus and interactive movies</li> <li>• Utilize flash components to</li> </ul>



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			such as motion graphics, videos, presentations and websites	<p>create interactivity</p> <ul style="list-style-type: none"> <li>• Demonstrate load, control and remove movie clips and masks in movie content</li> <li>• Utilize and understand different sounds and sound formats in flash movies</li> </ul> <p>Publish flash movies in numerous formats and contexts</p>
J2CC3	Object Oriented Programming in C++	Global	To introduce Object Oriented Programming concepts using C++ and improve OOP Skills.	<ul style="list-style-type: none"> <li>• Assess the object – oriented concepts in C++</li> <li>• Illustrate the usage of Functions in C++</li> <li>• Analyze advanced features of C++ specifically stream I/O and overloading</li> </ul>



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**Year** : 2015 - 2020



				<ul style="list-style-type: none"> <li>• Demonstrate on Inheritance and Virtual Classes</li> <li>• Outline the file operations in C++</li> </ul>
J2CC4	Lab-II-Object Oriented Programming In C++	Global	To develop object oriented programming skills using C++.	<ul style="list-style-type: none"> <li>• Read, understand and trace the execution of programs written in C++ language</li> <li>• Demonstrate class and object functions</li> <li>• Assess operator overloading and function overloading to specific problem definition</li> <li>• Demonstrate file operations in C++.</li> <li>• Write C++ code to demonstrate each concept</li> </ul>
J3CC7	Relational Database Management	Global	To have in-depth knowledge in the database concepts.	<ul style="list-style-type: none"> <li>• Understand the basic concepts of database and relational database</li> </ul>



**Criterion** : I – Curricular Aspects

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**Year** : 2015 - 2020



	Systems			<p>management systems</p> <ul style="list-style-type: none"> <li>Analyze the various normalization concepts</li> <li>Disseminate SQL commands to create tables and indexes</li> <li>Apply DDL and DML commands in real time applications</li> <li>Write dynamic queries and programming language SQL to demonstrate the concept of RDBMS</li> </ul>
J3AC3	Management Information Systems	Global	To know the usage of information systems in the field of management	<ul style="list-style-type: none"> <li>Understand the need and basic concept of MIS</li> <li>Analyze MIS and various functional information system</li> <li>Analyze MIS information and system concepts</li> <li>Outline kinds of decision making</li> </ul>



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**Year** : 2015 - 2020



				<p>techniques</p> <ul style="list-style-type: none"> <li>• Apply business applications of information system</li> </ul>
J3CC8	Lab III - Relational Database Management System	Global	To give in-depth practical approach to the database concepts.	<ul style="list-style-type: none"> <li>• Critique SQL commands to create tables and indexes</li> <li>• Apply DDL and DML commands in real time applications</li> <li>• Understand the needs of triggering applications</li> <li>• Disseminate knowledge of RDBMS and SQL, both in terms of design and implementation usage</li> <li>• Write dynamic queries to demonstrate the concepts of RDBMS</li> </ul>
J3SB1	Skill Based –I- Client Side	Global	To give in-depth practical knowledge to the client side	<ul style="list-style-type: none"> <li>• Outline the basic HTML tags and its methods</li> </ul>



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**Year** : 2015 - 2020



	Scripting		scripting.	<ul style="list-style-type: none"> <li>Disseminate the elements of HTML to create a webpage</li> <li>Explore the methods involved in web publishing</li> <li>Analyze the methods and functions in JavaScript</li> <li>Disseminate form control operations</li> </ul>
J4CC9	Web Programming	Global	To impart knowledge on various concepts in internet – html – Active Server Pages.	<ul style="list-style-type: none"> <li>Select and apply mark-up languages for processing and presenting information in web pages.</li> <li>Design and implement dynamic websites with good aesthetic sense of designing.</li> <li>Use fundamental skills to maintain web server services required to host a website.</li> <li>Prepare the students to write a well</li> </ul>



**Criterion** : I – Curricular Aspects

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**Year** : 2015 - 2020



				<p>formed DB connection</p> <ul style="list-style-type: none"> <li>• Create WebPages for any application using database connectivity</li> </ul>
J4AC4	Financial Accounting And Tally	Global	<p>To define the set of accounting method and disclosure practices from which firms select when providing information to external parties. The primary emphasis of this course is to assist you in developing the skills required to interpret, analyze and evaluate information contained in published financial statements. To gain in-depth knowledge in</p>	<ul style="list-style-type: none"> <li>• Understand the basic principles of accounting</li> <li>• Analyze the final accounts and its classification</li> <li>• Acquire knowledge in maintaining cash books</li> <li>• Disseminate thorough understanding of TALLY package</li> <li>• Perform and manage stock and go down entries in the form of vouchers</li> </ul>



**Criterion** : I – Curricular Aspects

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**Year** : 2015 - 2020



			Accounting package - Tally.	
J4CC10	Lab IV- Web Programming	Global	To impart the practical aspects in the development of web pages.	<ul style="list-style-type: none"> <li>• Select and apply markup languages for processing and presenting information in web pages.</li> <li>• Design and implement dynamic websites with good aesthetic sense of designing.</li> <li>• Use fundamental skills to maintain web server services required to host a website.</li> <li>• Prepare the students to write a well formed DB connection</li> <li>• Create WebPages for any application</li> </ul>
J4SB2	Skill Based Lab II-Introduction To Photoshop	Global	To introduce and impart knowledge and skills about Photoshop.	<ul style="list-style-type: none"> <li>• Understand the basic photoshop tools</li> <li>• Outline the resizing options</li> </ul>



**Criterion** : I – Curricular Aspects

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**Year** : 2015 - 2020



				<p>available in photoshop</p> <ul style="list-style-type: none"> <li>• Explore various rotation operations</li> <li>• Disseminate filter operations in photoshop</li> <li>• Analyze various distort filter operations in photoshop</li> </ul>
J5CC13	Computer Networks	Global	To become an efficient administrator in networking side, the concept of data communication is being introduced.	<ul style="list-style-type: none"> <li>• Outline the functionalities of OSI reference model</li> <li>• Discuss guided and unguided media and its real time usage and applications</li> <li>• Analyze on the design issues of DLL</li> <li>• Demonstrate various routing algorithms through case studies</li> <li>• Assess real time web and network security mechanisms</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



J5CC14	Java Programming	Global	To develop OOPS Programming, To develop Multithreaded Programs, To develop GUI Applications	<ul style="list-style-type: none"> <li>• Acquire in depth knowledge in Java programming concepts</li> <li>• Identify and analyze platform independent environment and byte code generation</li> <li>• Build, Execute and Debug java programs along with Exceptions</li> <li>• Design and Implement packages</li> <li>• Write, Compile and Execute applet programs which includes GUI</li> </ul>
J5CC15	Lab V- Java Programming	Global	To acquire practical knowledge on Object Oriented Programming using Multithreading, Exceptions, GUI & database Applications	<ul style="list-style-type: none"> <li>• Acquire in depth knowledge in Java programming concepts</li> <li>• Identify and analyze platform independent environment and byte code generation</li> <li>• Build, Execute and Debug java</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				<p>programs along with Exceptions</p> <ul style="list-style-type: none"> <li>• Design and Implement packages</li> <li>• Write, Compile and Execute applet programs which includes GUI</li> </ul>
J5CC16	Lab VI- Dot Net Programming	Global	To develop web programming skills through the use of Dot Net Frameworks.	<ul style="list-style-type: none"> <li>• Use Dot Net Framework along with the features of C#</li> <li>• Create websites to explore database connectivity</li> <li>• Analyze debugging WebPages through case studies</li> <li>• Use the different types of master page creation</li> <li>• Create different dynamic websites for applications</li> </ul>
J5ME1	Dot Net Programming	Global	To know the rapid development of powerful Window applications and	<ul style="list-style-type: none"> <li>• Understand the basic concept of dot net</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



