		PA	ART A: Introduc	tion		
Program	Degree	Class: B.S.	с.	Year: III Year	r Session: 2	023-24
		Subj	ject: Computer Se	eience		
1.	Course Code		S3-COSC1D			
2.	Course Title		Operating Syste	m (Group A – F	Paper I) (Theo	ory)
3.	Course Type (Core Course/Elective/Gener Elective/ Vocational	ic	Discipline Speci	fic Elective		
4.	Pre-Requisite (if any)		This course can b Computer Science	e opted as an ele e.	ective by the studer	nts of
5.	Course Learning Outc (CLO)	omes	 After the conable to do the observence of op and algorithm Specify object describe how Understand v compare variand deadlock Describe the management Identify the bany process. Describe variand disk space To understam systems and them. Learn to oper administratio Getting to known framework. 	npletion of this e following: importance of co- erating system in as. tives of modern operating system arious process mous scheduling to s. concepts of mult techniques. est suited memo- ous file operation e management. d and identify po he security featur ate the Linux system and Shell prog- ow the Android 0	course, a student omputer system rese to their management operating systems ins have evolved over anagement concept echniques, synchro- ithreading and mer ry management tect ins, file allocation metential threats to op- res design to guard stem, along with its ramming OS and its applicat	shall be ources and t policies and rer time. ts and can nization, nory hnique for nethods perating l against s ion
6.	Credit Value	18	Theory - 4 Crea	lits		
7.	Total Marks		Max. Marks : 30-	+70 Min.	Passing Marks: 35	
	No. of	PART Lectures (in	B: Content of th hours per week):	e Course 2 Lectures per v	week	
	T	Total	No. of Lectures: (ou Hrs.		N
Module		E	Topics			No. of Lectures
Ι	Introduction to O Evolution of OS, B Systems- Multiprog Operating Systems to Process Control & R	perating Sy asic OS fun gramming S for Personal eal time System	ystem: What is actions, Resource systems, Batch Sy Computers, Work tems.	Operating Syste Abstraction, Typy stems, Time Stations and Ha	m? History and pes of Operating Sharing Systems; nd-held Devices,	4

	Keywords: Functions of OS, resource abstractions, multiprogramming, time sharing, workstation.	1.
Π	 Process Management: Process Concepts, Process states & Process Control Block. Process Scheduling: Scheduling Criteria, Scheduling Algorithms (Preemptive & Non- Preemptive) – FCFS, SJF, SRTN, RR, Priority, Multiple-Processor, Real-Time, Multilevel Queue and Multilevel Feedback Queue Scheduling. Deadlock - Definition, Deadlock Characterization, Necessary and Sufficient Conditions for Deadlock. Deadlock Handling Approaches: Prevention, Avoidance, Detection and Recovery. 	10
Ē	Keywords: process states, preemptive and non-preemptive scheduling, FCFS, SJF, RR, deadlock.	
III	 Memory Management: Introduction, Address Binding, Logical versus Physical Address Space, Swapping, Contiguous & Non-Contiguous Allocation, Fragmentation (Internal & External), Compaction, Paging, Segmentation, Virtual Memory, Demand Paging, Performance of Demand Paging, Page Replacement Algorithms. File Management: Concept of File System (File Attributes, Operations, Types), Functions of File System, Types of File System, Access Methods (Sequential, Direct & other methods), Directory Structure (Single-Level, Two-Level, Tree-Structured, Acyclic-Graph, General Graph), Allocation Methods (Contiguous, Linked, Indexed). 	10
	Keywords: swapping, fragmentation, paging, virtual memory, file management, directory structure.	
IV	 Disk Management: Structure, Disk Scheduling Algorithms (FCFS, SSTF, SCAN, C-SCAN, LOOK), Swap Space Management, Disk Reliability, Recovery. Security: Security Threats, Security policy mechanism, Protection, Trusted Systems, Authentication and Internal Access Authorization, Windows Security. LINUX: Introduction, History and features of Linux, advantages, hardware requirements for installation, Linux architecture, file system of Linux - boot block, super block, inode table, data blocks. Linux standard directories, Linux kernel, Partitioning the hard drive for Linux, installing the Linux system, system - startup and shut-down process, init and run levels. Process, Swap, Partition, fdisk, checking disk free spaces. Difference between CLI OS & GUI OS, Windows v/s Linux, Importance of Linux Kernel, Files and Directories. Concept of Open Source Software. 	10
	Keywords: disk scheduling, recovery, authorization, boot block, kernel, partitioning, open source.	
V	 Linux Administration: Types of user-Root and normal user, Multiple logins at same time (Ctrl + Alt + F1, F2F6), who command. Help: whatis,help, man command. Basic Commands: For displaying current directory, files and directories of current/absolute/relative location(s), creating, removing, renaming, copying and moving files or directories. For comparing, and editing file content, displaying file content(s) with tr, head, tail, last, grep, sort, piping. 	14

Searching file content or searching file within different directories based on particular	
 search criteria. For implementing general purpose utilities – calendar, date, calculator, basic arithmetic expressions, compression and extraction of file/directory. Text editors: vi, joe, vim, gedit, atom, nano etc. Command mode & Insert mode, cut, yank, undo. Managing multiple processes: connecting processes with pipes, tee, redirecting input output, changing process priority with nice, cron commands, kill, ps. Managing user accounts- Sudo, users: useradd, usermod, userdel, passwd. 	
Group: Primary & Secondary Group, chgrp, chown, groupadd, groupdel. Permissions: adding and removing permissions. Package installation through GUI/ apt-get/vum/dnf.	
Keywords: head, tail, grep, sort, piping, yank, kill, chgrp, chown, groupadd.	
 VI Shell Programming: Types of Shells, Shell Meta Characters - \$#, \$*,\$?, Shell Variables, Shell Scripts, Debugging scripts, echo, read, operators, keywords, Integer Arithmetic and String Manipulation, Functions, I/O Redirection and Piping. Decision Making: if-else-elif-fi, case-esac. Loop Control: while, for, until, break & continue. 	12
 Automation and Exception Handling: Creating shell programs for automating tasks, file handling, trapping signals etc. Android Operating System: Introduction, Development Framework, Application Architecture, Process Management and File System, Small Application Development using Android Development Framework. Indian contribution to the field – the BOSS operating system, open source softwares, growth of LINUX, Aryabhatt Linux, contributions of innovators – Rajen Sheth, Sunder Pichai etc. Keywords: shell programming, exception handling, Android development 	
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PART D:	Assessment and Evaluation	
Suggested Evaluation Methods:		
Maximum Marks: 100		
Continuous Comprehensive Evaluation (CCE): 30 Marks University	Exam (UE): 70 Marks
Internal Assessment: Continuous	Class Tests/ Presentation /	30 Marks
Comprehensive Evaluation (CCE)	Assignment	
External Assessment:	Section (A) : Very Short	70 Marks
	Questions	
	Section (B) : Short Questions	
Time : 03.00 Hours	Section (C) : Long Questions	
Any remarks/suggestions:	L	

