

BASIRHAT COLLEGE

DEPARTMENT OF COMPUTER SCIENCE

LESSON PLAN-2022-2023 JULY-DEC

B.Sc. Program with Computer Science (GE/DSC)

Semester-I

Paper Title- Problem Solving with Computer

Paper Code- CMSGCOR01T

Credits-4

COURSE OUTCOME: -

After completion of this course the students will be able –

CO1 Recognize the basic Basic Computer Organization like CPU, ALU, memory hierarchy, registers,I/O devices etc.

CO2 Recognize the basic data types , control statementsand and Loop in Python Program.

CO3. Summarize the concept of Objects and Classes, Inheritance, Regular

Expressions,Event Driven Programming in Python Program.

CO4. To create efficient program using functions to implement reusability.

CO5. Apply the structures in making application software using GUI Programming.

CO6. Generate files and use preprocessor for real world application.

MONTH	COURSE/ TOPIC	TEACHER	CLASS HOUR	TUTORIAL
July August	Computer Fundamentals: Introduction to Computers: Characteristics of Computers, Uses of computers, Types and generations of Computers. Planning the Computer Program: Concept of problem solving, Problem definition, Program design, Debugging, Types of errors in programming, Documentation. 4. WAP to display the first n	DP FA	DP-5 FA-5	THEORYTICAL-4 PRACTICAL -2 TUTORIAL -4

	<p>terms of Fibonacci series.</p> <p>1. Write a menu driven program to convert the given temperature from Fahrenheit to Celsius and vice versa depending upon user's choice.</p> <p>2. WAP to calculate total marks, percentage and grade of a student. Marks obtained in each of the three subjects are to be input by the user. Assign grades according to the following criteria :</p> <p>a. Grade A: Percentage ≥ 80</p> <p>b. Grade B: Percentage ≥ 70 and < 80</p> <p>c. Grade C: Percentage ≥ 60 and < 70</p> <p>d. Grade D: Percentage ≥ 40 and < 60</p> <p>e. Grade E: Percentage < 40</p> <p>Techniques of Problem Solving: Flowcharting, decision table, algorithms, Structured programming concepts, Programming methodologies viz. top-down and bottom-up programming</p> <p>3. Write a menu-driven program, using user-defined functions to find the area of rectangle, square, circle and triangle by accepting suitable input parameters from user.</p>			
September October	<p>Overview of Programming: Structure of a Python Program, Elements of Python</p> <p>Introduction to Python: Python Interpreter, Using Python as calculator, Python</p>	DP	DP-12 FA-10	THEORYTICAL-8 PRACTICAL -6 TUTORIAL -8

	<p>shell, Indentation. Atoms, Identifiers and keywords, Literals, Strings, Operators (Arithmetic operator, Relational operator, Logical or Boolean operator, Assignment, Operator, Ternary operator, Bit wise operator, Increment or Decrement operator).</p>	<p>FA</p>		
<p>November</p>	<p>Creating Python Programs: Input and Output Statements, Control statements (Looping-whileLoop, for Loop , Loop Control, Conditional Statement- if...else, Difference between break, continue and pass).</p> <p>6. WAP to find sum of the following series for n terms: $1 - 2/2! + 3/3! - \dots - n/n!$</p> <p>7. WAP to calculate the sum and product of two compatible matrices.</p> <p>1. Write a menu-driven program to create mathematical 3D objects I. curve II. sphere III. cone IV. arrow V. ring VI. Cylinder.</p> <p>2. WAP to read n integers and display them as a histogram.</p> <p>3. WAP to display sine, cosine, polynomial and exponential curves.</p> <p>4. WAP to plot a graph of people with pulse rate p vs. height h. The values of p and h are to be</p>	<p>DP</p> <p>FA</p>	<p>DP-19 FA-13</p>	<p>THEORYTICAL-14 PRACTICAL -10 TUTORIAL -8</p>

	entered by the user.			
December	<p>Structures: Numbers, Strings, Lists, Tuples, Dictionary, Date & Time, Modules, Defining Functions, Exit function, default arguments.</p> <p>WAP to calculate the mass m in a chemical reaction. The mass m (in gms) disintegrates according to the formula $m=60/(t+2)$, where t is the time in hours. Sketch a graph for t vs. m, where $t \geq 0$.</p> <p>6. A population of 1000 bacteria is introduced into a nutrient medium. The population p grows as follows: $P(t) = (15000(1+t))/(15 + e)$</p> <p>Introduction to Advanced Python: Objects and Classes, Inheritance, Regular Expressions, Event Driven Programming, GUI Programming.</p> <p>7. Input initial velocity and acceleration, and plot the following graphs depicting equations of motion: I. velocity wrt time ($v=u+at$) II. distance wrt time ($s=u*t+0.5*a*t*t$) III. distance wrt velocity ($s=(v*v-u*u)/2*a$)</p>	DP	DP-24 FA-12	THEORYTICAL-14 PRACTICAL -16 TUTORIAL -6
		TOTAL	100	