			Web application which makes the web development easier.	<ul style="list-style-type: none"> <li>• Outline the control statements in dot net with sample programs</li> <li>• Analyze procedures and structures in dot net with real time examples</li> <li>• Disseminate knowledge in database with dot net</li> <li>• Explore web application with vb.net and asp.net</li> </ul>
J5ME2	Computer Graphics	Global	To know about computer graphics techniques and to implement the technologies in computer world.	<ul style="list-style-type: none"> <li>• Outline the need and basic concept of computer graphics</li> <li>• Explore various algorithms and its designs</li> <li>• Analyze the attributes of output primitives</li> <li>• Disseminate knowledge in 2-Dimensional geometric transformations</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				<ul style="list-style-type: none"> <li>Explore the concepts of 2-Dimensional viewing</li> </ul>
J5SB3	Skill Based III- Java Server Pages	Global	To impart knowledge on various concepts in Java server pages (JSP) and to develop practical aspects in the creation of Web pages.	<ul style="list-style-type: none"> <li>Outline the basic concepts of JSP</li> <li>Explore the JSP components</li> <li>Disseminate knowledge in scripting elements</li> <li>Outline the objects of JSP</li> <li>Explore how to work with database and understand the connectivity</li> </ul>
J5SB4	Skill Based IV- Php	Global	To be familiar with the structured approach by identifying the needs, interests and functionalities that helps in creating dynamic websites	<ul style="list-style-type: none"> <li>Demonstrate how server – side programming works on the web</li> <li>Use PHP built – in functions and creating custom functions</li> <li>Create a database in phpMyAdmin</li> <li>Create dynamic web pages</li> <li>Design websites for various</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				applications
J6CC17	Multimedia	Global	To understand the concept of multimedia and its applications	<ul style="list-style-type: none"> <li>• Outline the basic concepts of GUI</li> <li>• Explore the building blocks of multimedia</li> <li>• Create images, video and animations in multimedia</li> <li>• Explore the graphics with flash</li> <li>• Disseminate deep knowledge in action scripting</li> </ul>
J6CC19	Lab VII-Flash	Global	To develop Multimedia programming skills using Flash.	<ul style="list-style-type: none"> <li>• Apply tweens and articulated motions to morph shapes</li> <li>• Design, create and edit flash based navigation menus and interactive movies</li> <li>• Utilize flash components to create interactivity</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				<ul style="list-style-type: none"> <li>• Demonstrate load, control and remove movie clips and masks in movie content</li> <li>• Utilize and understand different sounds and sound formats in flash movies</li> </ul>
J6ME3	Artificial Intelligence	Global	To learn the need and basic concepts in artificial intelligence and their real time applications	<ul style="list-style-type: none"> <li>• Outline the needs and concepts of artificial intelligence in day-to-day life</li> <li>• Explore various search techniques</li> <li>• Disseminate various knowledge representation in AI</li> <li>• Explore the uncertainty techniques involved in AI</li> <li>• Analyze the learning concepts and methods</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



J6ME4	Data Mining And Data Warehousing	Global	On Successful Completion of this subject the students should have knowledge on Data mining Concepts	<ul style="list-style-type: none"> <li>Analyze data mining algorithms, methods, and tools</li> <li>Identify business applications of data mining</li> <li>Predict quantitative analysis report to make decisions</li> <li>Outline the developing areas web mining, text mining, and ethical aspects of data mining</li> <li>Compare the various applications of Data Mining</li> </ul>
J6ME5	Cloud Computing	Global	To give an introduction to cloud computing and its technologies	<ul style="list-style-type: none"> <li>Outline problems and evaluate various cloud computing solutions</li> <li>Outline Cloud service and deployment models</li> <li>Identify the architecture and infrastructure of cloud computing</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				<p>including SaaS, PaaS, IaaS, public cloud, private cloud, hybrid cloud and community cloud</p> <ul style="list-style-type: none"> <li>• Predict security issues and formulate recovery mechanisms</li> <li>• Understand the concept of virtualization</li> </ul>
J6ME6	Mobile Computing	Global	On Successful Completion of this subject the students should have knowledge on Mobile Computing Concepts and emerging technologies and applications.	<ul style="list-style-type: none"> <li>• Create the infrastructure to develop mobile communication systems</li> <li>• Assess the characteristics of emerging technologies in mobile communication</li> <li>• Critique new knowledge in the field of computer science by using appropriate research methodologies</li> <li>• Analyze on the various software kits available</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				<ul style="list-style-type: none"> <li>Assess the characteristics of Mobile Components and Applications</li> </ul>
J6SB5	Skill Based-V- Animation Technique – 1- Alice	Global	To develop programming skills and impart animation techniques using Alice.	<ul style="list-style-type: none"> <li>Explore the interface concepts in Alice</li> <li>Understand how to set the scene and characters in Alice</li> <li>Analyze the programming skills and expertise</li> <li>Disseminate various event handling techniques and methods</li> <li>Assess the characteristics of 3D and billboards and various sound effect options</li> </ul>
J6SB6	Skill Based-VI- Image J	Global	To develop image processing and analyzing skills using ImageJ	<ul style="list-style-type: none"> <li>Outline the basic concepts of imageJ</li> <li>Understand the methods, operations and techniques</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				<ul style="list-style-type: none"> <li>Analyze image generation techniques</li> <li>Illustrate working with macro commands in imageJ</li> <li>Disseminate plug-ins in imageJ</li> </ul>
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## 2016 - 2017

COURSE CODE	COURSE TITLE	NATURE OF THE COURSE (LOCAL/ NATIONAL/ REGIONAL/ GLOBAL)	COURSE DESCRIPTION	COURSE OBJECTIVES
J1CC1	Digital Principles & Computer Organization	National	To know about computers, learn the basics and take advantage of the latest technologies in the field of	<ul style="list-style-type: none"> <li>Acquire basic understanding of Digital Principles</li> <li>Illustrate how number systems are</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



			computers and information technology	implemented in DP <ul style="list-style-type: none"> <li>Utilize the knowledge of Gates and Logic Design</li> </ul>
J1CC2	Programming in C	Global	To learn the basic knowledge of structured programming in C control structures, data structures and functions-along with basic problem solving techniques; to introduce software testing and to teach module testing techniques.	<ul style="list-style-type: none"> <li>Acquire basic understanding of C programming</li> <li>Illustrate how arrays and strings are implemented in C</li> <li>Utilize the knowledge of Functions and Pointers</li> <li>Analyze the memory management concept in C using structure and Unions</li> <li>Outline the file operations in C</li> </ul>
J1CC3	Lab I- C	Global	To develop programming skills in C. To learn the practical implementation of structured programming	<ul style="list-style-type: none"> <li>Acquire basic understanding of C programming</li> <li>Illustrate how arrays and strings are implemented in C</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



			using control structures and functions along with basic problem solving techniques	<ul style="list-style-type: none"> <li>Utilize the knowledge of Functions and Pointers</li> <li>Analyze the memory management concept in C using structure and Unions</li> <li>Outline the file operations in C</li> </ul>
J1NME1	Non Major Elective – I Multimedia Lab – Flash	Global	To develop Multimedia programming skills using Flash. This course helps to become familiar with the elements and tools in Flash that is used to create interactive animated media such as motion graphics, videos, presentations and websites	<ul style="list-style-type: none"> <li>Apply tweens and articulated motions to morph shapes</li> <li>Design, create and edit flash based navigation menus and interactive movies</li> <li>Utilize flash components to create interactivity</li> <li>Demonstrate load, control and remove movie clips and masks in movie content</li> <li>Utilize and understand</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				different sounds and sound formats in flash movies Publish flash movies in numerous formats and contexts .
J2CC4	Data Structures & Algorithms	Global	To familiarize students with the concept of various data structures and the logic behind their workings	<ul style="list-style-type: none"> <li>• Assess the concepts in design an analysis.</li> <li>• Illustrate the usage of ADT's</li> <li>• Analyze advanced features of Trees &amp; Graphs</li> </ul>
J2CC5	Object Oriented Programming in C++	Global	To introduce Object Oriented Programming concepts using C++ and improve OOP Skills.	<ul style="list-style-type: none"> <li>• Assess the object – oriented concepts in C++</li> <li>• Illustrate the usage of Functions in C++</li> <li>• Analyze advanced features of C++ specifically stream I/O and overloading</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				<ul style="list-style-type: none"> <li>• Demonstrate on Inheritance and Virtual Classes</li> <li>• Outline the file operations in C++</li> </ul>
J2CC6	Lab-Ii-Object Oriented Programming in C++	Global	To develop object oriented programming skills using C++.	<ul style="list-style-type: none"> <li>• Read, understand and trace the execution of programs written in C++ language</li> <li>• Demonstrate class and object functions</li> <li>• Assess operator overloading and function overloading to specific problem definition</li> <li>• Demonstrate file operations in C++.</li> <li>• Write C++ code to demonstrate each concept</li> </ul>
J2CC7	Operating System	Global	To have a depth knowledge about the functionalities of the operating systems and	<ul style="list-style-type: none"> <li>• Analyze on the various Scheduling Algorithms</li> </ul>