Program: Degree Class: B.Sc. Year: III Year Session: 2023 Subject: Computer Science 1. Course Code S3-COSC1Q 2. Course Title Operating System Lab (Group A – Paper I) (Practical Discipline Specific Elective 3. Course Type (Core Course/Elective/Generic Elective/Generic Elective/Vocational Discipline Specific Elective 4. Pre-Requisite (if any) This course can be ented as an elective by the students of th	-24 1)				
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A Pre-Requisite (if any) This course can be ented as an elective by the students	0				
Pre-Requisite (if any) This course can be opted as an elective by the students of Computer Science.					
Course Learning Outcomes (CLO)After the completion of this course, a student shall be able to do the following:					
 Operate the Linux system, along with its administ and Shell programming. 	ration				
 Understand and be familiar with the Linux environment. 					
 Learn and run the various Linux commands. 					
• Use vi editor for programming.					
Learn and run the shell scripting programs.					
6. Credit Value Practical – 2 Credits					
7. Total Marks Max. Marks : 100 Min. Passing Marks: 35					
PART B: Content of the Course					
No. of Lab. Practicals (in hours per week): 1 Lab. per week	-				
Total No. of Lab.: 30 Hrs.					
Suggestive List of Practicals No. of L	abs.				
I. Linux: 30					
a) Linux Directory Commands: pwd. mkdir. rm -rf. ls. cd. cd /					
, cd ~					
b) Linux File Commands: touch, cat, cat >, cat >>, rm, cp, my,					
rename					
c) Linux Permission Commands: su, id. useradd, passwd.					
groupadd, chmod, groupdel, chown, chgrp					
d) Linux File Content & Filter Commands: head, tail, tac.	1~				
more, less, grep, cat, cut, grep, comm, sed, tee, tr, uniq, wc, od, sort, diff.					
e) Linux Utility Commands: find, bc, locate, date, cal, sleep.					
time, df. mount, exit, clear, gzip, gunzip.					
f) Linux Networking Commands: ip. ssh. mail. ping. host					
g) Edit Crontab file: to wall message on system on particular					
time automatically.					
h) Vi editor: Create file, edit, save and guit. Highlighting the					
searched term within a file, cut, yank, undo.					
II. Shell Scripting:					
a) Write a shell script to print a message.	_				

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b) Write a shell script to access arguments passed on command						
line.						
 c) Write a shell script to create files with the names passed on command line. 						
 d) Write a shell script to input number from user and display its factorial. 						
e) Write a shell script to input file name and create multiple						
directories individually for the name in the file given.						
f) Write a shell script to input number from user and display						
whether it is prime number or not.						
g) Write a shell script to list all the files in any directory given by						
the user						
h) Write a shell script that receives any number of file names as						
arguments checks if every argument supplied is a file or a						
directory.						
PART C: Learning Resources						
Textbooks, Reference Books, Other Resources						
Richard Peterson Linux: The Complete Reference, TMH						
Sumitabh Das , Linux , McGraw Hill						
 Jason Cannon, Linux for Beginners, Createspace Independent Publishing Platform 						
• William E. Shotts Jr., The Linux Command Line: A Complete Introduction, O'Reilly Media, Inc.						
Suggestive digital platform web links						
https://web.iitd.ac.in/~minati/MTL458.html						
https://www.cse.iitb.ac.in/~mythiii/os/						
Suggested equivalent online courses						
https://nptel.ac.in/courses/106/102/106102132/						
https://www.youtube.com/watch?v=OHCMfsNpqCc						
PART D: Assessment and Evaluation						
Internal Assessment : External Assessment :						
Class Interaction/Quiz Viva voce practical						
Attendance Practical record file						
Assignments (Charts/ 30 Table work / Experiments 70						
Model)/ Technology						
Dissemination/ Excursion/ Lab visit/ Industrial Training						
Total Marks: 100						
Any remarks/ suggestions:						

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Program: Degree Class: Year: III Year Session: 20 Subject: Computer Science Sa-COSC2T	
Subject: Computer Science 1. Course Code S3-COSC2T 2. Course Title Programming with Python (Theory) 3. Course Type (Core Course/Elective/Generic Elective/ Vocational Minor / Elective 4. Pre-Requisite (if any) To study this course, a student must have successfully complete course on Programming at Certificate/Diploma Levels. 5. Course Learning Outcomes(CLO) After studying this subject, students shall be able to do the following - • Interpret the fundamental Python syntax and semantics fluent in the use of Python control flow statements. • Express proficiency in the handling of strings, functions i handling. • Determine the methods to create and manipulate Python pr by utilizing the data structures like lists, dictionaries, tup sets. • Articulate the Object-Oriented Programming concepts i encapsulation, inheritance and polymorphism as used in with class, modules and packages. • Identify the commonly used operations involving d connectivity and use of tkinter for GUI programming. 6. Credit Value Theory - 4 Credits 7. Total Marks Max. Marks : 30+70 Min. Passing Marks: 35 PART B: Content of the Course No. of Lectures (in hours per week): 2 Lectures per week Total No. of Lectures: 60 Hrs. <t< td=""><td>23-24</td></t<>	23-24
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Module Topics L	
Module Topics L	NT C
	No. of ectures
I Python Basics : Python interpreter, Python idle, dynamically typed and strongly typed features, basic data types, variables, expressions, statements, operators, flow of execution. Input and Output statements, Conditionals: Boolean values and operators, conditional (if), alternative (ifelse), chained conditional (if-elif-else). Iteration: while, for, break, continue, pass, implementing 'for' through range(), 'in' and 'not in' operators for sequence traversal. Creating and executing .py scripts. Keywords: interpreter while for break continue scripts	12

Π	Data Structures : Lists- append, extend, insert, index, remove, pop, count, sort, reverse, slicing, list comprehension, Copying a list: deep copy, shallow copy. Tuples- index, count, usage, use of tuples as a swap function. Dictionaries-keys, values, tuples, nested dictionaries, dictionary comprehension. Strings- Single line and multi-line strings, formatter, isdigit, isalpha, isalnum, islower, istitle, isspace, title lower upper strip split splitlines ioin etc. Sets – union intersection subset	12
	superset, difference, symmetric difference, copy, add, remove, discard etc.	
	Keywords: index, sort, deep copy, tuples, dictionary, sets, strings.	
III	Functions & File Handling : Inbuilt Functions- id, len, chr, ord etc., defining and calling a function, arguments, global versus local variables, defining and using lambda functions, the map(), filter(), reduce() functions. Working with files : read, write and append modes: r, w, a, x, r+, w+, a+, x+, reading-read(), readline(), readlines(), writing-write(), writelines(), seek(), tell(). Word count, copy file scripts through file handling concepts.	12
	Keywords: function, calling a function, arguments, global variables, read, write, copy, seek.	
IV	Classes, modules and exceptional handling: Classes: Introduction, Member variables and defining methods, constructor, destructor, data encapsulation, inheritance, multiple inheritance, diamond problem solving technique of python. Modules: inbuilt modules- sys, random, time etc. import, fromimport, fromimport *. Constructing packages, role ofinitpy Exceptional Handling: The try-except-else-finally block, the raise statement, the hierarchy of exceptions, adding exceptions	12
	Keywords: class, constructor, destructor, encapsulation, inheritance, exception, modules.	
V	Database & GUI Programming : Importing sqlite, connecting to database, creating table, insert, select, update, delete, drop tables, accessing and modifying tables through python. Graphical user interfaces; event-driven programming paradigm; tkinter module, creating simple GUI; buttons, labels, entry fields, dialogs; widget attributes - sizes, fonts, colors layouts, nested frames.	12
	Keywords: GUI, tables, database, insert, update, drop tables, event- driven programming, dialogs, frames.	
	PART C: Learning Resources	
	Textbooks, Reference Books, Other Resources	
Suggested Textbooks • Tan • Liai	Readings : neja Sheetal & Kumar Naveen, "Python Programming: A modular approach", Pearson. ng Y. Daniel, "Introduction to Programming Using Python", Pearson.	
 Reference Zed Cha 	BOOKS: A. Shaw, "Learn Python the Hard Way", Zed Shaw's Hard Way Series. Arles Dierbach, "Introduction to Computer Science using Python", Wiley.	

