



**KARNATAK UNIVERSITY, DHARWAD
ACADEMIC (S&T) SECTION**

**ಕರ್ನಾಟಕ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಧಾರವಾಡ
ವಿದ್ಯಾಮಂಡಳ (ಎಸ್&ಟಿ) ವಿಭಾಗ**



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'A' Grade 2014

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No. KU/Aca(S&T)/JS/MGJ(Gen)/2023-24/59

Date: 04/09/2023

ಅಧಿಸೂಚನೆ

ವಿಷಯ: 2023-24ನೇ ಶೈಕ್ಷಣಿಕ ಸಾಲಿನಿಂದ ಎಲ್ಲ ಸ್ನಾತಕ ಪದವಿಗಳಿಗೆ 5 ಮತ್ತು 6ನೇ ಸೆಮಿಸ್ಟರ್
NEP-2020 ಪಠ್ಯಕ್ರಮವನ್ನು ಅಳವಡಿಸಿರುವ ಕುರಿತು.

- ಉಲ್ಲೇಖ: 1. ಸರ್ಕಾರದ ಅಧೀನ ಕಾರ್ಯದರ್ಶಿಗಳು(ವಿಶ್ವವಿದ್ಯಾಲಯ 1) ಉನ್ನತ ಶಿಕ್ಷಣ ಇಲಾಖೆ ಇವರ
ಆದೇಶ ಸಂಖ್ಯೆ: ಇಡಿ 104 ಯುಎನ್‌ಇ 2023, ದಿ: 20.07.2023.
2. ವಿದ್ಯಾವಿಷಯಕ ಪರಿಷತ್ ಸಭೆಯ ನಿರ್ಣಯ ಸಂಖ್ಯೆ: 2 ರಿಂದ 7, ದಿ: 31.08.2023.
3. ಮಾನ್ಯ ಕುಲಪತಿಗಳ ಆದೇಶ ದಿನಾಂಕ: 04/09/2023

ಮೇಲ್ಕಾಣಿಸಿದ ವಿಷಯ ಹಾಗೂ ಉಲ್ಲೇಖಗಳನ್ವಯ ಮಾನ್ಯ ಕುಲಪತಿಗಳ ಆದೇಶದ ಮೇರೆಗೆ, 2023-24ನೇ ಶೈಕ್ಷಣಿಕ ಸಾಲಿನಿಂದ ಅನ್ವಯವಾಗುವಂತೆ, ಎಲ್ಲ B.A./ BPA (Music) /BVA / BTM / BSW/ B.Sc./B.Sc. Pulp & Paper Science/ B.Sc. (H.M)/ BCA/ B.A.S.L.P./ B.Com/ B.Com (CS) / BBA & BA ILRD ಸ್ನಾತಕ ಪದವಿಗಳ 5 ಮತ್ತು 6ನೇ ಸೆಮಿಸ್ಟರ್‌ಗಳಿಗೆ NEP-2020ರ ಮುಂದುವರೆದ ಭಾಗವಾಗಿ ವಿದ್ಯಾವಿಷಯಕ ಪರಿಷತ್ ಸಭೆಯ ಅನುಮೋದಿತ ಕೋರ್ಸಿನ ಪಠ್ಯಕ್ರಮಗಳನ್ನು ಕ.ವಿ.ವಿ. ಅಂತರ್ಜಾಲ www.kud.ac.in ದಲ್ಲಿ ಭಿತ್ತರಿಸಲಾಗಿದೆ. ಸದರ ಪಠ್ಯಕ್ರಮಗಳನ್ನು ಕ.ವಿ.ವಿ. ಅಂತರ್ಜಾಲದಿಂದ ಡೌನ್‌ಲೋಡ್ ಮಾಡಿಕೊಳ್ಳಲು ಸೂಚಿಸುತ್ತ ವಿದ್ಯಾರ್ಥಿಗಳ ಹಾಗೂ ಸಂಬಂಧಿಸಿದ ಎಲ್ಲ ಬೋಧಕರ ಗಮನಕ್ಕೆ ತಂದು ಅದರಂತೆ ಕಾರ್ಯಪ್ರವೃತ್ತರಾಗಲು ಕವಿವಿ ಅಧೀನದ/ಸಂಲಗ್ನ ಮಹಾವಿದ್ಯಾಲಯಗಳ ಪ್ರಾಚಾರ್ಯರುಗಳಿಗೆ ಸೂಚಿಸಲಾಗಿದೆ.