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**Year** : 2015 - 2020



			have a thorough knowledge about the Linux programming.	<ul style="list-style-type: none"> <li>Disseminate Paging, Segmentation &amp; Deadlocks</li> <li>Apply Page Replacement commands in real time applications</li> </ul>
J3CC8	Relational Database Management Systems	Global	To have in-depth knowledge in the database concepts.	<ul style="list-style-type: none"> <li>Understand the basic concepts of database and relational database management systems</li> <li>Analyze the various normalization concepts</li> <li>Disseminate SQL commands to create tables and indexes</li> <li>Apply DDL and DML commands in real time applications</li> <li>Write dynamic queries and programming language SQL to demonstrate the concept of RDBMS</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



J3ACG3	Graph Theory	Global	To introduce graph theory and equip students with the numerical methods to solve problems.	<ul style="list-style-type: none"> <li>• Understand the need and basic concept of Graph Theory</li> <li>• Analyze the various Numerical Methods</li> <li>• Apply the theorems of Graphs in many applications</li> </ul>
J3CC9	Lab III- Relational Database Management System	Global	To give in-depth practical approach to the database concepts.	<ul style="list-style-type: none"> <li>• Critique SQL commands to create tables and indexes</li> <li>• Apply DDL and DML commands in real time applications</li> <li>• Understand the needs of triggering applications</li> <li>• Disseminate knowledge of RDBMS and SQL, both in terms of design and implementation usage</li> <li>• Write dynamic queries to</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				demonstrate the concepts of RDBMS
J3SB1	Skill Based –I- PC Software Lab	Global	To give programming skills on various concepts in MS Office	<ul style="list-style-type: none"> <li>Outline the basic formatting features of MS Package</li> <li>Disseminate the elements of Word, Excel and PowerPoint</li> <li>Explore the methods involved in Mail Merging &amp; Presentations</li> </ul>
J4CC10	Web Programming	Global	To impart knowledge on various concepts in internet – html – Active Server Pages.	<ul style="list-style-type: none"> <li>Select and apply mark-up languages for processing and presenting information in web pages.</li> <li>Design and implement dynamic websites with good aesthetic sense of designing.</li> <li>Use fundamental skills to maintain web server services required to host a website.</li> <li>Prepare the students to write a well</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				<p>formed DB connection</p> <ul style="list-style-type: none"> <li>• Create WebPages for any application using database connectivity</li> </ul>
J4CC11	Software Engineering	Global	<p>Aims to provide a thorough knowledge about various phases involved in software development along with the testing techniques</p>	<ul style="list-style-type: none"> <li>• Compare the various software models</li> <li>• Use knowledge, techniques, skills and modern tools necessary for software engineering practice</li> <li>• Analyze on the design factors and guidelines</li> <li>• Understand the different types of testing used in software's</li> <li>• Compare the various types of Testing styles</li> </ul>
J4AC4	Financial Accounting And	Global	<p>To define the set of accounting method and disclosure practices from</p>	<ul style="list-style-type: none"> <li>• Understand the basic principles of accounting</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



	Tally		<p>which firms select when providing information to external parties. The primary emphasis of this course is to assist you in developing the skills required to interpret, analyze and evaluate information contained in published financial statements. To gain in-depth knowledge in Accounting package - Tally.</p>	<ul style="list-style-type: none"> <li>Analyze the final accounts and its classification</li> <li>Acquire knowledge in maintaining cash books</li> <li>Disseminate thorough understanding of TALLY package</li> <li>Perform and manage stock and go down entries in the form of vouchers</li> </ul>
J4CC12	Lab IV - Web Programming	Global	<p>To impart the practical aspects in the development of web pages.</p>	<ul style="list-style-type: none"> <li>Select and apply mark-up languages for processing and presenting information in web pages.</li> <li>Design and implement dynamic websites with good aesthetic sense</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				<p>of designing.</p> <ul style="list-style-type: none"> <li>• Use fundamental skills to maintain web server services required to host a website.</li> <li>• Prepare the students to write a well formed DB connection</li> <li>• Create WebPages for any application</li> </ul>
J4SB2	Skill Based Lab II - Introduction To Photoshop	Global	To introduce and impart knowledge and skills about Photoshop.	<ul style="list-style-type: none"> <li>• Understand the basic photoshop tools</li> <li>• Outline the resizing options available in photoshop</li> <li>• Explore various rotation operations</li> <li>• Disseminate filter operations in photoshop</li> <li>• Analyze various distort filter operations in photoshop</li> </ul>



**Criterion** : I – Curricular Aspects

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**Year** : 2015 - 2020



J5CC13	Computer Networks	Global	To become an efficient administrator in networking side, the concept of data communication is being introduced.	<ul style="list-style-type: none"> <li>Outline the functionalities of OSI reference model</li> <li>Discuss guided and unguided media and its real time usage and applications</li> <li>Analyze on the design issues of DLL</li> <li>Demonstrate various routing algorithms through case studies</li> <li>Assess real time web and network security mechanisms</li> </ul>
J5CC14	Java Programming	Global	To develop OOPS Programming, To develop Multithreaded Programs, To develop GUI Applications	<ul style="list-style-type: none"> <li>Acquire in depth knowledge in Java programming concepts</li> <li>Identify and analyze platform independent environment and byte code generation</li> <li>Build, Execute and Debug java</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				<p>programs along with Exceptions</p> <ul style="list-style-type: none"> <li>• Design and Implement packages</li> <li>• Write, Compile and Execute applet programs which includes GUI</li> </ul>
J5CC15	Lab V- Java Programming	Global	To acquire practical knowledge on Object Oriented Programming using Multithreading, Exceptions, GUI & database Applications	<ul style="list-style-type: none"> <li>• Acquire in depth knowledge in Java programming concepts</li> <li>• Identify and analyze platform independent environment and byte code generation</li> <li>• Build, Execute and Debug java programs along with Exceptions</li> <li>• Design and Implement packages</li> <li>• Write, Compile and Execute applet programs which includes GUI</li> </ul>
J5CC16	Lab VI- Dot Net Programming	Global	To develop web programming skills through the use of Dot Net	<ul style="list-style-type: none"> <li>• Use Dot Net Framework along with the features of C#</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



			Frameworks.	<ul style="list-style-type: none"> <li>• Create websites to explore database connectivity</li> <li>• Analyze debugging WebPages through case studies.</li> <li>• Use the different types of master page creation .</li> <li>• Create different dynamic websites for applications.</li> </ul>
J5ME1	Dot Net Programming	Global	To know the rapid development of powerful Window applications and Web application which makes the web development easier.	<ul style="list-style-type: none"> <li>• Understand the basic concept of dot net</li> <li>• Outline the control statements in dot net with sample programs</li> <li>• Analyze procedures and structures in dot net with real time examples</li> <li>• Disseminate knowledge in database with dot net</li> <li>• Explore web application with vb.net</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				and asp.net
J5ME2	Computer Graphics	Global	To know about computer graphics techniques and to implement the technologies in computer world.	<ul style="list-style-type: none"> <li>• Outline the need and basic concept of computer graphics</li> <li>• Explore various algorithms and its designs</li> <li>• Analyze the attributes of output primitives</li> <li>• Disseminate knowledge in 2-Dimensional geometric transformations</li> <li>• Explore the concepts of 2-Dimensional viewing</li> </ul>
J5SB3	Skill Based III- Animation Technique I - Flash	Global	To develop Multimedia programming skills using Flash	<ul style="list-style-type: none"> <li>• Outline on the basic concepts of Flash</li> <li>• Explore the Flash components</li> <li>• Disseminate knowledge in Action</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				scripting
J5SB4	Skill Based IV- Php	Global	To be familiar with the structured approach by identifying the needs, interests and functionalities that helps in creating dynamic websites	<ul style="list-style-type: none"> <li>• Demonstrate how server – side programming works on the web</li> <li>• Use PHP built – in functions and creating custom functions</li> <li>• Create a database in phpMyAdmin</li> <li>• Create dynamic web pages</li> <li>• Design websites for various applications</li> </ul>
J6CC17	Advanced Java	Global	To understand the concept of multimedia and its applications	<ul style="list-style-type: none"> <li>• Familiarize students with Object Oriented Applications.</li> <li>• Impart knowledge on Packages and Threads</li> <li>• Create Applications with database connectivity, along with Applets</li> </ul>
J6CC19	Lab VII-	Global	To understand the concept	<ul style="list-style-type: none"> <li>• Familiarize students with Object</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