Suggestive digital platform web links						
https://www.guru99.com/how-to-install-python.html						
https://www.python.org/about/gettingsta	w.python.org/about/gettingstarted/					
https://spoken-tutorial.org/media/videos	://spoken-tutorial.org/media/videos/89/Python-3.4.3-Instruction-Sheet-English.pdf					
Suggested equivalent online courses						
https://nptel.ac.in/courses/106/106/1061	06145/					
https://www.youtube.com/watch?v=rfsc	eVS0vtbw					
https://onlinecourses.swayam2.ac.in/aic20_sp33/preview						
nups://onnnecourses.swayam2.ac.m/aic.	20 303010101101					
PART Suggested Evaluation Methods: Maximum Marks: 100	FD: Assessment and Evaluation					
PART Suggested Evaluation Methods: Maximum Marks: 100 Continuous Comprehensive Evaluation Internal Assessment : Continuous	Class Tests/ Presentation /	Exam (: 70 Mari				
PART Suggested Evaluation Methods: Maximum Marks: 100 Continuous Comprehensive Evaluatio Internal Assessment : Continuous Comprehensive Evaluation (CCE)	COMPARISON Provided Assignment	<u>Exam (70 Mar</u> 30 Marks				
PART Suggested Evaluation Methods: Maximum Marks: 100 Continuous Comprehensive Evaluation Internal Assessment : Continuous Comprehensive Evaluation (CCE) External Assessment:	CCE): 30 Marks Class Tests/ Presentation / Assignment Section (A) : Very Short	Exam (: 70 Mar 30 Marks 70 Marks				
PART Suggested Evaluation Methods: Maximum Marks: 100 Continuous Comprehensive Evaluatio Internal Assessment : Continuous Comprehensive Evaluation (CCE) External Assessment:	CD: Assessment and Evaluation on (CCE): 30 Marks Class Tests/ Presentation / Assignment Section (A) : Very Short Questions	Exam (: 70 Mar) 30 Marks 70 Marks				
PART Suggested Evaluation Methods: Maximum Marks: 100 Continuous Comprehensive Evaluation Internal Assessment : Continuous Comprehensive Evaluation (CCE) External Assessment:	Class Tests/ Presentation / Assignment Section (A) : Very Short Questions Section (B) : Short Questions	Exam (70 Mar 30 Marks 70 Marks				

rogra	am: Degree	Class: B.Sc. Year: III Year Session	2023-24		
.051		Subject: Computer Science	#1		
1.	Course Code	S3-COSC2P	E.		
2.	Course Title	Python Programming Lab (Practical)			
3.	3. Course Type (Core Course/Elective/Generic Elective/ Vocational Minor / Elective				
4.	4. Pre-Requisite (if any) To study this course, a student must have successfully complete course on Programming at Certificate/Diploma Levels				
5.	Course Learning Outcomes(CLO)	 After studying this subject, students shall be able to – Understand the python environment and its text editor. Code and run the programs. Debug the program. Interpret the fundamental Python syntax and semantifuent in the use of Python control flow statements. Use the common operations involving database connectuse tkinter for GUI programming. 	cs and be ctivity and		
6.	Credit Value	Practical - 2 Credits			
7.	Total Marks	Max. Marks : 100 Min. Passing Marks: 35			
		PART B: Content of the Course			
	1	No. of Lab. Practicals (in hours per week): 1 Lab. per week			
		Total No. of Lab.: 30 Hrs.			
		Suggestive List of Practicals	No. of Labs.		
	 Find all numand 2500. Print the fin Write a product of the land of the land	nbers which are multiple of 17, but not the multiple of 5, between 2000 est 2 and last 3 characters in a given string. Use the string slicing. gram that eliminates duplicates in a list. shallow copy and deep copy of a list. egest of n numbers, using a user defined function largest() ction that capitalizes all vowels in a string. containing digits and letters. Write a program to give the count of etters. ction myReverse() which receives a string as an input and returns the he string. comprehension methodology in python, to generate the squares of all rs in a given list. dictionary and print the same. The keys of the dictionary should be tween 1 and 10 (both inclusive). The values should be the cubes of the	30		

11. Create a nested dictionary inner dictionary will have	. The roll name, age	number of a student maps to a diction, and place as keys. Read details of	onary. This at least			
three students.						
12. Enter a word. Create a die	tionary wi	th the letters of this word as keys, a	nd the			
 corresponding ASCII values as values. 13. Define a class with three methods: readString(), printString(), writeString(). The first method should read the contents of a file. The second method should print the 						
						contents to the console. The third method should write the contents to a new file.
14. Create a class account which has constructor to input account no, name, balance						
from user, print account() to display the account details, and deposit(), withdraw()						
which inputs amount and add/subtract them from the total amount of individual						
object.						
15. Create a database table in	sqlite and	show the table data in python.				
16. Implement DML comman	nds in SQL	ite from python interface.				
17. Implement tkinter method	ls in a pyth	ion script.				
	PART C:	Learning Resources				
Textboo	ks, Refere	nce Books, Other Resources				
Suggested Readings						
Textbooks:	"D. 4	D	1" Decrea			
Ianeja Sheetal & Kumar Nave	en, Pytho	n Programming: A modular approa	ch', Pearson.			
Liang Y. Daniel, Introduction	to Program	nming Using Python, Pearson.				
Reference Books:	a Hand W	" Zad Chards Hand Way Carios				
 Zed A. Snaw, "Learn Python the Charles Dischash, "Learn Python the 	e Hard W	ay, Zed Snaw's Hard way Series.				
 Charles Dierbach, Introductio Michael T. Goodrich "Data St 	n to Comp	d Algorithms in Duthon" Wiley.				
Suggestive digital platform web links	iuciuies ai	la Aigoriannis în Fyalon, whey.				
https://www.guru99.com/how-to-insta	ll-python h	atml				
https://www.gutu/j.com/now-to-mista	tarted/					
https://spoken-tutorial.org/media/video	s/89/Pythe	on-3 4 3-Instruction-Sheet-English	odf			
Suggested equivalent online courses	or o mi jak					
https://nptel.ac.in/courses/106/106/106	106145/					
https://www.voutube.com/watch?v=rf	scVS0vtbv	V				
https://onlinecourses.swayam2.ac.in/ai	c20 sp33/	preview				
PAR	TD: Ass	essment and Evaluation				
Internal Assessment :		External Assessment :				
Class Interaction/Quiz		Viva voce practical				
Attendance		Practical record file				
Assignments (Charts/Model)/	20	Table work / Experiments				
Technology Dissemination/	ruote work / Experiments	/0				
Excursion/ Lab visit/ Industrial						
Training						
		Total Marks: 100				
Any remarks/ suggestions.						

ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR						
PART A: Introduction						
Program:Degree	Session: 2023-24	Class: B.Sc.	Year: III Year			
Subject: Computer Scien	ice (B.Sc.)					
1. Course Code						
2. Course Title		PHP WITH MYSQL (GRO	UP B) Paper I			
3. Course Type		Discipline Specific Elective				
4. Pre-Requisite (if any)	Students must have basic Con	nputer Knowledge			
5. Course learning outcome	 CO1: To implement PHP script using Decisions and Loops CO2: To develop PHP applications using Strings, Arrays and Functions. CO3: To design object-oriented programming (OOP) principles for PHP and use HTML form elements that work with any server-side language. CO4: To display and insert data using PHP and MySQL. 					
6. Credit Value	Theory—4Credits					
7. Total Marks	Max. Marks: 30+70	Min. Passing Marks: 35				

	PART B: Content of the Course	
	Lectures (in hours per week): 2 Hrs. per week	
	Total No. of Lectures (in hours): 60 Hrs.	
Module	Topics	No. of Lectures
I	Overview of HTML, Working with Text, Links, Tables, Images, Forms, and Input. Introduction of cascading style sheet, selector, inline, internal, external CSS, CSS in text, image. Overview of JavaScript, Variables, Operators, \$, \$\$, comment, Echo() vs Print() Control flow statements, Popup Boxes, Functions, Events, Windows and Document Objects, Array.	14
П	A Brief History of PHP, PHP Characteristics, Installing and Configuring PHP on Windows, PHP Language Basics: Lexical Structure, Data Types, Variables, Expressions and Operators, Decision Statements, Flow Control Statements, Embedding PHP in Web Pages. Strings: String Constants, Printing Strings, Accessing Individual Characters, String Handling Functions: length, Word count, string position, reverse, replace.	14
III	Arrays: Indexed Arrays, Associative Arrays, Identifying Elements of an Array, Storing Data in Arrays, Multidimensional Arrays, extracting multiple values, converting between arrays and variables, Traversing Arrays, Sorting. Functions: Calling a Function, defining a Function, Variable Scope, Function Parameters, Return Values, Variable Functions, Anonymous Functions. Object Oriented Programming Concepts: Classes, Objects, Member Functions, Encapsulations, Inheritance, and Polymorphism.	14
IV	Form Handling in PHP: Setting Up Web Pages to Communicate with PHP, GET vs POST Method, Handling Text Fields, Text Areas, Check Boxes, Radio Buttons, List	14

	Boxes, Password Controls, Hidden Controls, and Image	
	Maps. File Handling: Working with files and directories, File	
	Open and Read, File Creating and Writing, Reading and	
	Writing Characters in file, reading entire files, Rename and	
	Delete Files, getting Information from file, ownership and	
	permissions.	
	Session, Cookie, Database Access: Using PHP to access a	
V	database. Introduction to MySal. Connect and create a	14
	database, create tables, insert, update, delete, and select.	
	· · · · · · · · · · · · · · · · · · ·	
	PART C: Learning Resources	
	Textbooks, Reference Books, Other Resources	
Suggested Readings	, , ,	
Textbooks:		
Programming PHP	by Rasmus Lerdorf and Kevin Tatroe O'Reilly Publications	
 Reginning PHD5 by 	Wrox Publication	
• Degining I III 5 by	als has Decom Tash Dress	
• HIML 5, Black BO	ok by DreamTech Press	
Reference books:		
Mostering PHD: BD	R Publication	
• DUD 5 1 for basinn	by Euler Develops and Charman Shah, SDD Dublications	
• PHP 5.1 for beginne	ers by Evan Bayross and Sharman Shan, SPD Publications	
• PHP 5.2 The Comp.	lete Reference by Steven Holzner, McGraw Hill Edition 2008	
• https://www.w3scho	pols.com/php/	
• https://www.learn-phi	D.org/	
 https://www.javatpoir 	nt.com/php-tutorial	
	Part D-Assessment and Evaluation	
Suggested Continuous H	Evaluation Methods: Maximum Marks: 100	
Continuous Comprehen	sive Evaluation (CCE): 30 marks University Exam (UE) 70 mar	·ks
Internal Assessment	Class Test/Assignment/Presentation	Total 30
Continuous		10001 50
Comprehensive		
Evaluation		
(UUE)	Section (A): Objective Questions	Total 70
External Assessment	Section (A): Objective Questions	Total /0
	Section (B): Short Questions	
	Section (C): Long Questions	

	ST. ALOYSIUS' COLLEGE	C(AUTONOMOUS) JABALPUR	
	PART A:	Introduction	
Program: DEGREE	Session: 2023-24	Class: B.Sc.	Year: III Year
Subject: Computer S	Science (B.Sc.)		
8. Course Code			
9. Course Title		PHP WITH MYSQL PRACTICAL	1
10. Course Type		LAB	
1. Pre-Requisite (if	fany)	Students must have basic Computer	Knowledge
12. Course learning outcome13. Credit Value	 CLO1: To implement F CLO2: To develop PHI CLO3: To design object use HTML form eleme CLO4: To display and 	PHP script using Decisions and Loops P applications using Strings, Arrays and F et-oriented programming (OOP) principle nts that work with any server-side langua insert data using PHP and MySQL. Practical— 2 Credits	Functions. s for PHP and ge.
14. Total Marks	Max. Marks: 30+70	Min. Passing Marks: 35	
Module	Total No. of Lectures (in nours per Total No. of Lectures)	res (in hours): 30 Hrs.	No. of Labs.
	 hyperlinking. Create a Feedback Form Use Write a code for the design Apply CSS formatting to create a PHP script to displate Write a PHP script to demonstrate a PHP script to demonstrate a PHP script to set the Write a PHP Script to generate Write a PHP Script to generate Write PHP Script to generate Write PHP Script to find numbers. Write PHP Script using two addition of two 2×2 matrice Write PHP Script to demonstrate a program to read input this information in tabular format. Create a form to search date 	sing Form Handling. menu system using a list tag. reate a page. ay a Welcome message. onstrate the use of arithmetic operators, logical operators. e type of variable using type casting. the Fibonacci series. te results and display grades. the maximum number out of three given o-dimensional arrays such as the es. EACH" loop execution. user-defined function. onstrate the use of string function. strate the use of date/time functions and out data, from the table and display all form on the output screen. late data and display all this information	30

