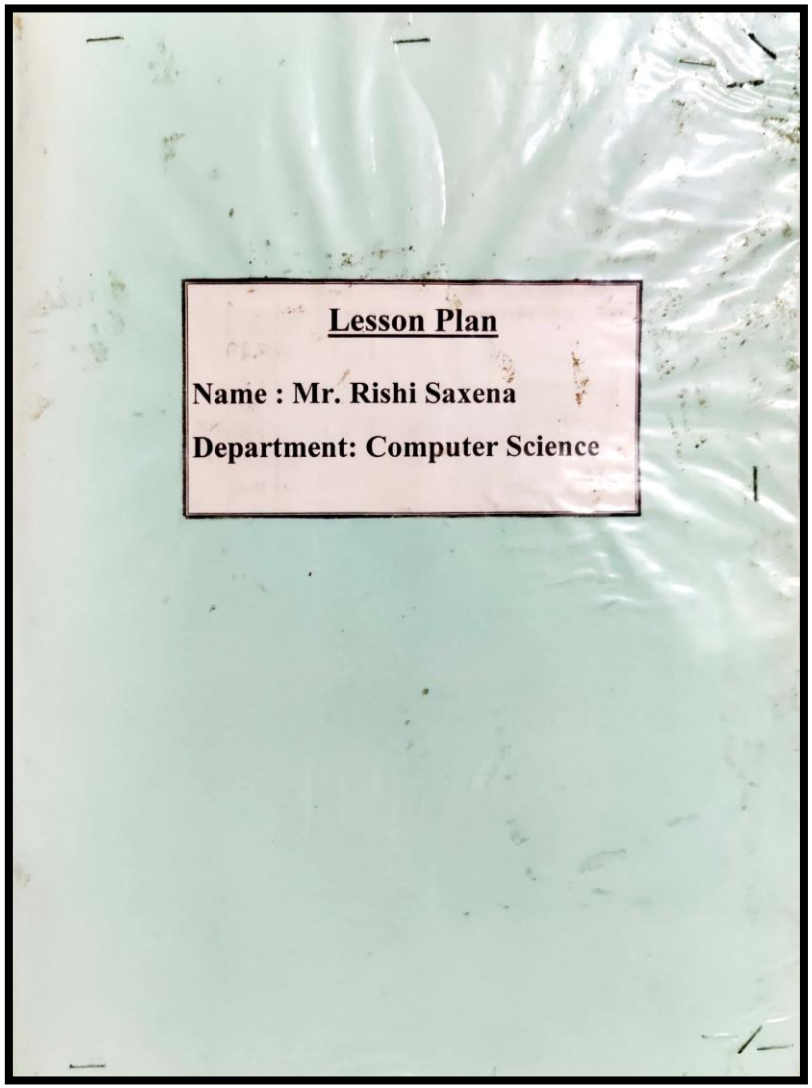
SOPHIA GIRLS' COLLEGE(AUTONOMOUS), AJMER



COURSE_PLAN_2019-20_MR_RISHI_SAXENA

SOPHIA GIRL'S COLLEGE, AJMER (*AUTONOMOUS*)

BCA Semester I (2019-20)

Computer Fundamentals I (BCA 101)

Max. Marks :100 (70Ext; 30 Int)

Credit: 03

SEM I Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
SEM I JULY	Unit I Definition, Diagram, Characteristics, Classification of Computers: Analog Computers, Digital Computers, Hybrid Computers, Classifications of computer on the basis of size and speed, different type of computers, Generation of computers. Applications of Computer: Desktop publishing, design and manufacturing, military, robotics, planning and management, marketing, communications, education.	Introduction to Computer	PPT	Describe the computer system and identify its types.	*Knowledge Based* -Define Computer System. -Illustrate the different types of Computer. *Understanding Based* -Compare the Analog and digital computing technology. -Classify the computers on the basis of applications. *Higher Order Thinking Skills Based*	Knowledge--60 Understanding-30 Higher Order-10
	keyboard, mouse, track ball, touch pad, joystick, touch sensitive screens, pen based systems, digitizer, data	Input Devices	PPT, Charts			