	Advanced Java		of multimedia and its applications	<p>Oriented Applications.</p> <ul style="list-style-type: none"> <li>• Impart knowledge on Packages and Threads</li> <li>• Create Applications with database connectivity, along with Applets</li> </ul>
J6ME3	Image Processing	Global	To provide an introduction to graphics and image processing	<ul style="list-style-type: none"> <li>• Understand the basic concepts of image processing</li> <li>• Analyze intensity transformations and spatial filtering mechanisms</li> <li>• Disseminate image restoration and reconstruction methods</li> <li>• Analyze wavelets and image compression techniques</li> <li>• Outline image segmentation and edge detection techniques</li> </ul>
J6ME4	Data Mining	Global	On Successful Completion of this subject the students	<ul style="list-style-type: none"> <li>• Analyze data mining algorithms,</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



	And Data Warehousing		should have knowledge on Data mining Concepts	<p>methods, and tools</p> <ul style="list-style-type: none"> <li>Identify business applications of data mining</li> <li>Predict quantitative analysis report to make decisions</li> <li>Outline the developing areas web mining, text mining, and ethical aspects of data mining</li> <li>Compare the various applications of Data Mining</li> </ul>
J6ME5	Major Elective – III - CLOUD COMPUTING	Global	To give an introduction to cloud computing and its technologies	<ul style="list-style-type: none"> <li>Outline problems and evaluate various cloud computing solutions</li> <li>Outline Cloud service and deployment models</li> <li>Identify the architecture and infrastructure of cloud computing including SaaS, PaaS, IaaS, public</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				<p>cloud, private cloud, hybrid cloud and community cloud</p> <ul style="list-style-type: none"> <li>• Predict security issues and formulate recovery mechanisms</li> <li>• Understand the concept of virtualization</li> </ul>
J6ME6	Major Elective – III MOBILE COMPUTING	Global	On Successful Completion of this subject the students should have knowledge on Mobile Computing Concepts and emerging technologies and applications.	<ul style="list-style-type: none"> <li>• Create the infrastructure to develop mobile communication systems</li> <li>• Assess the characteristics of emerging technologies in mobile communication</li> <li>• Critique new knowledge in the field of computer science by using appropriate search methodologies</li> <li>• Analyze on the various software kits available</li> <li>• Assess the characteristics of Mobile</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				Components and Applications
J6SB5	Skill Based-V- Alice	Global	To develop programming skills and impart animation techniques using Alice.	<ul style="list-style-type: none"> <li>• Explore the interface concepts in Alice</li> <li>• Understand how to set the scene and characters in Alice</li> <li>• Analyze the programming skills and expertise</li> <li>• Disseminate various event handling techniques and methods</li> <li>• Assess the characteristics of 3D and billboards and various sound effect options</li> </ul>
J6SB6	Skill Based-VI- Image J	Global	To develop image processing and analyzing skills using ImageJ	<ul style="list-style-type: none"> <li>• Outline the basic concepts of image j</li> <li>• Understand the methods, operations and techniques</li> <li>• Analyze image generation</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				<p>techniques</p> <ul style="list-style-type: none"> <li>• Illustrate working with macro commands in imageJ</li> <li>• Disseminate plug-ins in imageJ</li> </ul>
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### 2015 – 2016

COURSE CODE	COURSE TITLE	NATURE OF THE COURSE (LOCAL/ NATIONAL/ REGIONAL/ GLOBAL)	COURSE DESCRIPTION	COURSE OBJECTIVES
J1CC1	Digital Principles & Computer Organization	National	To know about computers, learn the basics and take advantage of the latest technologies in the field of	<ul style="list-style-type: none"> <li>• Acquire basic understanding of Digital Principles</li> <li>• Illustrate how number systems are</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



			computers and information technology	implemented in DP <ul style="list-style-type: none"> <li>Utilize the knowledge of Gates and Logic Design</li> </ul>
J1CC2	Programming in C	Global	To learn the basic knowledge of structured programming in C control structures, data structures and functions-along with basic problem solving techniques; to introduce software testing and to teach module testing techniques.	<ul style="list-style-type: none"> <li>Acquire basic understanding of C programming</li> <li>Illustrate how arrays and strings are implemented in C</li> <li>Utilize the knowledge of Functions and Pointers</li> <li>Analyze the memory management concept in C using structure and Unions</li> <li>Outline the file operations in C</li> </ul>
J1CC3	Lab I- C	Global	To develop programming skills in C.To learn the practical implementation of structured programming	<ul style="list-style-type: none"> <li>Acquire basic understanding of C programming</li> <li>Illustrate how arrays and strings are</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



			using control structures and functions along with basic problem solving techniques	<p>implemented in C</p> <ul style="list-style-type: none"> <li>Utilize the knowledge of Functions and Pointers</li> <li>Analyze the memory management concept in C using structure and Unions</li> <li>Outline the file operations in C</li> </ul>
J1NME1	Non Major Elective – I Multimedia Lab – Flash	Global	To develop Multimedia programming skills using Flash. This course helps to become familiar with the elements and tools in Flash that is used to create interactive animated media such as motion graphics , videos, presentations and websites	<ul style="list-style-type: none"> <li>Apply tweens and articulated motions to morph shapes</li> <li>Design, create and edit flash based navigation menus and interactive movies</li> <li>Utilize flash components to create interactivity</li> <li>Demonstrate load, control and remove movie clips and masks in movie content</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				<ul style="list-style-type: none"> <li>Utilize and understand different sounds and sound formats in flash movies</li> <li>Publish flash movies in numerous formats and contexts</li> </ul>
J2CC4	Data Structures & Algorithms	Global	To familiarize students with the concept of various data structures and the logic behind their workings	<ul style="list-style-type: none"> <li>Assess the concepts in design and analysis</li> <li>Illustrate the usage of ADT's</li> <li>Analyze advanced features of Trees &amp; Graphs</li> </ul>
J2CC5	Object Oriented Programming In C++	Global	To introduce Object Oriented Programming concepts using C++ and improve OOP Skills.	<ul style="list-style-type: none"> <li>Assess the object – oriented concepts in C++</li> <li>Illustrate the usage of Functions in C++</li> <li>Analyze advanced features of C++ specifically stream I/O and</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				overloading <ul style="list-style-type: none"> <li>• Demonstrate on Inheritance and Virtual Classes</li> <li>• Outline the file operations in C++</li> </ul>
J2CC6	Lab-II -Object Oriented Programming In C++	Global	To develop object oriented programming skills using C++.	<ul style="list-style-type: none"> <li>• Read, understand and trace the execution of programs written in C++ language</li> <li>• Demonstrate class and object functions</li> <li>• Assess operator overloading and function overloading to specific problem definition</li> <li>• Demonstrate file operations in C++.</li> <li>• Write C++ code to demonstrate each concept</li> </ul>
J3CC7	Operating	Global	To have a depth knowledge	<ul style="list-style-type: none"> <li>• Analyze on the various Scheduling</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



	System		about the functionalities of the operating systems and have a thorough knowledge about the Linux programming.	<p>Algorithms</p> <ul style="list-style-type: none"> <li>Disseminate Paging, Segmentation &amp; Deadlocks</li> <li>Apply Page Replacement commands in real time applications</li> </ul>
J3CC8	Relational Database Management Systems	Global	To have in-depth knowledge in the database concepts.	<ul style="list-style-type: none"> <li>Understand the basic concepts of database and relational database management systems</li> <li>Analyze the various normalization concepts</li> <li>Disseminate SQL commands to create tables and indexes</li> <li>Apply DDL and DML commands in real time applications</li> <li>Write dynamic queries and programming language SQL to demonstrate the concept of RDBMS</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



J3AC3	Graph Theory And Numerical Methods	Global	To introduce graph theory and equip students with the numerical methods to solve problems.	<ul style="list-style-type: none"> <li>Understand the need and basic concept of Graph Theory</li> <li>Analyze the various Numerical Methods</li> <li>Apply the theorems of Graphs in many applications</li> </ul>
J3CC9	Lab III - Oracle	Global	To give in-depth practical approach to the database concepts.	<ul style="list-style-type: none"> <li>Critique SQL commands to create tables and indexes</li> <li>Apply DDL and DML commands in real time applications</li> <li>Understand the needs of triggering applications</li> <li>Disseminate knowledge of RDBMS and SQL, both in terms of design and implementation usage</li> <li>Write dynamic queries to</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				demonstrate the concepts of RDBMS
J3SB1	Skill Based –I- Pc Software Lab	Global	To give programming skills on various concepts in MS Office	<ul style="list-style-type: none"> <li>Outline the basic formatting features of MS Package</li> <li>Disseminate the elements of Word, Excel and PowerPoint</li> <li>Explore the methods involved in Mail Merging &amp; Presentations</li> </ul>
J4CC10	Web Programming	Global	To impart knowledge on various concepts in internet – html – Active Server Pages.	<ul style="list-style-type: none"> <li>Select and apply mark-up languages for processing and presenting information in web pages.</li> <li>Design and implement dynamic websites with good aesthetic sense of designing.</li> <li>Use fundamental skills to maintain web server services required to host a website.</li> <li>Prepare the students to write a well</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				<p>formed DB connection</p> <ul style="list-style-type: none"> <li>• Create WebPages for any application using database connectivity</li> </ul>
J4CC11	Software Engineering	Global	<p>Aims to provide a thorough knowledge about various phases involved in software development along with the testing techniques</p>	<ul style="list-style-type: none"> <li>• Compare the various software models</li> <li>• Use knowledge, techniques, skills and modern tools necessary for software engineering practice</li> <li>• Analyze on the design factors and guidelines</li> <li>• Understand the different types of testing used in software's</li> <li>• Compare the various types of Testing styles</li> </ul>
J4AC4	Financial Accounting And	Global	<p>To define the set of accounting method and disclosure practices from</p>	<ul style="list-style-type: none"> <li>• Understand the basic principles of accounting</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