	1	
	• Develop small PHP application(s) using forms and database with	
	update and delete options.	
	• Open and Read a file	
	PART C: Learning Resources	
	Textbooks, Reference Books, Other Resources	
Suggested Readings	8	
Textbooks:		
• Programming PH	HP by Rasmus Lerdorf and Kevin Tatroe, O'Reilly Publications	
• Beginning PHP5	by Wrox Publication	
• HTML 5, Black	Book by DreamTech Press	
Defenence beeles		
Mostoring DUD:	DDR Dublication	
• PHP 5.1 for begi	nners by Evan Bauross and Sharman Shah, SPD Publications	
 PHP 5.2 The Cor 	molete Reference by Steven Holzner, McGraw Hill Edition 2008	
• 1111 5.2 1110 CO	implete Reference by Steven Holzher, We Graw Hin Edition 2000	
• <u>https://www.w3s</u>	schools.com/php/	
• <u>https://www.learn-</u>	-php.org/	
 https://www.javatp 	point.com/php-tutorial	
	Part D-Assessment and Evaluation	
Suggested Continuou	as Evaluation Methods: Maximum Marks: 100	
Continuous Compreh	nensive Evaluation (CCE): 30 marks University Exam (UE) 70 marks	
Internal	Hands-on Lab Practice: 5 Marks	Total 30
Assessment	• Viva: 5 Marks	
Continuous	• Lab Test from the practical list: 10 Marks	
Comprehensive	Assignments (Charts/ Model)/ Technology Dissemination/	
(CCF)	Excursion/ Lab visit/ Industrial Training: 10 Marks	
(CCL)		
External	Practical record file: 10 Marks	Total 70
Assessment	• Viva voce practical: 10 Marks	
	• Table works/ Exercise Assigned in the practical exam: 40 Marks	
	Reports of excursions Lab visits/ Industrial training/ Survey/	
	Collection/ Models: 10 Marks	

	ST. ALOYSIUS' COLLEGE(A	UTONOMOUS) JABALPUR		
	PART A: In	troduction		
Program: DEGREE	Session: 2023-24	Class: BSc	Year: III Year	
Subject: Computer	Application (BCA)			
15. Course Code		S3-COSC4D		
16. Course Title		Cloud Computing (GROUP B)	Paper II	
17. Course Type		Discipline Specific Elective		
18. Pre-Requisite (if	f any)	This course can be opted as an ele students of Computer Science.	ective by the	
19. Course learning outcome	 After studying this subject, students will be able to do the following— Analyze the trade-offs between deploying applications in the cloud and over the local infrastructure. Compare the advantages and disadvantages of various cloud computing platforms. Deploy applications over commercial cloud computing infrastructures such as Amazon Web Services, Windows Azure, and Google AppEngine Program data intensive parallel applications in the cloud. Analyze the performance, scalability, and availability of the underlying cloud technologies and software. Identify security and privacy issues in cloud computing. Explain recent research results in cloud computing and identify their pros and cons. 		he cloud and ad computing Azure, ne underlying entify their pros gh	
20. Credit Value	Theory—4Credits			
21. Total Marks	Total Marks Max. Marks: 30+70 Min. Passing Marks: 35			

PART B:	Content	of the	Course

	Lectures (in hours per week): 2 Hrs. per week	
	Total No. of Lectures (in hours): 60 Hrs.	
Module	Topics	No. of Lectures
Ι	Cloud Computing - Introduction, Definition, characteristics, components, Cloud service provider, the role of networks in Cloud computing. Cloud Deployment Models- private, public & hybrid, Cloud service models, multitenancy, Cloud economics and benefits. Cloud computing platforms - IaaS: Amazon EC2, S3 Bucket, PaaS: Google App Engine, Microsoft Azure, SaaS. AWS IAM (Identity and Access Management). Keywords: cloud computing, models, IaaS, PaaS, Google app engine, Azure, SaaS, AWS.	12
Π	Virtualization - Virtualization concepts, Server virtualization, Storage, virtualization, Storage services, Network virtualization, Service virtualization, Virtualization management, Virtualization technologies and architectures, virtual machine, Measurement and profiling of virtualized applications. Hypervisors: KVM, Xen, VMware hypervisors and their features. Introduction to	12