		ALL TOTAL		
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Resources :

Books:

1. P. K. Sinha & Priti Sinha , “Computer Fundamentals”, BPB Publications, 2007.
2. Dr. Anita Goel, Computer Fundamentals, Pearson Education, 2010.
3. T. Budd, Exploring Python, TMH, 1st Ed, 2011
4. Python Tutorial/Documentation www.python.org 2010
5. Allen Downey, Jeffrey Elkner, Chris Meyers , How to think like a computer scientist : learning with Python , Freely available online.2012
6. <http://docs.python.org/3/tutorial/index.html>
7. <http://interactivepython.org/courselib/static/pythonds>
8. <http://www.ibiblio.org/g2swap/byteofpython/read/>

B.Sc. Program with Computer Science (GE/DSC)

Semester-III

Paper Title- OS

Paper Code- CMSGCOR03T

Credits-4

COURSE OUTCOME: -

After completion of this course the students will be able –

CO1 . Understand the basics of operating systems like kernel, shell, types and views of operating systems

CO2 . Describe the various CPU scheduling algorithms and remove deadlocks.

CO3 . Explain various memory management techniques and concept of thrashing

CO4 . Recognize file system interface, security mechanisms and protection .

CO5 . Use disk management and disk scheduling algorithms for better utilization of external memory.

CO6 . Explain the various features of distributed OS like Unix, Linux, windows etc. related algorithms

MONTH	COURSE/ TOPIC	TEACHER	CLASS HOUR	TUTORIAL
July	Introduction: System (2L) Software, Resource Abstraction, OS strategies. Types of operating systems - Multiprogramming, Batch, Time Sharing, Single user and Multiuser, Process Control & Real Time Systems.	DP FA	DP-6 FA-6	THEORYTICAL-4 PRACTICAL -2 TUTORIAL -5
August	Operating System (10L) Organization: Factors in operating system design, basic OS functions, implementation consideration; process modes,	DP FA	DP-10 FA-15	THEORYTICAL-12 PRACTICAL -8 TUTORIAL -5

	<p>“cal” command to display calendars of the specified range of months.</p> <p>non-pre-emptive and pre-emptive strategies.</p> <p>7. Write a shell script to accept a login name. If not a valid login name display message – “Entered login name is invalid”.</p> <p>8. Write a shell script to display date in the mm/dd/yy format.</p>	FA		
November	<p>Memory Management: Mapping address space to memory space, memory allocation</p> <p>9. Write a shell script to display on the screen sorted output of “who” command along with the total number of users.</p> <p>10. Write a shell script to display the multiplication table any number,</p> <p>strategies, fixed partition, variable partition, paging, virtual memory</p> <p>11. Write a shell script to compare two files and if found equal asks the user to delete the duplicate file.</p> <p>12. Write a shell script to find the sum of digits of a given number.</p>	DP	DP-8 FA-16	<p>THEORYTICAL-10 PRACTICAL -8 TUTORIAL -6</p>
December		DP	DP-10	THEORYTICAL-

	<p>Shell introduction and Shell Scripting</p> <ul style="list-style-type: none"> ● What is shell and various type of shell, Various editors present in linux ● Different modes of operation in vi editor ● What is shell script, Writing and executing the shell script <p>13. Write a shell script to merge the contents of three files, sort the contents and then display them page by page.</p> <p>14. Write a shell script to find the LCD(least common divisor) of two</p> <p>15. Write a shell script to perform the tasks of basic calculator.</p> <p>16. Write a shell script to find the power of a given number.</p> <ul style="list-style-type: none"> ● Shell variable (user defined and system variables) ● System calls, Using system calls ● Pipes and Filters ● Decision making in Shell Scripts (If else, switch), Loops in shell ● Functions ● Utility programs (cut, paste, join, tr , uniq utilities) ● Pattern matching utility (grep) <p>17. Write a shell script to find the factorial of a given number.</p> <p>18. Write a shell script to check whether the number is Armstrong or not.</p> <p>19. Write a shell script to check whether the file have all the</p>	<p>FA</p>	<p>FA-20</p>	<p>16 PRACTICAL - 10 TUTORIAL -4</p>
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	permissions or not. 20. Program to show the pyramid of special character “*”.			
		TOTAL	135	
		ALL TOTAL		