	Tally		<p>which firms select when providing information to external parties. The primary emphasis of this course is to assist you in developing the skills required to interpret, analyze and evaluate information contained in published financial statements. To gain in-depth knowledge in Accounting package - Tally.</p>	<ul style="list-style-type: none"> <li>Analyze the final accounts and its classification</li> <li>Acquire knowledge in maintaining cash books</li> <li>Disseminate thorough understanding of TALLY package</li> <li>Perform and manage stock and go down entries in the form of vouchers</li> </ul>
J4CC12	Lab IV- Web Programming	Global	<p>To impart the practical aspects in the development of web pages.</p>	<ul style="list-style-type: none"> <li>Select and apply mark-up languages for processing and presenting information in web pages.</li> <li>Design and implement dynamic websites with good aesthetic sense</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				<p>of designing.</p> <ul style="list-style-type: none"> <li>• Use fundamental skills to maintain web server services required to host a website.</li> <li>• Prepare the students to write a well formed DB connection</li> <li>• Create WebPages for any application</li> </ul>
J4SB2	Skill Based Lab II -Introduction To Photoshop	Global	To introduce and impart knowledge and skills about Photoshop.	<ul style="list-style-type: none"> <li>• Understand the basic photoshop tools</li> <li>• Outline the resizing options available in photoshop</li> <li>• Explore various rotation operations</li> <li>• Disseminate filter operations in photoshop</li> <li>• Analyze various distort filter operations in photoshop</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



J5CC13	Computer Networks	Global	To become an efficient administrator in networking side, the concept of data communication is being introduced.	<ul style="list-style-type: none"> <li>Outline the functionalities of OSI reference model</li> <li>Discuss guided and unguided media and its real time usage and applications</li> <li>Analyze on the design issues of DLL</li> <li>Demonstrate various routing algorithms through case studies</li> <li>Assess real time web and network security mechanisms</li> </ul>
J5CC14	Java Programming	Global	To develop OOPS Programming, To develop Multithreaded Programs, To develop GUI Applications	<ul style="list-style-type: none"> <li>Acquire in depth knowledge in Java programming concepts</li> <li>Identify and analyze platform independent environment and byte code generation</li> <li>Build, Execute and Debug java</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				<p>programs along with Exceptions</p> <ul style="list-style-type: none"> <li>• Design and Implement packages</li> <li>• Write, Compile and Execute applet programs which includes GUI</li> </ul>
J5CC15	Lab V- Java Programming	Global	To acquire practical knowledge on Object Oriented Programming using Multithreading, Exceptions, GUI & database Applications	<ul style="list-style-type: none"> <li>• Acquire in depth knowledge in Java programming concepts</li> <li>• Identify and analyze platform independent environment and byte code generation</li> <li>• Build, Execute and Debug java programs along with Exceptions</li> <li>• Design and Implement packages</li> <li>• Write, Compile and Execute applet programs which includes GUI</li> </ul>
J5CC16	Lab VI- Dot Net Programming	Global	To develop web programming skills through the use of Dot Net	<ul style="list-style-type: none"> <li>• Use Dot Net Framework along with the features of C#</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



			Frameworks.	<ul style="list-style-type: none"> <li>• Create websites to explore database connectivity</li> <li>• Analyze debugging WebPages through case studies</li> <li>• Use the different types of master page creation</li> <li>• Create different dynamic websites for applications</li> </ul>
J5ME1	Dot Net Programming	Global	To know the rapid development of powerful Window applications and Web application which makes the web development easier.	<ul style="list-style-type: none"> <li>• Understand the basic concept of dot net</li> <li>• Outline the control statements in dot net with sample programs</li> <li>• Analyze procedures and structures in dot net with real time examples</li> <li>• Disseminate knowledge in database with dot net</li> <li>• Explore web application with vb.net</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				and asp.net
J5ME2	Computer Security	Global	To provide in-depth knowledge about Cryptography and Network Security	<ul style="list-style-type: none"> <li>Outline the need and basic concept of computer Security</li> <li>Explore various algorithms and its designs of security</li> <li>Analyze the attributes of Attacks &amp; service with Security features</li> </ul>
J5SB3	Skill Based III - Java Server Pages	Global	To impart knowledge on various concepts in Java server pages (JSP) and to develop practical aspects in the creation of Web pages.	<ul style="list-style-type: none"> <li>Outline the basic concepts of JSP</li> <li>Explore the JSP components</li> <li>Disseminate knowledge in scripting elements</li> <li>Outline the objects of JSP</li> <li>Explore how to work with database and understand the connectivity</li> </ul>
J5SB4	Skill Based IV- Php	Global	To be familiar with the structured approach by	<ul style="list-style-type: none"> <li>Demonstrate how server – side</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



			identifying the needs, interests and functionalities that helps in creating dynamic websites	<p>programming works on the web</p> <ul style="list-style-type: none"> <li>• Use PHP built – in functions and creating custom functions</li> <li>• Create a database in phpMyAdmin</li> <li>• Create dynamic web pages</li> <li>• Design websites for various applications</li> </ul>
J6CC17	Multimedia	Global	To understand the concept of multimedia and its applications	<ul style="list-style-type: none"> <li>• Outline the basic concepts of GUI</li> <li>• Explore the building blocks of multimedia</li> <li>• Create images, video and animations in multimedia</li> <li>• Explore the graphics with flash</li> <li>• Disseminate deep knowledge in action scripting</li> </ul>
J6CC19	Lab VII-Flash	Global	To develop Multimedia	<ul style="list-style-type: none"> <li>• Apply tweens and articulated</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



			programming skills using Flash.	<p>motions to morph shapes</p> <ul style="list-style-type: none"> <li>• Design, create and edit flash based navigation menus and interactive movies</li> <li>• Utilize flash components to create interactivity</li> <li>• Demonstrate load, control and remove movie clips and masks in movie content</li> <li>• Utilize and understand different sounds and sound formats in flash movies</li> </ul>
J6ME3	Computer Graphics & Image Processing	Global	To provide an introduction to graphics and image processing	<ul style="list-style-type: none"> <li>• Understand the basic concepts of image processing</li> <li>• Analyze intensity transformations and spatial filtering mechanisms</li> <li>• Disseminate image restoration and</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				reconstruction methods <ul style="list-style-type: none"> <li>Analyze wavelets and image compression techniques</li> <li>Outline image segmentation and edge detection techniques</li> </ul>
J6ME4	Data Mining And Data Warehousing	Global	On Successful Completion of this subject the students should have knowledge on Data mining Concepts	<ul style="list-style-type: none"> <li>Analyze data mining algorithms, methods, and tools</li> <li>Identify business applications of data mining</li> <li>Predict quantitative analysis report to make decisions</li> <li>Outline the developing areas web mining, text mining, and ethical aspects of data mining</li> <li>Compare the various applications of Data Mining</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



J6ME5	Cloud Computing	Global	To give an introduction to cloud computing and its technologies	<ul style="list-style-type: none"> <li>Outline problems and evaluate various cloud computing solutions</li> <li>Outline Cloud service and deployment models</li> <li>Identify the architecture and infrastructure of cloud computing including SaaS, PaaS, IaaS, public cloud, private cloud, hybrid cloud and community cloud</li> <li>Predict security issues and formulate recovery mechanisms</li> <li>Understand the concept of virtualization</li> </ul>
J6ME6	Mobile Computing	Global	On Successful Completion of this subject the students should have knowledge on Mobile Computing	<ul style="list-style-type: none"> <li>Create the infrastructure to develop mobile communication systems</li> <li>Assess the characteristics of emerging technologies in mobile</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



