SCHEMEOFCOURSEWORK

Course Details:

Course Title	IT ESSENTIALS AND PYTHON PROGRAMMING LAB		
Course Code	22CS1101	**L T P C**	**0 0 3 1.5**
Program:	**B.Tech**		
Specialization:	(Common to CSE, CSE (AI&ML), CSE (DS))		
Semester	**II**		
Prerequisites	**None**		

Course Outcomes (COs):

CONo.	**Course outcomes**	**Cognitive level**
CO1	Apply basic LINUX commands to perform various operations.	Understand and Apply
CO2	Demonstrate the connection of the Local Area Network and access the Internet.	Understand and Apply
CO3	Implement programs using conditional statements and loops and strings.	Understand and Apply
CO4	Develop functions to perform simple tasks.	Understand and Apply
CO5	Make use of various data types like strings, lists, tuples, sets and dictionaries.	Understand and Apply

Program Outcomes (POs):

A graduate of Computer Science and Engineering will be able to

PO-1	Graduates will be able to apply the knowledge of mathematics, science, engineering fundamentals and principles of Computer Science & Engineering to solve complex problems in different domains.
PO-2	Graduates can identify, formulate, study contemporary domain literature and analyze real life problems and make effective conclusions using the basic principles of science and engineering.
PO-3	Graduates will be in a position to design solutions for Engineering problems requiring in depth knowledge of Computer Science and design system components and processes as per standards with emphasis on privacy, security, public health and safety.

PO-4	Graduates will be able to conduct experiments, perform analysis and interpret data as per the prevailing research methods and to provide valid conclusions.
PO-5	Graduates will be able to select and apply appropriate techniques and use modern software design and development tools. They will be able to predict and model complex engineering activities with the awareness of the practical limitations.
PO-6	Graduates will be able to carry out their professional practice in Computer Science & Engineering by appropriately considering and weighing the issues related to society and culture and the consequent responsibilities.
PO-7	Graduates would understand the impact of the professional engineering solutions on environmental safety and legal issues
PO-8	Graduates will transform into responsible citizens by adhering to professional ethics.
PO-9	Graduates will be able to function effectively in a large team of multidisciplinary streams consisting of persons of diverse cultures without forgetting the significance of each individual's contribution.
PO-10	Graduates will be able to communicate effectively about complex engineering activities with the engineering community as well as the general society, and will be able to prepare reports.
PO-11	Graduates will be able to demonstrate knowledge and understanding of the engineering and management principles and apply the same while managing projects in multidisciplinary environments.
PO-12	Graduates will engage themselves in self and life-long learning in the context of rapid technological changes happening in Computer Science and other domains.

CourseOutcomeversus**Program Outcomes:**

Course outcomes	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2	PSO3
CO1	3		3	3	2				3				3	3	3
CO2	3		3	3	2				3				3	3	3
CO3	3		3	3	3				2			3	3	3	3
CO4	3		3	3	3				2			3	3	3	3
CO5	3		3	3	3				2			3	3	3	3

S-Stronglycorrelated,*M-Moderately*correlated, *Blank-No correlation*

Assessment Methods:	Day to day evaluation /Internal Lab-Test/ External LabExam

CourseOutcome-Assessment

Week	**TOPIC / CONTENTS**	**CourseOutcomes**	**Samplequestions**	**TEACHING-LEARNING STRATEGY**	**Assessment Method &Schedule**
1	Practice the following commands in Linux: A. Internal commands- echo, date etc. B. External commands- ls, bc, sort, head and cal etc. C. Other commands – tput, clear, who, man, passwd, uname	CO1	Q)Execute the following Commands i) echo, date etc ii) - ls, bc, sort, head and cal etc. iii) tput, clear, who, man, passwd, uname	Experiment	Evaluation bycheckingobservationandrecord **<u>Day to DayEvaluation(10M)</u>**Experment-4MRecord-2MResult-2M Viva-2M
2	Practice File and Directory commands in Linux: A. Directory related Commands – pwd, mkdir, rmdir, cd, ls. B. Manipulate Absolute paths and Relative paths using cd command. C. File related Commands – cat, cp, mv, rm, comm, cmp, diff, tar, umask, wc.	CO1	Q) Execute the following Commands i) pwd, mkdir, rmdir, cd, ls. ii) cd command. iii) cat, cp, mv, rm, comm, cmp, diff, tar, umask, wc.	Experiment	-