	scanning devices, optical recognition systems, bar code readers, optical mark readers, Optical character reader, optical scanners: drum scanners, hand scanner, flatbed scanner				-Justify the keyboard as primary input device. -Critically Evaluate the touch screen technology	
AUGUST	Unit II Printer (impact printers) daisy wheel, dot matrix printer, line printer, chain printers, comb printers, (non-impact printers) DeskJet, inkjet, laser printer, thermal transfer printer, barcode printers. Computer Display, Introduction to CRT Monitor, Plasma display, Projection display.	Hard Copy Devices	PPT, Device Presentation	Illustrate the use of different I/O devices.		
	Introduction to memory, classifications, random-access memory, volatile memory, non-volatile memory, flash memory, read-only memory, secondary memory, the cache memory, auxiliary storage memory, memory hierarchy	Computer Storage	PPT, Videos			
SEPTEMBER-	Unit III storage device, magnetic	Computer Viruses	PPT, Device			

OCTOBER	tape, magnetic disk, floppy disk, hard disks, CD, DVD Introduction, history, types of computer viruses, classification of viruses, symptoms of a computer virus, & ways to catch a computer virus.		Demonstration	Categorize different computer viruses on the basis on operation and establishes basic understandin g of the internet.		
	Internet, world wide web, how the web works, web standards, website, overview, types of websites, electronic mail, e-mail header, messages and mailboxes	Introduction to Internet	PPT, Practical Implementatio n			

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VCA SEM1 (2019-20)

Computer Fundamental-I

SEM I Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
SEM I JAN	Unit I Introduction to Computer: Definition, Diagram, Characteristics, Classification of Computers: Analog Computers, Digital	Introduction to computer	PPT, assignments	Describe the computer system and identify its types.	*Knowledge Based* What is computer Explain classification of computers *Understanding Based* Classification of computers? *Higher Order Thinking Skills Based* Explain input & output devices in detail?	Knowledge--40 Understanding-35 Higher Order-25
	Computers, Hybrid Computers, Classifications of computer on the basis of size and speed, different type of computers, Generation of computers.	Classification of computers	Assignments, group discussion			
FEB	Unit II Applications of Computer: Desktop publishing, design and manufacturing, military, robotics, planning and management, marketing, communications, education.	Applications of computers	Report Assignments., group discussions, quizzes	. Illustrate the use of different input devices.		
	Input Devices: keyboard, mouse, track ball	Input devices	Programming Assignments, quiz, blended learning			

MARCH-APRIL	Unit III touch pad, joystick, touch sensitive screens, pen based systems, digitizer, data scanning devices, optical recognition systems, bar code readers, optical mark readers, Optical character reader, optical scanners: drum scanners, hand scanner, flatbed scanner, web camera, game pad, digital camera.	Various input devices	Assignments, E content	Categorize different output devices on the basis on operation.		
	Output Devices: Hard copy devices: Printer (impact printers) daisy wheel, dot matrix printer, line printer, chain printers, comb printers, (non-impact printers) DeskJet, inkjet, laser printer, thermal transfer printer, barcode printers, Soft copy devices: (Computer Display) CRT, LCD, projection displays, plasma display	Output devices	Assignments ,blended learning			

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BCA Semester III (2019-20)

Java Programming I

Max. Marks :75 (50Ext; 25 Int) Min. Marks: 30(20 Ext;10 Int)

Credit: 03

SEM I Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
SEM I JULY	Unit I JAVA: Introduction to Object Orientated Programming, Abstraction, Object Oriented Programming Principles, Features of JAVA, Introduction to JAVA byte code	OOPs Basics	PPT	Describe the features of Java	*Knowledge Based* -Define OOP -Describe Data Types in Java *Understanding Based* -Apply branching constructs. - Organise operators on the basis of precedence. *Higher Order Thinking Skills Based* - Check passing objects as parameters - Plan an inheritance hierarchy	Knowledge--50 Understanding-35 Higher Order-15
	Program elements; Primitive data types, variables, Input Output in Java, operators: arithmetic, assignment, logical, bit wise, relational , Boolean logical operators, operator precedence.	Programming Fundamentals	Programming Assignments			
AUGUST	Unit II Control statements: Java's Selection Statements, if statement, switch statement,	Branching & Looping	Programming Assignments	Develop programs with basic		