Resources :

Books

1. A Silberschatz, P.B. Galvin, G. Gagne, Operating Systems Concepts, 8 th Edition, John Wiley Publications 2008.
2. A.S. Tanenbaum, Modern Operating Systems, 3 rd Edition, Pearson Education 2007.
3. G. Nutt, Operating Systems: A Modern Perspective, 2 nd Edition Pearson Education 1997.
4. W. Stallings, Operating Systems, Internals & Design Principles, 5 th Edition, Prentice Hall of India. 2008.
5. M. Milenkovic, Operating Systems- Concepts and design, Tata McGraw Hill 1992.

B.Sc. Program with Computer Science (GE/DSC)

Semester-V

Paper Title- Programming in JAVA

Paper Code- CMSGDSE01T

Credits-6

COURSE OUTCOME: -

After completion of this course the students will be able –

CO1 . Learn basic concepts Java Programming Language

CO2 . Use the syntax and semantics of java programming language and basic concepts of OOP.

CO3 . Develop reusable programs using the concepts of inheritance, polymorphism, interfaces and Method Overloading, Method Overriding, Nested and Inner classes.

CO4 . Apply the concepts of Multithreading and Exception handling to develop efficient and error free codes.

CO5 . Create wide range of Applications and Applets using Java and ability to work with I/O Streams

CO6 . Design event driven GUI and web related applications which mimic the real word scenarios.

MONTH	COURSE/ TOPIC	TEACHER	CLASS HOUR	TUTORIAL
July	Introduction to Java: (2L) Features of Java, JDK Environment Object Oriented Programming Concept Overview of Programming, Paradigm, Classes, Abstraction, Encapsulation, Inheritance, Polymorphism, Difference between C++ and JAVA	DP FA	DP-4 FA-4	THEORYTICAL-3 PRACTICAL -1 TUTORIAL -4
August	Java Programming Fundamental :Structure of java program, Data types, Variables, Operators, Keywords, Naming	DP FA	DP-12 FA-8	THEORYTICAL-10 PRACTICAL -6 TUTORIAL -4

	<p>Convention, Decision Making (if, switch), Looping (for, while), Type Casting (12L)</p> <p>Classes and Objects: Creating Classes and objects, Memory allocation for objects</p> <p>Implementation of Inheritance, Implementation of Polymorphism, Method Overloading, Method Overriding, Nested and Inner classes</p>			
September	<p>Arrays and Strings: Arrays, Creating an array, Types of Arrays, String class Methods, StringBuffer methods. (8L)</p> <p>Abstract Class, Interface and Packages: Modifiers and Access Control, Abstract</p>	<p>DP FA</p>	<p>DP-8 FA-12</p>	<p>THEORYTICAL-10 PRACTICAL -6 TUTORIAL -4</p>
October November	<p>methods, Interfaces, Packages Concept, Creating user defined packages</p> <p>Exception Handling: Exception types, Using try catch and multiple catch, Nested try, throw, throws and finally, Creating User defined Exceptions.</p>	<p>DP FA</p>	<p>DP-10 FA-12</p>	<p>THEORYTICAL-10 PRACTICAL -8 TUTORIAL -4</p>
December	<p>File Handling: Byte Stream, Character Stream, File IO Basics, File Operations, Creating file, Reading file, Writing File</p> <p>Applet Programming: Introduction, Types Applet, Applet Life cycle, Creating Applet, Applet tag</p>	<p>DP FA</p>	<p>DP-10 FA-10</p>	<p>THEORYTICAL-8 PRACTICAL -7 TUTORIAL -5</p>
		TOTAL	90	
		ALL TOTAL		

Resources :

Books:

1. Ivan Bayross, Web Enabled Commercial Application Development Using Html, Dhtml,javascript, Perl Cgi , BPB Publications, 2009.
2. Cay Horstmann, BIG Java, Wiley Publication , 3rd Edition., 2009
3. Herbert Schildt , Java 7, The Complete Reference, , 8th Edition, 2009.
4. E Balagurusamy , Programming with JAVA, TMH, 2007