3	Configure the TCP/IP settings, customize web browsers with the LAN proxy settings, use bookmarks, Plug-ins and pop up blockers.	CO2	Q) Write About TCP/IP settings, LAN proxy settings, use bookmarks, Plug-ins and pop up blockers.	Experiment	
4	A. Antivirus installation, configuring a firewall, blocking pop-ups. B. Email creation and usage, Creating a Digital Profile on Linkedin. C. Source control on Github, Hackerrank, Codechef, HackerEarth, etc.	CO2	Q) Execute following activities i) Antivirus installation, ii) Creating a Digital Profile on Linkedin. iii) Source control on Github	Experiment	
5	Setup and configure a new virtual machine.	CO2	Q) Create VirtualMachine Using Virtual Box with desired configuration	Experiment	
6	A. Write a program to display the statements. B. Write a program to demonstrate the basic data types in python. C. Write a program to format string and numbers. D. Write a program to demonstrate the inbuilt Math function. E. Write a program to compute arithmetic operations taking input from the user and display the result. F. Write a	CO3	Q) Wrire and execute the python programming to perform folloing actions. i) to compute arithmetic operations taking input from the user and display the result. ii) to demonstrate bitwise and logical operators. iii)to swap two numbers without using a temporary variable.	Experiment	

	program to translate mathematical formulae into equivalent python expressions. G. Write a program to demonstrate bitwise and logical operators. H. Write a program to swap two numbers without using a temporary variable.				
7	**MIDTEST-I**				**MID TEST(25M)** Procedure-5MExperiment-10Result-5MViva-5M
8	Decision and Control Statements: A. Write a program to check whether the given number is even or odd. B. Write a program to find the largest element among the given numbers (multi-way if-elif-else statements.). C. Write a program to print the sum of all the even numbers in between two numbers. D. Write a program to display all prime numbers up to n.	CO3	Q) Q) Wrire and execute the python programming to perform folloing actions. i program to check whether the given number is even or odd ii) to find the largest element among the given numbers (multi-way if-elif-else statements.). iii) program to display all prime numbers up to n.	Experiment	Evaluation bycheckingobservationandrecord **Day to DayEvaluation(10M)**Experment-4MRecord-2MResult-2M Viva-2M
9.	A. Write a function to find the multiplication of two numbers and demonstrate the usage of parameters and arguments of a	CO4	Q)Wrire and execute the python programming to perform folloing actions.	Experiment	

	function. B. Write a function QUAEQU (a,b,c,x) which returns the value of the quadratic equation, discriminant, sum and product of the roots. C. Write a program to define a function using default arguments. D. Write a program to create a string and use any 6 inbuilt python functions for strings. E. Write a program to access characters in a given string through index operator. F. Write a program to traverse all the elements of string using for loop and check if two strings are anagrams or not. G. Write a program that takes a sentence as an input parameter and displays the number of words in it.		i) to find the multiplication of two numbers and demonstrate the usage of parameters and arguments of a function. ii) to define a function using default arguments. iii) to create a string and use any 6 inbuilt python functions for strings.		
10	A. Write a program to create tuples (name, age, address, college) for at least two members and display the concatenation of tuples and print the first tuple n number of times. B. Write a	CO5	Q) Wrire and execute the python programming to perform folloing actions. i) to create tuples (name, age, address, college) for at least two members and	Experiment	

	program to return the top n's most frequently occurring chars and their respective counts. e.g. aaaaaabbbbcccc, 2 should return [(a 6) (b 4)]. C. Write a program to create n iterables of varied sizes and group the values using zip function in python.		display the concatenation of tuples and print the first tuple n number of times. ii) to return the top n's most frequently occurring chars and their respective counts. e.g. aaaaaabbbbcccc, 2 should return [(a 6) (b 4)].		
11	A. Write a program to create two sets and perform the following operations: i. Union ii. Intersection iii. Difference iv. Asymmetric Difference B. Write a program to check whether the given set is a subset or superset of another set. C. Write a program to generate a dictionary that contains numbers (between 1 and n) in the form of (x,x*x). D. Write a program to check if a given key exists in a dictionary or not. E. Write a program to add a new key-value pair to an existing dictionary. F. Write a	CO5	Q) Q) Wrire and execute the python programming to perform folloing actions. i) to check whether the given set is a subset or superset of another set. ii) to generate a dictionary that contains numbers (between 1 and n) in the form of (x,x*x). iii) to check if a given key exists in a dictionary or not.	Experiment	

	program to sum all the items in a given dictionary.				
12	Write a program to check whether a given number has an even number of 1’s in its binary representation (No control flow allowed).	CO3	Q) Write a program to check whether a given number has an even number of 1’s in its binary representation (No control flow allowed).	Experiment	
13	**MID Test - II**				**MID TEST(25M)** Procedure-5MExperiment-10 Result-5MViva-5M
End Lab Externa Exams					