	Iteration statements, while, do-while, for-each, Nested loop, Jump Statement, using break, continue, return.			programming constructs.		
	Arrays, One & Two Dimensional Array	Collections	Programming Assignments			
SEPTEMBER-OCTOBER	Unit III Object and classes: Objects, constructors, returning and passing objects as parameter, Nested and inner classes	OOPs Concepts	Programming Assignments	Experiment with branching & Looping and Arrange data in Arrays.		
	Inheritance: Definition & its Types, Extended class, usage of Super, Overloading and overriding methods, Abstract classes, using final with inheritance..	Extensibility	Programming Assignments			

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BCA Semester V (2019-20)

Mobile Computing I

Max. Marks :75 (50Ext; 25 Int) Min. Marks: 30(20 Ext;10 Int) Credit: 03

SEM I Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
SEM I JULY	Unit I Networking Basics: Introduction to digital communications, Types of network: LAN, WAN, MAN, Types of network terminal: Server, Client, Topology: Bus, Ring, Star, Tree/Snowflake, Mesh, Combined,	Basics of Networking	PPT	Define different types of network, represent them with different designs and summarize the signals and modulation.	*Knowledge Based* -Define Digital communication - Identify the networking implementation *Understanding Based* -Apply Frequency modulation in digital transmission -Prioritize the transmission media *Higher Order Thinking Skills Based* -Check wave propagation in optical fiber transmission -Construct an umbrella network for handoffs	Knowledge--40 Understanding-35 Higher Order-25
	Terminology: Amplitude, Frequency, Phase, Bit rate, Baud rate, Bandwidth. Signal types: Analog signals, Digital signals, Modulation: Amplitude, Frequency, Phase, Demodulation,	Terms and Signal Basics	PPT, Charts, Numericals			
AUGUST	Unit II Transmission Media: Guided (Twisted pair cable, Coaxial	Medium of Signal Transmission	PPT, Charts, Diagrams	Simulate the process of		

	cable, Fibre Optic Cable), Unguided (Radio waves, Microwaves, Infrared), Transmission Mode: Parallel, Serial,			signal transfer over different media.		
	Mobile Computing: Mobile Computing Vs wireless Networking, Mobile Computing Applications, Characteristics of Mobile computing , Structure of Mobile Computing Application, Mobile Communication: requirements	Introduction to Mobile Computing	Assignments			
SEPTEMBER-OCTOBER	Unit III *Handoff Techniques, Types of Handoff, Current trends: 3G, 4G and 5G,*	Mobility Management	PPT	Outline the mobile communication.		
	Global Positioning System (GPS) Mobile IPv6, FTP, VLAN, HTTPS	Networking Protocols	Practical Assignments			

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MSc CS Semester III (2019-20)

Cloud Computing

SEM I Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
SEM I JULY	Unit I Introduction, Layers and Types of Clouds, Desired Features of a Cloud, Cloud Infrastructure Management	Introduction to Cloud computing	PPT	Define cloud computing and identifying various service models.	*Knowledge Based* -What is Cloud in Cloud Computing? -Describe Service Models *Understanding Based* -Apply VM Systems in actual cloud implementation. - Outline Cluster as a service *Higher Order Thinking Skills Based* -Validate Hybrid cloud implementation -Plan a security model for cloud computing.	Knowledge--40 Understanding-35 Higher Order-25
	Infrastructure as a Service(IaaS), Platform as a Service Providers(PaaS), Software as a Service (SaaS), Challenges and Risks.	Service Models	PPT, Charts,			
AUGUST	Unit II Virtual Machines, Distributed Management of Virtual Infrastructures, Scheduling Techniques for Advance Reservation of Capacity	IaaS	PPT, Charts, Diagrams	Demonstrate various technologies related to IAAS. Manage virtual infrastructure in distributed environment.		
	Mobile Computing: Mobile Cluster as a Service, Cloud Storage, Technologies for Data Security in Cloud Computing.	CAAS	Assignments			
SEPTEMBER-OCTOBER	Unit III Technologies and Tools for Cloud Computing, Aneka Cloud Platform, Hybrid Cloud Implementation, Comet Cloud, Autonomic Behavior of Comet	PaaS	PPT	Employ PAAS platforms like Aneka and Comet Cloud.		