			Concepts and emerging technologies and applications.	<p>communication</p> <ul style="list-style-type: none"> <li>• Critique new knowledge in the field of computer science by using appropriate search methodologies</li> <li>• Analyze on the various software kits available</li> <li>• Assess the characteristics of Mobile Components and Applications</li> </ul>
J6SB5	Skill Based-V-Alice	Global	To develop programming skills and impart animation techniques using Alice.	<ul style="list-style-type: none"> <li>• Explore the interface concepts in alice</li> <li>• Understand how to set the scene and characters in alice</li> <li>• Analyze the programming skills and expertise</li> <li>• Disseminate various event handling techniques and methods</li> <li>• Assess the characteristics of 3D and</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				billboards and various sound effect options
J6SB6	Skill Based-VI- Imagej	Global	To develop image processing and analyzing skills using ImageJ	<ul style="list-style-type: none"> <li>• Outline the basic concepts of imageJ</li> <li>• Understand the methods, operations and techniques</li> <li>• Analyze image generation techniques</li> <li>• Illustrate working with macro commands in imageJ</li> <li>• Disseminate plug-ins in imageJ</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



## FATIMA COLLEGE (AUTONOMOUS), MADURAI – 625018

**NAME OF THE PROGRAMME:** P.G.D.C.A

**PROGRAMME CODE:** OSCA

**2019 - 2020**

COURSE CODE	COURSE TITLE	NATURE OF THE COURSE (LOCAL/ NATIONAL/ REGIONAL/ GLOBAL)	COURSE DESCRIPTION	COURSE OUTCOMES
19PDB101	Computer Fundamentals and OS	National	Basics of Computer Fundamentals course begins with basic concepts and builds quickly to intermediate skills and techniques.	<b>CO 1:</b> Bridge the fundamental concepts of computers with the present level of knowledge of the students.  <b>CO 2:</b> Understand binary, hexadecimal and octal number systems and their arithmetic



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				<p><b>CO 3:</b> Familiarise operating systems, programming languages, peripheral devices, networking, multimedia and internet.</p> <p><b>CO 4:</b> Learner will be able to appreciate the role of operating system as System software.</p> <p><b>CO 5:</b> To control the behaviour of OS by writing Shell scripts.</p>
19PDB102	Problem solving using C	National	To develop programs using C programming language, in order to solve simple to moderate problems	<p><b>CO 1:</b> Understand the fundamentals of C programming</p> <p><b>CO 2:</b> Choose the loops and decision making statements to solve the problem.</p> <p><b>CO 3:</b> Implement different Operations on arrays</p> <p><b>CO 4:</b> Use functions to solve the</p>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				<p>given problem.</p> <p><b>CO 5:</b> Program with pointers and arrays, perform pointer arithmetic, and use the pre-processor. the students will be able to develop applications</p>
19PDB103	Web Designing	National	<p>To planning &amp; designing effective web pages; implementing web pages by writing HTML and CSS code;</p>	<p><b>CO 1:</b> Student will discover how does web works really, what makes web sites work.</p> <p><b>CO 2:</b> Writing valid and concise code for web pages.</p> <p><b>CO 3:</b> To create web elements like buttons, banners.</p> <p><b>CO 4:</b> Forms and validations for your website.</p> <p><b>CO 5:</b> How to and where to start</p>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				research, planning for website & actually build excellent web sites.
19PDB104	Lab I – Programming in C	National	To develop programs using C programming language, in order to solve simple to moderate problems	<p><b>CO 1:</b> Illustrate flowchart and algorithm to the given problem</p> <p><b>CO 2:</b> Understand basic Structure of the C-PROGRAMMING, declaration and usage of variables</p> <p><b>CO 3:</b> Write C programs using operators</p> <p><b>CO 4:</b> Write C programs using Pointers to access arrays, strings and functions.</p> <p><b>CO 5:</b> Exercise user defined data types</p>
19PDB105	Lab II – Web Programming &	National	To provide the student with foundational	<b>CO 1:</b> Writing valid and concise code for web pages.



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



	Photo Editing Techniques		programming knowledge and skills for application development on the Internet. & To create and design digital images and illustrations for print and Web publication.	<p><b>CO 2:</b> To create web elements like buttons, banners.</p> <p><b>CO 3:</b> Forms and validations for your website.</p> <p><b>CO 4:</b> Students will gain a working knowledge of Photoshop.</p> <p><b>CO 5:</b> Preparation and processing photos for the Web</p>
19PDB106	Lab III – Tally with Spreadsheet	Local	To give an opportunity to the undergraduate student to get acquainted with Tally Accounting Software.	<p><b>CO 1:</b> To maintain a record of all monetary transactions</p> <p><b>CO 2:</b> To create balance sheet, voucher and ledgers.</p> <p><b>CO 3:</b> To Preview and print worksheets.</p> <p><b>CO 4:</b> Indicate the names and functions of the Excel interface</p>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				components. <b>CO 5:</b> Construct formulas, including the use of built-in functions, and relative and absolute references.
19PDB107	Mini Project	National	This course provides leadership and management guidelines for the project	<b>CO 1:</b> Demonstrate a sound technical knowledge of their selected <i>project topic</i> . <b>CO 2:</b> Undertake problem identification, formulation and solution. <b>CO 3:</b> Design engineering solutions to complex problems utilising a systems approach.
19PDB201	Database Management System	Global	Understand the role and nature of relational database management systems (RDBMS) in	<b>CO 1:</b> To describe data models and schemas in DBMS <b>CO 2:</b> To understand the features of



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



			<p>today's IT environment; Translate written business requirements into conceptual entity-relationship data models; Query and manipulate databases using the SQL Data Manipulation Language (DML)</p>	<p>database management systems and Relational database.</p> <p><b>CO 3:</b> To use SQL- the standard language of relational databases</p> <p><b>CO 4:</b> To understand the functional dependencies and design of the database.</p> <p><b>CO 5:</b> To understand the concept of Transaction and Query processing.</p>
19PDB202	Visual Basic	National	<p>Introduction to computer programming using VB. Emphasis on the fundamentals of structured design, development, testing, implementation, and</p>	<p><b>CO 1:</b> Understand Visual Basic applications.</p> <p><b>CO 2:</b> Develop a Graphical User Interface (GUI) based on problem description</p> <p><b>CO 3:</b> Understand how to perform</p>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



			documentation. Includes language syntax, data and file structures, input/output devices, and files.	<p>operations and store results</p> <p><b>CO 4:</b> Understand additional Visual Basic Controls.</p> <p><b>CO 5:</b> Understand loops to do repetition</p>
19PDB203	Lab VI – RDBMS	Global	<p>Understand the role and nature of relational database management systems (RDBMS) in today's IT environment;</p> <p>Translate written business requirements into conceptual entity-relationship data models;</p> <p>Query and manipulate databases using the SQL Data Manipulation Language (DML)</p>	<p><b>CO 1:</b> To describe data models and schemas in DBMS</p> <p><b>CO 2:</b> To understand the features of database management systems and Relational database.</p> <p><b>CO 3:</b> To use SQL- the standard language of relational databases</p> <p><b>CO 4:</b> To understand the functional dependencies and design of the database.</p> <p><b>CO 5:</b> To understand the concept of</p>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				Transaction and Query processing.
19PDB204	Lab VII – Visual Basic	National	Introduction to computer programming using VB. Emphasis on the fundamentals of structured design, development, testing, implementation, and documentation. Includes language syntax, data and file structures, input/output devices, and files.	<p><b>CO 1:</b> Understand Visual Basic applications.</p> <p><b>CO 2:</b> Develop a Graphical User Interface (GUI) based on problem description</p> <p><b>CO 3:</b> Understand how to perform operations and store results</p> <p><b>CO 4:</b> Understand additional Visual Basic Controls.</p> <p><b>CO 5:</b> Understand loops to do repetition</p>
PDB205	Project & Viva-Voce	Local	This course provides leadership and management guidelines for the project	<p><b>CO 1:</b> Demonstrate a sound technical knowledge of their selected <i>project topic</i>.</p> <p><b>CO 2:</b> Undertake problem</p>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				<p>identification, formulation and solution.</p> <p><b>CO 3:</b> Design engineering solutions to complex problems utilising a systems approach.</p>
PDB206	Internship	Local	<p>An <i>internship</i> experience provides the student with an opportunity to explore career interests while applying knowledge.</p>	<p><b>CO 1:</b> Explore career alternatives prior to graduation.</p> <p><b>CO 2:</b> Integrate theory and practice.</p> <p><b>CO 3:</b> Assess interests and abilities in their field of study.</p> <p><b>CO 4:</b> Learn to appreciate work and its function in the economy.</p>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