	Containerization Technology, Virtualization vs Containerization	
	Container Engine Tools: Docker/Podman	
	Keywords: Virtualization, hypervisors, Docker> Podman	
	Data in Cloud Computing - Relational databases, Cloud file	
	systems: GFS and HDFS, Biglable, HBase and Dynamo.	
	MapReduce and extensions: Parallel computing, the map-Reduce	
III	model, Parallel efficiency of MapReduce, Relational operations	12
	using Map-Reduce, Enterprise batch processing using	
	MapReduce.	
	MapPaduaa Patah Processing	
	Cloud security Cloud security fundamentals Vulnerability	
	assessment tool for cloud Privacy and Security in cloud	
	Cloud computing security architecture Constal Issues Trusted	
	Cloud computing Secure Execution Environments and	
	Communications Micro architectures: Identity Management	
IV	and Access control. Autonomic security Security challenges:	12
	Virtualization security management, virtual threats VM Security	
	Recommendations VM - Specific Security techniques Secure	
	Execution Environments and Communications in cloud	
	Keywords: cloud security _ cloud security architecture	
	Issues in cloud computing - Implementing real time application	
	over cloud platform Issues in Inter -cloud environments OOS	
	Issues in Cloud Dependability data migration streaming in	
	Cloud, Quality of Service (QoS) monitoring in a Cloud computing	
	environment, Cloud Middleware, Mobile Cloud Computing, Inter	
V	Cloud issue A grid of clouds Sky computing load balancing	12
	resource optimization, resource dynamic reconfiguration, and	12
	Monitoring in the Cloud.	
	Keywords: cloud environment, Quality of service (QoS}, Sky	
	computing resource optimization, resource dynamic	
	reconfiguration.	
	PART C: Learning Resources	
	Textbooks, Reference Books, Other Resources	
Suggestee	Textbooks, Reference Books, Other Resources Readings	
Suggested Textbook	Textbooks, Reference Books, Other Resources Readings s:	
Suggested Textbook • Shro	Readings s: ff Gautam, Enterprise Cloud Computing, Cambridge	
Suggestee Textbook • Shro Pub	Readings s: off Gautam, Enterprise Cloud Computing, Cambridge ication.	
Suggestee Textbook Shro Pub • Rom	I Readings s: off Gautam, Enterprise Cloud Computing, Cambridge ication. ald Krutz and Russell Dean Vines, Cloud Security,	
Suggestee Textbook • Shro Pub • Ron Wil	I Readings s: off Gautam, Enterprise Cloud Computing, Cambridge ication. ald Krutz and Russell Dean Vines, Cloud Security, ey -India	
Suggestee Textbook Shro Pub Rom Wil Or. F	Readings s: off Gautam, Enterprise Cloud Computing, Cambridge ication. ald Krutz and Russell Dean Vines, Cloud Security, by -India Lumar Saurabh, "Cloud Computing", Wiley Publicaaon	
Suggestee Textbook Shro Pub Rom Wil Dr. H Reference	Readings s: off Gautam, Enterprise Cloud Computing, Cambridge ication. ald Krutz and Russell Dean Vines, Cloud Security, by -India lumar Saurabh, "Cloud Computing", Wiley Publicaaon books:	
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Suggestee Textbook Shro Pub Rom Wil Dr. F Reference Bloo Dum	Readings s: off Gautam, Enterprise Cloud Computing, Cambridge ication. ald Krutz and Russell Dean Vines, Cloud Security, ey -India Kumar Saurabh, "Cloud Computing", Wiley Publicaaon books: 'R., Kaufman M., Halper F. Judith Hurwitz "Cloud Computing for mies", Wiley India Edition.	
Suggestee Textbook Shro Pub Rom Wil Dr. F Reference Bloo Dum John	Readings s: off Gautam, Enterprise Cloud Computing, Cambridge ication. ald Krutz and Russell Dean Vines, Cloud Security, ey -India Cumar Saurabh, "Cloud Computing", Wiley Publicaaon books: 'R., Kaufman M., Halper F. Judith Hurwitz "Cloud Computing for mies", Wiley India Edition. Rittinghouse & James Ransome, "Cloud Computing Implementation	
Suggester Textbook Shro Pub Rom Wil Dr. H Reference Bloo Dum John Mana	I Readings s: off Gautam, Enterprise Cloud Computing, Cambridge ication. ald Krutz and Russell Dean Vines, Cloud Security, ey -India Cumar Saurabh, "Cloud Computing", Wiley Publicaaon e books: *R., Kaufman M., Halper F. Judith Hurwitz "Cloud Computing for mies", Wiley India Edition. Rittinghouse & James Ransome, "Cloud Computing Implementation agement and SSategy", CRC Press.	
Suggested Textbook Shro Pub Rom Wil Dr. B Reference Bloo Dum John Mana Anto	Readings s: off Gautam, Enterprise Cloud Computing, Cambridge ication. ald Krutz and Russell Dean Vines, Cloud Security, ey -India Kumar Saurabh, "Cloud Computing", Wiley Publicaaon books: R., Kaufman M., Halper F. Judith Hurwitz "Cloud Computing for mies", Wiley India Edition. Rittinghouse & James Ransome, "Cloud Computing Implementation agement and SSategy", CRC Press. hy T Velte, "Cloud Computing : A Practical Approach", McGraw Hil	11
Suggestee Textbook Shro Pub Rom Wil Dr. H Reference Bloo Dum John Mana Anto Mich	Textbooks, Reference Books, Other Resources I Readings s: off Gautam, Enterprise Cloud Computing, Cambridge ication. ald Krutz and Russell Dean Vines, Cloud Security, ey -India Cumar Saurabh, "Cloud Computing", Wiley Publicaaon e books: *R., Kaufman M., Halper F. Judith Hurwitz "Cloud Computing for mies", Wiley India Edition. Rittinghouse & James Ransome, "Cloud Computing Implementation agement and SSategy", CRC Press. ny T Velte , "Cloud Computing: A Practical Approach", McGraw Hill ael Miller, "Cloud Computing: Web-Based Applications That Change the	ll ne Way You
Suggestee Textbook Shro Pub Rom Wil Dr. F Reference Bloo Dum John Mana Anto Mich Work	I Readings s: off Gautam, Enterprise Cloud Computing, Cambridge ication. ald Krutz and Russell Dean Vines, Cloud Security, ey -India Kumar Saurabh, "Cloud Computing", Wiley Publicaaon books: *R., Kaufman M., Halper F. Judith Hurwitz "Cloud Computing for mies", Wiley India Edition. Rittinghouse & James Ransome, "Cloud Computing Implementation agement and SSategy", CRC Press. ny T Velte , "Cloud Computing : A Practical Approach", McGraw Hil ael Miller, "Cloud Computing: Web-Based Applications That Change the and Collaborate Online".	ll 1e Way You
Suggestee Textbook Shro Pub Rom Wil Dr. H Reference Bloo Dum John Mana Anto Mich Worl Jame	I Readings s: off Gautam, Enterprise Cloud Computing, Cambridge ication. ald Krutz and Russell Dean Vines, Cloud Security, ey -India Kumar Saurabh, "Cloud Computing", Wiley Publicaaon e books: *R., Kaufman M., Halper F. Judith Hurwitz "Cloud Computing for mies", Wiley India Edition. Rittinghouse & James Ransome, "Cloud Computing Implementation ngement and SSategy", CRC Press. ny T Velte , "Cloud Computing: A Practical Approach", McGraw Hil ael Miller, "Cloud Computing: Web-Based Applications That Change the and Collaborate Online". s E Smith, Ravi Nair, "Virtual Machines", Morgan Kaufmann Publish	ll ne Way You ers.
Suggestee Textbook Shro Pub Rom Wil Dr. H Reference Bloo Dum Bloo Dum John Mana Anto Mich Worl Jame Sugge	Interprise Cloud Computing, Cambridge ication. ald Krutz and Russell Dean Vines, Cloud Security, ey-India Kumar Saurabh, "Cloud Computing", Wiley Publicaaon e books: *R., Kaufman M., Halper F. Judith Hurwitz "Cloud Computing for miss", Wiley India Edition. Rittinghouse & James Ransome, "Cloud Computing Implementation agement and SSategy", CRC Press. hy T Velte , "Cloud Computing: Web-Based Applications That Change the computing in the computing is a store of the computing in the computing is a store of the computing in the computing is a store of the computing in the computing in the computing is a store of the computing in the computing in the computing is a store of the computing in the computing is a store of the computing in the computing is a store of the computing in the computing is a store of the computing in the computing in the computing is a store of the computing in the computing in the computing is a store of the computing in the computing in the computing is a store of the computing in the computing in the computing is a store of the computing in the computing in the computing is a store of the computing in the computing in the computing is a store of the computing in the computing in the computing is a store of the computing in the computing in the computing is a store of the computing in the computing in the computing is a store of the computing is a store of the computing is a store of the computing in the computing is a store of the comp	ll ne Way You ers.

https://www.cse.iitb.ac.in/~converger	nce/workshops/Intro to Virtualizatio	n.pdf	
PART	D: Assessment and		
	Evaluation		
Suggested Evaluation Methods:			
Maximum Marks: 100			
Continuous Comprehensive Evaluati	ion (CCE): 30 Marks	Exam	:70
Marks			
InternalAssessment: Continuous	Class Tests/ Presentation /	30]	Marks
Comprehensive Evaluation (CCE)	Assignment		
External Assessment:	Section (A) Very Short Questions	70]	Marks
	Section (B) Short Ouestions		
Time:- 3:00 hours	Section (C) LongQuestions		
Any remarks/suggestions		I.	