	Cloud.					
	An Introduction to the Data Security, Cloud Computing and Data Security Risk, The Cloud, Digital Identity, and Data Security, Legal Issues in Cloud Computing.	Security issues	Practical Assignments			

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VCA SEMII (2019-20)
Computer Fundamental-II

SEM I Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
SEM I JAN	Unit I Introduction to memory, classifications, random-access memory, volatile memory, non-volatile memory, flash memory, read-only memory, secondary memory, the cache memory,	Understand various types of memory	PPT, assignments	Identify computer memory according to its accessibility and hardware	*Knowledge Based* What is memory? Define flash memory? *Understanding Based* Explain logic gates? *Higher Order Thinking Skills Based* Give the classification of virus?	Knowledge--40 Understanding-35 Higher Order-25
	auxiliary storage memory, memory hierarchy, storage device, magnetic tape, magnetic disk, floppy disk, hard disks, CD, DVD, magneto-optical		Assignments, assignments, group discussion			
FEB	Unit II Number system: binary, octal, hexadecimal, addition, subtraction, multiplications. Computer code: BCD, ASCII, EBCDIC code, Excess-3 code, gray code, logic gates and Boolean algebra representation and simplifications by k Map.	Concept of number system,,logic gate	Assignments. , group discussions, quizzes	. Convert values in different number systems		
	Introduction to Data warehouse, components of a data warehouse, different methods of storing data in a data warehouse, advantages of using data warehouse.	Methods to store data in data warehouse	Assignments, quiz, blended learning			

MARCH-APRIL	Unit III Software: System software, application software, programming software. Computer Viruses: Introduction, history, types of computer viruses, classification of viruses, symptoms of a computer virus, & ways to catch a computer virus. Introduction of Internet, history, TCP / IP & UDP, application protocol, world wide web, how the web works, web standards, website, overview, types of websites, electronic mail, e-mail header, saved message file extension, messages and mailboxes, introduction to intranet, uses, advantages, disadvantages.	Classification of virus	Assignments, E content	. Generalize the software according to their uses Manage different aspects of Internet & defend the system against computer viruses		

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BCA Semester III (2019-20)

Java Programming II

Max. Marks :75 (50Ext; 25 Int) Min. Marks: 30(20 Ext;10 Int) Credit: 03

SEM I Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
SEM I JAN	Unit I Defining package, Concept of classpath, access modifiers, importing package	Packages	Programming Assignments	Generalize the classes & interfaces in form of packages.	*Knowledge Based* What is a Package Write the syntax of Interfaces *Understanding Based* Difference between String and StringBuffer Establish an error handling mechanism *Higher Order Thinking Skills Based* Design a multithread model Create an GUI application.	Knowledge--50 Understanding-35 Higher Order-15
	Defining and implementing interfaces.	Interfaces	Programming Assignments			
FEB	Unit II String constructors, special string operation, character extraction, searching and comparing string, strings, string Buffer class.	String handling	Programming Assignments	Practice with various String methods. Test and Handle programs with run time errors.		
	Exception handling fundamentals, Exception types, try, catch and multiple catch statements. Usage of throw, throws and finally	Exception handling	Programming Assignments			
MARCH-APRIL	Unit III Multithreading, multiprocessing, life cycle of thread, Garbage collection, and deadlock. File handling: input and output stream.	Threading in Java	Programming Assignments	Organize the program for simultaneous execution by using Threads		

	applet Fundamentals, applet life cycle, using paint method and drawing polygon	Java Applets	Programming Assignments	Develop a GUI based interface using Applets.		