## 2018 - 2019

COURSE CODE	COURSE TITLE	NATURE OF THE COURSE (LOCAL/NATIONAL/ REGIONAL/GLOBAL)	COURSE DESCRIPTION	COURSE OBJECTIVES
PDB102	Web Designing	National	To planning & designing effective web pages; implementing web pages by writing HTML and CSS code;	<ul style="list-style-type: none"> <li>Students are able to develop a dynamic webpage.</li> </ul>
PDB103	Lab I – Programming in C	National	To develop programs using C programming language, in order to solve simple to moderate problems	<ul style="list-style-type: none"> <li>Ability to define and manage data structures based on problem subject domain.</li> </ul>
PDB104	Lab II – Web Programming	National	To planning & designing effective web pages;	<ul style="list-style-type: none"> <li>Students are able to develop a dynamic</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



			implementing web pages by writing HTML and CSS code.	webpage.
PDB105	Lab III – Tally with Spreadsheet	National	To give an opportunity to the undergraduate student to get acquainted with Tally Accounting Software.	<ul style="list-style-type: none"> <li>• To Create Financial Statements &amp; to identify</li> <li>• spreadsheet</li> <li>• terminology and concepts;</li> </ul>
PDB106	Lab IV - Photo Editing Techniques	Local	To create and design digital images and illustrations for print and Web publication.	<ul style="list-style-type: none"> <li>• To create and design digital images and illustrations for print and Web publication.</li> </ul>
PDB107	LIVE Mini Project	Local	This course provides leadership and management guidelines for the project	<ul style="list-style-type: none"> <li>• Demonstrate a sound technical knowledge of their selected project topic. Undertake problem</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				identification, formulation and solution. Design engineering solutions to complex problems utilising a systems approach.
PDB201	Object Oriented Programming using Java	Global	To build robust applications using Java's object-oriented features as well as develop platform-independent GUIs.	<ul style="list-style-type: none"> <li>On completion of the course the student should be able to: Use an integrated development environment to write, compile, run, and test simple object-oriented Java programs</li> </ul>
PDB202	Database Management System	Global	Understand the role and nature of relational database management systems (RDBMS) in	<ul style="list-style-type: none"> <li>At the end of this class, the successful student will: have a broad understanding of</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



			today's IT environment; Translate written business requirements into conceptual entity-relationship data models; Query and manipulate databases using the SQL Data Manipulation Language (DML);	database concepts and database management system software. have a high-level understanding of major DBMS <ul style="list-style-type: none"> <li>components and their function.</li> </ul>
PDB203	Lab V – Programming in Java	Global	To build robust applications using Java's object-oriented features as well as develop platform-independent GUIs.	<ul style="list-style-type: none"> <li>On completion of the course the student should be able to: Use an integrated development environment to write, compile, run, and test simple object-oriented Java programs</li> </ul>
PDB204	Lab VI – RDBMS	National	Understand the role and	<ul style="list-style-type: none"> <li>At the end of this class,</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



			<p>nature of relational database management systems (RDBMS) in today's IT environment; Translate written business requirements into conceptual entity-relationship data models; Query and manipulate databases using the SQL Data Manipulation Language (DML);</p>	<p>the successful student will: have a broad understanding of database concepts and database management system software. have a high-level understanding of major DBMS</p> <ul style="list-style-type: none"> <li>• components and their function.</li> </ul>
PDB205	Lab VII – Visual Basic	National	<p>Introduction to computer programming using VB. Emphasis on the fundamentals of structured design, development, testing, implementation, and</p>	<ul style="list-style-type: none"> <li>• Design, formulate, and construct applications with VB.NET. Integrate variables and constants into calculations applying VB</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



			documentation. Includes language syntax, data and file structures, input/output devices, and files.	
PDB206	Project	Regional	This course provides leadership and management guidelines for the project	<ul style="list-style-type: none"> <li>Demonstrate a sound technical knowledge of their selected project topic. Undertake problem identification, formulation and solution. Design engineering solutions to complex problems utilising a systems approach.</li> </ul>
PDB207	Internship	Local	An internship experience provides the student with	<ul style="list-style-type: none"> <li>Explore career alternatives prior to</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



			<p>an opportunity to explore career interests while applying knowledge.</p>	<p>graduation.</p> <ul style="list-style-type: none"> <li>• Integrate theory and practice.</li> <li>• Assess interests and abilities in their field of study.</li> <li>• Learn to appreciate work and its function in the economy.</li> </ul>
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**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



## 2017 - 2018

COURSE CODE	COURSE TITLE	NATURE OF THE COURSE (LOCAL/NATIONAL/ REGIONAL/GLOBAL)	COURSE DESCRIPTION	COURSE OBJECTIVES
PDB102	Web Designing	National	To planning & designing effective web pages; implementing web pages by writing HTML and CSS code;	<ul style="list-style-type: none"> <li>Students are able to develop a dynamic webpage.</li> </ul>
PDB103	Lab I – Programming in C	Global	To develop programs using C programming language, in order to solve simple to moderate problems	<ul style="list-style-type: none"> <li>Ability to define and manage data structures based on problem subject domain.</li> </ul>
PDB104	Lab II – Web	Global	To planning & designing	<ul style="list-style-type: none"> <li>Students are able to develop a dynamic</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



	Programming		effective web pages; implementing web pages by writing HTML and CSS code;	webpage.
PDB105	Lab III – Tally with Spreadsheet	National	To give an opportunity to the undergraduate student to get acquainted with Tally Accounting Software.	<ul style="list-style-type: none"> <li>To Create Financial Statements &amp; to identify</li> <li>spreadsheet</li> <li>terminology and concepts;</li> </ul>
PDB106	Lab IV - Photo Editing Techniques	Local	To create and design digital images and illustrations for print and Web publication.	<ul style="list-style-type: none"> <li>To create and design digital images and illustrations for print and Web publication.</li> </ul>
PDB201	Object Oriented Programming using Java	Global	To build robust applications using Java's object- oriented features as well as develop platform-	<ul style="list-style-type: none"> <li>On completion of the course the student should be able to: Use an integrated development</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



			independent GUIs.	environment to write, compile, run, and test simple object-oriented Java programs
PDB202	Database Management System	Global	Understand the role and nature of relational database management systems (DBMS) in today's IT environment; Translate written business requirements into conceptual entity-relationship data models; Query and manipulate databases using the SQL Data Manipulation Language (DML);	<ul style="list-style-type: none"> <li>At the end of this class, the successful student will: have a broad understanding of database concepts and database management system software. have a high-level understanding of major DBMS</li> <li>components and their function.</li> </ul>
PDB203	Lab V –	Global	To build robust	<ul style="list-style-type: none"> <li>On completion of</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



	Programming in Java		applications using Java's object-oriented features as well as develop platform-independent GUIs.	the course the student should be able to: Use an integrated development environment to write, compile, run, and test simple object-oriented Java programs
PDB204	Lab VI – RDBMS	Global	Understand the role and nature of relational database management systems (RDBMS) in today's IT environment; Translate written business requirements into conceptual entity-relationship data models; Query and manipulate databases using the SQL	<ul style="list-style-type: none"> <li>At the end of this class, the successful student will: have a broad understanding of database concepts and database management system software. have a high-level understanding of major DBMS</li> <li>components and their</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



			Data Manipulation Language (DML);	function.
PDB205	Lab VII – Visual Basic	National	Introduction to computer programming using VB. Emphasis on the fundamentals of structured design, development, testing, implementation, and documentation. Includes language syntax, data and file structures, input/output devices, and files.	<ul style="list-style-type: none"> <li>Design, formulate, and construct applications with VB.NET. Integrate variables and constants into calculations applying VB</li> </ul>
PDB206	Project	Regional	This course provides leadership and management guidelines for the project	<ul style="list-style-type: none"> <li>Demonstrate a sound technical knowledge of their selected project topic.</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



Undertake problem identification, formulation and solution. Design engineering solutions to complex problems utilizing a systems approach.