			PART A: Intro	duction		
Program	n: Degree	Class	: B.Sc.	Year:	III Year	Session: 2023-24
			Subject: Compute	r Science		
1.	Course Code		S3-COSC4Q			
2.	Course Title		LAB			
3.	Course Type (Co Course/Elective/Ge Elective/ Vocation	ore eneric onal	Discipline Speci	fic Elective		
4.	Pre-Requisite (if	any)	This course can b Computer Science.	e opted as an elect	ive by the stuc	lents of
5.	Course Learning Outcomes (CLO))	After studying th Manage d models. Describe technolog Controllin Design & Use and E Creating	is subject, studen ifferent Cloud ser importance of vir ies. ng Virtual Mac <u>hi</u> develop backup s xamine different and managing Do	it will be able vices and dep tualization alo <u>n</u> es. strategies for cloud compu- ocker containe	to — loyment ong with their cloud data. ting services. ers.
6.	Credit Vaiue		Practical - 2 Cre	dits		
7.	Totat Marks		Max. Marks : 10	0	Min. Passi	ng Marks: 35
		PA	RT B: Content of	f the Course		
	No. o	of Lab.]	Practicals (in hour week	s per week): 1 La	b. per	
			Total No. of Lab	: 30 Hrs.		
			Suggestive Lis Practicals	t of		No. of Labs

Note - The students shall explore development of web applications in cloud. They must practically design and develop processes involved in creating a cloud based application and programming us <u>ing</u> Hadoop.	30
 Download and Install Virtual Machine (Vtrtual Box, VMware and KVM) Installing Virtual Machine 	
 Controlling Virtual Machine (Start, restart, power off) Editing Virtual Machine, Hardware 	
 5. Creating and Using Image snapshot 	
6. Importing and Exporting Virtual Machine images7. Accessing Linux Command Lineanaging Files from the	
co <u>mmand</u> Line 8 Creating, Viewing, and Editing Text	
Files 10 Installing and updating Software	
packages	

11. Controlling Services 12. Create AWS free tier account
12. Create AWS free tier account
13. Introduction to IAM
14. Creating a User and Group
15. Authorization viaPolicies
16. Creating and Attaching Policies
17. Launching an EC2 running Linux
18. How to ssh into EC2 using Linux/Windows
19. Launching an EC2 running Windows
20. Connect Windows Instance using RDP
21. Hosting Website on EC2 Instance
22. Create AWS Custom AMI
23. Copy AMI from one region to another
24. Share AMI with AWS account
25. Create S3 Bucket
26. Upload/Download files from S3 Bucket
27. Containerized Application Using Docker container
28. Install docker on EC2 Instance
29. Creating and managing Docker containers
30. Pull and push docker images from docker hub
31. Creating Docker custom Images
PART C: Learning Resources
Textbooks, Reference Books, Other Resources
Suggested Readings
Shroff Gautam, Enterprise Cloud Computing, Cambridge Publication.
 Ronald Knitz and Russell Dean Vines, Cloud Security, Wiley -India.
Dr. Kumar Saurabh, "Cloud Computing", Wiley Publication.
Reference Books
• Bloor R., Ka <u>nfman</u> M., Halper F. Judith Hurwitz, "Cloud Computing for Dummies", Wiley India
 John Rittinghouse & James Ransome, "Cloud Computing Implementation Management and

- Strategy", CRC Press. Antohy T Velte, "Cloud Computing : A Practical Approach", McGraw Hill. Michael Miller, "Cloud Computing: Web-Based Applications That Change the Way You Work and Collaborate Online".

• James E Smith, Ravi Nair, "Virtual Machines", Morgan Kaufmann Publishers. Suggestive digital platform web links

https://www.tutorialspoint.com/cloud_computing/cloud_computing_tutorial.pdf https://www.cse.iitb.ac.in/~cs695/

https://www.cse.iitb.ac.in/~convergence/workshops/Intro to Virtualization.pdf

Suggested equivalent online courses

	PART D: Assessment and Evaluation				
Internal Assessment		External Assessment			
Class Interaction/Quiz		Viva voce practical			
Attendance	20	Practical record file	70		
Assignments (Charts/ Model)/ Technology Dissemination/ Exclusion/ Lab visit/ Industrial Training	30	Table work / Experiments	70		
<u> </u>		Total Marks: 100	1		

Any remarks/ suggestions:

			PART A: Introduction			
Program: Degree Class:		Class	B.Sc. Year: III	Year Session	: 2023-24	
			Subject: Computer Science			
1.	Course Code		S3-COSC2T			
2.	Course Title		Programming with Python (The	eory)		
3.	3. Course Type (Core Course/Elective/Generic Elective/ Vocational		Minor / Elective			
4.	Pre-Requisite (if any)		To study this course, a student must have successfully completed the course on Programming at Certificate/Diploma Levels.			
5. Course Learning Outcomes(CLO)		ing .O)	 After studying this subject, students shall be able to do the following – Interpret the fundamental Python syntax and semantics and be fluent in the use of Python control flow statements. Express proficiency in the handling of strings, functions and file handling. Determine the methods to create and manipulate Python programs by utilizing the data structures like lists, dictionaries, tuples and sets. Articulate the Object-Oriented Programming concepts such as encapsulation, inheritance and polymorphism as used in Python with class, modules and packages. Identify the commonly used operations involving database connectivity and use of tkinter for GUI programming. 			
6.	Credit Value		Theory - 4 Credits		-	
7.	Total Marks		Max. Marks : 30+70	Min. Passing Marks: 3	5	
	1		PART B: Content of the Course			
		No. of Le	ctures (in hours per week): 2 Lectures	per week		
	• T		Total No. of Lectures: 60 Hrs.		No. 6	
Modu	ile		Topics		Lectures	
I Python Basics : Pyth typed features, basic of of execution. Input operators, conditiona Iteration: while, for, b and 'not in' operators Keywords: interpret			hon interpreter, Python idle, dynamica data types, variables, expressions, state and Output statements, Conditionals al (if), alternative (ifelse), chained co break, continue, pass, implementing 'for s for sequence traversal. Creating and e ter, while, for, break, continue, scripts	ally typed and strongly ements, operators, flow s: Boolean values and onditional (if-elif-else). or' through range(), 'in' executing .py scripts.	12	

II	Data Structures : Lists- append, extend, insert, index, remove, pop, count, sort, reverse, slicing, list comprehension, Copying a list: deep copy, shallow copy. Tuples- index, count, usage, use of tuples as a swap function. Dictionaries-keys, values, tuples, nested dictionaries, dictionary comprehension. Strings- Single line and multi-line strings, formatter, isdigit, isalpha, isalnum, islower, istitle, isspace, title, lower, upper, strip, split, splitlines, join etc. Sets – union, intersection, subset, superset, difference, symmetric difference, copy, add, remove, discard etc.	12
	Keywords: index, sort, deep copy, tuples, dictionary, sets, strings.	
III	Functions & File Handling : Inbuilt Functions- id, len, chr, ord etc., defining and calling a function, arguments, global versus local variables, defining and using lambda functions, the map(), filter(), reduce() functions. Working with files : read, write and append modes: r, w, a, x, r+, w+, a+, x+, reading-read(), readline(), readlines(), writing-write(), writelines(), seek(), tell(). Word count, copy file scripts through file handling concepts.	12
	Keywords: function, calling a function, arguments, global variables, read, write, copy, seek.	
IV	Classes, modules and exceptional handling: Classes: Introduction, Member variables and defining methods, constructor, destructor, data encapsulation, inheritance, multiple inheritance, diamond problem solving technique of python. Modules: inbuilt modules- sys, random, time etc. import, fromimport, fromimport *. Constructing packages, role ofinitpy Exceptional Handling: The try-except-else-finally block, the raise statement, the hierarchy of exceptions, adding exceptions	12
	Keywords: class, constructor, destructor, encapsulation, inheritance, exception, modules.	
V	Database & GUI Programming : Importing sqlite, connecting to database, creating table, insert, select, update, delete, drop tables, accessing and modifying tables through python. Graphical user interfaces; event-driven programming paradigm; tkinter module, creating simple GUI; buttons, labels, entry fields, dialogs; widget attributes - sizes, fonts, colors layouts, nested frames.	12
	Keywords: GUI, tables, database, insert, update, drop tables, event- driven programming, dialogs, frames.	
	PART C: Learning Resources	
	Textbooks, Reference Books, Other Resources	
Suggested	Readings	
• Tan • Lian Reference	: leja Sheetal & Kumar Naveen, "Python Programming: A modular approach", Pearson. ng Y. Daniel, "Introduction to Programming Using Python", Pearson. Books:	
Zeo Cha	arles Dierbach, "Introduction to Computer Science using Python", Wiley.	