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BCA Semester VI (2019-20)

Mobile Application Development

Max. Marks :75 (50Ext; 25 Int) Min. Marks: 30(20 Ext;10 Int) Credit: 03

SEM/ Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
SEM I JAN	Unit I History of Android, Definition of Android , Need of Android, Features of Android, Android Applications, Categories of Android applications, API level.	Android Introduction	PPT	Recognize the importance of Android in Mobile Computing. Illustrate the complete process of Android Installation.	*Knowledge Based* What is Android Explain API levels *Understanding Based* Enumerate the steps of Installation. Compare Eclipse with Android Studio *Higher Order Thinking Skills Based* Design an App with different layouts Create an App for Calculator	Knowledge--40 Understanding-35 Higher Order-25
	Set-up Java Development Kit (JDK) - JDK Versions, Download JDK, Install JDK and JRE, JDK's "bin" PATH, Set the Environment Variable JAVA_HOME, Verify the JDK Installation, Android IDEs: Android Studio - Install "Android Studio IDE" (For Windows), Installing Android SDK, Setup Emulator (Android Virtual Device AVD), Eclipse IDE.	Android Environment Setup	Practical Implementation			
FEB	Unit II Create Android Application, Anatomy of Android	Android Applications	Programming Assignments	Develop small to medium		

	Application, Folder, File & Description, .java source files , res/drawable, res/layout, res/values, AndroidManifest.xml, The Main Activity File, The Manifest File, The Strings File, The Layout File, Running the Application - Run the Android App on Emulator. Run the Android App on Real Devices			size Android apps for general programming problems.		
	Linear Layout, Relative Layout, Constraint layout, Layout Attributes, View Identification	UI Layouts	Programming Assignments			
MARCH-APRIL	Unit III Linux kernel, Android Libraries, Android Runtime, Application Framework, Applications.	Architecture	PPT, Diagrams	Rearrange the app logic on the basis of Lifecycle.		
	Activity life cycle - onCreate(), onStart(), onResume(), onPause(), onStop(), onDestroy(), onRestart(), Android - Broadcast Receivers: Creating the Broadcast Receiver, Registering Broadcast Receiver, Event Constant & Description.	Application Lifecycle	Programming Assignments			

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MSc CS Semester II (2019-20)

Programming in Visual Basic.NET

SEM I Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
SEM I JAN	Unit I Visual Basic .NET IDE and its features, .NET framework, CLR. Language basics: data type, operators, control statements: branching and looping.	Introduction to VB.NET	PPT	Develop programs by using basic features of the language.	*Knowledge Based* What is CLR Explain TextBox methods *Understanding Based* Simulate the process of Array resizing Develop an inheritance hierarchy *Higher Order Thinking Skills Based* Devise an error handling mechanism Develop an application for data access	Knowledge--40 Understanding-35 Higher Order-25
	.NET Controls Forms, text boxes, labels, command button, radio button, option buttons, check boxes, list boxes and combo boxes, introduction to ActiveX controls	Visual Programming	Programming Assignments			
FEB	Unit II Working with Arrays, array resizing, System Array, class, manipulation of string, string functions for comparison, concatenation, copy, replace, substring, length.	Strings and Arrays	Programming Assignments	Test different String manipulation techniques. Express programs according to OOP concepts.		
	Working with Classes, Class properties and methods, attaching a class with a form Inheritance: derived from existing classes, overriding methods from base class	OOPs	Programming Assignments			

MARCH-APRIL	Unit III Exception Handling Types of errors, structured and unstructured exceptions, Tracing Errors: breakpoints, watch, quick Watch, autos, locals, call stack.	Exceptions and Errors	Programming Assignments	Handle run time errors Connect, retrieve and manipulate backend data by using database connectivity.		
	ADO.NET and its Components, datasets, data adapters, server explorer, binding controls to database	Data Access	Programming Assignments			

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