**2016 - 2017**

COURSE CODE	COURSE TITLE	NATURE OF THE COURSE (LOCAL/NATIONAL/ REGIONAL/GLOBAL)	COURSE DESCRIPTION	COURSE OBJECTIVES
PDB102	Programming in C	National	To develop programs using C	<ul style="list-style-type: none"> <li>Ability to define and manage data</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



			programming language , in order to solve simple to moderate problems	structures based on problem subject domain.
PDB103	Web Programming	Global	To planning & designing effective web pages; implementing web pag es by writing HTML and CSS code;	<ul style="list-style-type: none"> <li>Students are able to develop a dynamic webpage.</li> </ul>
PDB104	Lab I-DTP (CorelDraw, Photoshop)	National	To create and design digital images and illustrations for print and Web publication.	<ul style="list-style-type: none"> <li>Identify desktop publishing terminology and concepts.</li> <li>Manipulate text and</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				<p>graphics to create a balanced and focused layout.</p> <ul style="list-style-type: none"> <li>• Create fliers, brochures, and multiple page documents</li> </ul>
PDB105	Lab II – Programming in C	National	To develop programs using C programming language in order to solve simple to moderate problems.	<ul style="list-style-type: none"> <li>• Ability to define and manage data structures based on problem subject domain.</li> </ul>
PDB106	Lab III -Web Programming	Global	To planning & designing	<ul style="list-style-type: none"> <li>• Students are able to develop a dynamic</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



			effectIVe web pages; implementing web pag es by writing HTML and CSS code;	webpage.
PDB107	Lab – IV Animation Using Flash	Global	Flash is Primarily an animation tool for the Web : Web Banners, Animated Buttons, Web Animated Adverti sements.	<ul style="list-style-type: none"> <li>Learn to create animated graphics, add sound and interactivity. Can develop Website CD based presentations</li> </ul>
PDB201	Programming in JAVA	Global	To build robust applications using Java's object- oriented features as	<ul style="list-style-type: none"> <li>On completion of the course the student should be able to: Use an</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



			well as develop platform-independent GUIs.	integrated development environment to write, compile, run, and test simple object-oriented Java programs
PDB202	Introduction to RDBMS	Global	Understand the role and nature of relational database management systems (RDBMS) in today's IT environment; Translate written	<ul style="list-style-type: none"> <li>At the end of this class, the successful student will: have a broad understanding of database concepts and database management system software. have a</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



			business requirements into conceptual entity-relationship data models; Query and manipulate databases using the SQL Data Manipulation Language (DML);	high-level understanding of major DBMS <ul style="list-style-type: none"> <li>• components and their function.</li> </ul>
PDB203	Visual Basic	Global	Introduction to computer programming using VB. Emphasis on the fundamentals of structured design, development, testing, implementation, and	<ul style="list-style-type: none"> <li>• Design, formulate, and construct applications with VB.NET. Integrate variables and constants into calculations applying VB</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



			documentation. Includes language syntax, data and file structures, input/output devices, and files.	
PDB204	Lab – V Programming in JAVA	Global	To build robust applications using Java's object-oriented features as well as develop platform-independent GUIs.	<ul style="list-style-type: none"> <li>On completion of the course the student should be able to: Use an integrated development environment to write, compile, run, and test simple object-</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



				oriented Java programs
PDB205	Lab –VI RDBMS	Global	Understand the role and nature of relational database management systems (RDBMS) in today's IT environment; Translate written business requirements into conceptual entity-relationship data models; Query and manipulate databases using the SQL Data	<ul style="list-style-type: none"> <li>At the end of this class, the successful student will: have a broad understanding of database concepts and database management system software. have a high-level understanding of major DBMS</li> <li>components and their function.</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



			Manipulation Language (DML);	
PDB206	Lab-VII Visual Basic	National	Introduction to computer programming using VB. Emphasis on the fundamentals of structured design, development, testing, implementation, and documentation. Includes language syntax, data and file structures, input/output devices, and files.	<ul style="list-style-type: none"> <li>Design, formulate, and construct applications with VB.NET. Integrate variables and constants into calculations applying VB</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



PDB207	PROJECT	Regional	This <i>course</i> provides leadership and management guidelines for the <i>project</i>	<ul style="list-style-type: none"> <li>Demonstrate a sound technical knowledge of their selected <b><i>project</i></b> topic.</li> <li>Undertake problem identification, formulation and solution. Design engineering solutions to complex problems utilizing a systems approach.</li> </ul>
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**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



## 2015 - 2016

COURSE CODE	COURSE TITLE	NATURE OF THE COURSE (LOCAL/NATIONAL/ REGIONAL/GLOBAL)	COURSE DESCRIPTION	COURSE OBJECTIVES
PDB102	Programming in C	National	To develop programs using C programming language, in order to solve simple to moderate problems	<ul style="list-style-type: none"> <li>Ability to define and manage data structures based on problem subject domain.</li> </ul>
PDB103	Web Programming	National	To planning & designing effective web pages; implementing web pages by writing HTML and CSS code;	<ul style="list-style-type: none"> <li>Students are able to develop a dynamic webpage.</li> </ul>
PDB104	Lab I-DTP (CorelDraw,	Local	The program of online desktop publishing	<ul style="list-style-type: none"> <li>Identify desktop publishing terminology</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



	Photoshop)		and students to use computer software for designing and create a number of different document types, from email newsletters to PDF files.	<p>and concepts.</p> <ul style="list-style-type: none"> <li>Manipulate text and graphics to create a balanced and focused layout.</li> <li>Create fliers, brochures, and multiple page documents.</li> </ul>
PDB105	Lab II – Programming in C	National	To develop programs using C programming language, in order to solve simple to moderate problems	<ul style="list-style-type: none"> <li>Ability to define and manage data structures based on problem subject domain.</li> </ul>
PDB106	Lab III -Web Programming	Global	To planning & designing effective web pages; implementing web pages by writing HTML and CSS code;	<ul style="list-style-type: none"> <li>Students are able to develop a dynamic webpage.</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



PDB107	Lab – IV Animation Using Flash	Global	Flash is Primarily an animation tool for the Web : Web Banners, Animated Buttons, Web Animated Advertisements.	<ul style="list-style-type: none"> <li>Learn to create animated graphics, add sound and interactivity. Can develop Website CD based presentations</li> </ul>
PDB201	Programming in JAVA	Global	To build robust applications using Java's object-oriented features as well as develop platform-independent GUIs.	<ul style="list-style-type: none"> <li>On completion of the course the student should be able to: Use an integrated development environment to write, compile, run, and test simple object-oriented Java programs</li> </ul>
PDB202	Introduction to	Global	Understand the role and nature of relational	<ul style="list-style-type: none"> <li>At the end of this class, the successful student</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



	RDBMS		<p>database management systems (RDBMS) in today's IT environment; Translate written business requirements into conceptual entity-relationship data models; Query and manipulate databases using the SQL Data Manipulation Language (DML);</p>	<p>will: have a broad understanding of database concepts and database management system software. have a high-level understanding of major DBMS</p> <ul style="list-style-type: none"> <li>• components and their function.</li> </ul>
PDB203	Visual Basic	Global	<p>Introduction to computer programming using VB. Emphasis on the fundamentals of structured design, development, testing, implementation, and documentation. Includes</p>	<ul style="list-style-type: none"> <li>• Design, formulate, and construct applications with VB.NET. Integrate variables and constants into calculations applying VB</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



			language syntax, data and file structures, input/output devices, and files.	
PDB204	Lab – V Programming in JAVA	Global	To build robust applications using Java's object-oriented features as well as develop platform-independent GUIs.	<ul style="list-style-type: none"> <li>On completion of the course the student should be able to: Use an integrated development environment to write, compile, run, and test simple object-oriented Java programs</li> </ul>
PDB205	Lab –VI RDBMS	Global	Understand the role and nature of relational database management systems (RDBMS) in today's IT environment;	<ul style="list-style-type: none"> <li>At the end of this class, the successful student will: have a broad understanding of database concepts and</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



			Translate written business requirements into conceptual entity-relationship data models; Query and manipulate databases using the SQL Data Manipulation Language (DML);	database management system software. have a high-level understanding of major DBMS <ul style="list-style-type: none"> <li>components and their function.</li> </ul>
PDB206	Lab-VII Visual Basic	Local	Introduction to computer programming using VB. Emphasis on the fundamentals of structured design, development, testing, implementation, and documentation. Includes language syntax, data and file structures, input/output devices, and	<ul style="list-style-type: none"> <li>Design, formulate, and construct applications with VB.NET. Integrate variables and constants into calculations applying VB</li> </ul>



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – B.C.A & P.G.D.C.A

**Year** : 2015 - 2020



			files.	
PDB207	Project	Regional	This course provides leadership and management guidelines for the project	<ul style="list-style-type: none"> <li>Demonstrate a sound technical knowledge of their selected <i>project</i> topic. Undertake problem identification, formulation and solution. Design engineering solutions to complex problems utilizing a systems approach.</li> </ul>