• Michael I. Goodrich, Data Stri	uctures and Algorithms in Python", Wi	iley.	
Suggestive digital platform web links			
https://www.guru99.com/how-to-install	-python.html		
nttps://www.python.org/about/gettingst	arted/		
nttps://spoken-tutorial.org/media/videos	s/89/Python-3.4.3-Instruction-Sheet-Er	nglish.pdf	
Suggested equivalent online courses			
nttps://nptel.ac.in/courses/106/106/1061	106145/		
nttps://www.youtube.com/watch?v=rfs	cVS0vtbw		
https://onlinecourses.swayam2.ac.in/aic	20 sp33/preview		
PAR	FD: Assessment and Evaluation	5	
Suggested Evaluation Methods:			
Maximum Marks: 100			
Continuous Comprehensive Evaluati	on (CCE): 30 Marks	Exam	70 Marks
Internal Assessment : Continuous	Class Tests/ Presentation /	30 Marks	
	Assignment		
Comprehensive Evaluation (CCE)	rissignitione		
Comprehensive Evaluation (CCE)	Section (A) : Very Short		70 Marks
External Assessment:	Section (A) : Very Short Ouestions		70 Marks
Comprehensive Evaluation (CCE)	Section (A) : Very Short Questions Section (B) : Short Questions		70 Marks
External Assessment:	Section (A) : Very Short Questions Section (B) : Short Questions		70 Marks

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			PART A: Introc	luction		
Program: Degree Cla		Class	ss: B.Sc. Year: III Year Session:		2023-24	
			Subject: Computer	Science		
1.	Course Code		S3-COSC2P			
2.	Course Title		Python Programming Lab (Practical)			
3.	Course Type (Co Course/Elective/ Elective/ Vocation	Type (Core Minor / Elective Elective/Generic / Vocational				
4.	Pre-Requisite (if	isite (if any) To study this course, a student must have successfully completed t course on Programming at Certificate/Diploma Levels.			ed the	
5.	5. Course Learning Outcomes(CLO)		 After studying this subject, students shall be able to – Understand the python environment and its text editor. Code and run the programs. Debug the program. Interpret the fundamental Python syntax and semantics and be fluent in the use of Python control flow statements. Use the common operations involving database connectivity and use tkinter for GUI programming. 			
6.	Credit Value		Practical - 2 Credits	or programming.		
7.	. Total Marks Max. Marks : 100 Min.		Min. Pa	assing Marks: 35		
	L		PART B: Content of	the Course		
	1	No. of Lab	. Practicals (in hours per	week): 1 Lab. per w	eek	
			Total No. of Lab .:	30 Hrs.		
			Suggestive List of Pr	acticals		No. of Labs.
	 Print the first 2 and last 3 characters in a given string. Use the string slicing. Write a program that eliminates duplicates in a list. Implement shallow copy and deep copy of a list. Find the largest of n numbers, using a user defined function largest() Write a function that capitalizes all vowels in a string. Read a line containing digits and letters. Write a program to give the count of digits and letters. Write a function myReverse() which receives a string as an input and returns the reverse of the string. Use the list comprehension methodology in python, to generate the squares of all odd numbers in a given list. Generate a dictionary and print the same. The keys of the dictionary should be integers between 1 and 10 (both inclusive). The values should be the cubes of the corresponding keys. 		y between 2000 y slicing.) e count of d returns the squares of all y should be e cubes of the	30		

11. Create a nested dictionar inner dictionary will hav	y. The roll n e name, age,	number of a student maps to a diction, and place as keys. Read details of a	nary. This at least				
12 Extensional Constant 1		h the letters of this second as here an	144				
12. Enter a word. Create a dictionary with the letters of this word as keys, and the							
12 Define a close with three	mothoday ro	S.	of The				
15. Define a class with the	13. Define a class with three methods: readString(), printString(), writeString(). The						
first method should read the contents of a file. The second method should print the							
contents to the console. The third method should write the contents to a new file.							
14. Create a class account w	from user print account which has constructor to input account _no, hand, balance						
which inputs amount and add/subtract them from the total amount of individual							
which inputs amount and	which inputs amount and add/subtract them from the total amount of individual						
15 Create a database table in	a calita and	show the table date in python					
15. Create a database table in	nda in SOL	show the table data in python.	The second second				
17. Implement thinter metho	da in a puth	on script					
17. Implement ikinter metilo	DADT C. I						
Trade	PARIC:1	Learning Resources					
1 extbo	oks, keterer	ice Books, Other Resources					
Suggested Readings	an and the second second						
Textbooks:		D					
Taneja Sheetal & Kumar Nave	een, "Pythor	Programming: A modular approac	h", Pearson.				
• Liang Y. Daniel, "Introduction	n to Program	iming Using Python", Pearson.					
Reference Books:							
 Zed A. Shaw, "Learn Python t 	the Hard Wa	y", Zed Shaw's Hard Way Series.					
 Charles Dierbach, "Introduction 	on to Compu	iter Science using Python", Wiley.					
 Michael T. Goodrich, "Data S 	tructures and	d Algorithms in Python", Wiley.					
Suggestive digital platform web links							
https://www.guru99.com/how-to-insta	all-python.ht	tinl					
https://www.python.org/about/getting	started/						
https://spoken-tutorial.org/media/vide	os/89/Pytho	n-3.4.3-Instruction-Sheet-English.p	<u>odf</u>				
Suggested equivalent online courses							
https://nptel.ac.in/courses/106/106/10	6106145/						
https://www.youtube.com/watch?v=r	fscVS0vtbw						
https://onlinecourses.swayam2.ac.in/a	nic20_sp33/p	preview					
PAI	RT D: Asse	essment and Evaluation					
Internal Assessment :		External Assessment :					
Class Interaction/Quiz		Viva voce practical					
Attendance		Practical record file					
ssignments (Charts/ Model)/ 30 Table work / Experiments 70							
Fechnology Dissemination/							
Excursion/ Lab visit/ Industrial							
Training							
		Total Marks: 100					
Any remarks/ suggestions:							
and remarked and and and and and and and and and an							