ಅಡಕ: ಮೇಲಿನಂತೆ

(Signature)
ಕುಲಸಚಿವರು.

ಗೆ,

ಕರ್ನಾಟಕ ವಿಶ್ವವಿದ್ಯಾಲಯದ ವ್ಯಾಪ್ತಿಯಲ್ಲಿ ಬರುವ ಎಲ್ಲ ಅಧೀನ ಹಾಗೂ ಸಂಲಗ್ನ ಮಹಾವಿದ್ಯಾಲಯಗಳ ಪ್ರಾಚಾರ್ಯರುಗಳಿಗೆ. (ಕ.ವಿ.ವಿ. ಅಂತರ್ಜಾಲ ಹಾಗೂ ಮಿಂಚಂಚೆ ಮೂಲಕ ಬಿತ್ತರಿಸಲಾಗುವುದು)

ಪ್ರತಿ:

1. ಕುಲಪತಿಗಳ ಆಪ್ತ ಕಾರ್ಯದರ್ಶಿಗಳು, ಕ.ವಿ.ವಿ. ಧಾರವಾಡ.
2. ಕುಲಸಚಿವರ ಆಪ್ತ ಕಾರ್ಯದರ್ಶಿಗಳು, ಕ.ವಿ.ವಿ. ಧಾರವಾಡ.
3. ಕುಲಸಚಿವರು (ಮೌಲ್ಯಮಾಪನ) ಆಪ್ತ ಕಾರ್ಯದರ್ಶಿಗಳು, ಕ.ವಿ.ವಿ. ಧಾರವಾಡ.
4. ಅಧೀಕ್ಷಕರು, ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆ / ಗೌಪ್ಯ / ಜಿ.ಎ.ಡಿ. / ವಿದ್ಯಾಂಡಳ (ಪಿ.ಜಿ.ಪಿಎಚ್.ಡಿ) ವಿಭಾಗ, ಸಂಬಂಧಿಸಿದ ಕೋರ್ಸುಗಳ ವಿಭಾಗಗಳು ಪರೀಕ್ಷಾ ವಿಭಾಗ, ಕ.ವಿ.ವಿ. ಧಾರವಾಡ.
5. ನಿರ್ದೇಶಕರು, ಕಾಲೇಜು ಅಭಿವೃದ್ಧಿ / ವಿದ್ಯಾರ್ಥಿ ಕಲ್ಯಾಣ ವಿಭಾಗ, ಕ.ವಿ.ವಿ. ಧಾರವಾಡ.



KARNATAK UNIVERSITY, DHARWAD

B.A.in Computer Applications

SYLLABUS

With Effect from 2023-24

**DISCIPLINE SPECIFIC CORE COURSE (DSCC) FOR SEM V & VI,
SKILL ENHANCEMENT COURSE (SEC) FOR SEM V & VI SEM**

AS PER NEP-2020

Karnatak University, Dharwad
B.A.in Computer Application
Effective from 2023-24

Sem.	Type of Course	Theory/Practical	Course Code	Course Title	Instruction hour/week	Total hours / sem	Duration of Exam	Marks			Credits
								Formative	Summative	Total	
V	DSCC-9	Theory	015CSC011	Data Structures and its Applications	04	56	02hrs	40	60	100	04
	DSCC-10	Practical	015CSC012	Practical in Data Structures	04	56	03hrs	25	25	50	02
	DSCC-11	Theory	015CSC013	Programming in Python	04	56	02hrs	40	60	100	04
	DSCC-12	Practical	015CSC014	Practical in Python Programming	04	56	03hrs	25	25	50	02
	Other subject										04
	Other subject										02
	Other subject										04
	Other Subject										02
	SEC-3	Practical	015CSC061	Cyber Security	04	56	03hrs	25	25	50	02
	Total										26
VI	DSCC-13	Theory	016CSC011	PHP and MySQL	04	56	02hrs	40	60	100	04
	DSCC-4	Practical	016CSC012	Practical in PHP and MySQL	04	56	03hrs	25	25	50	02
	DSCC-15	Theory	016CSC013	Web Technologies	04	56	02hrs	40	60	100	04
	DSCC-16	Practical	016CSC014	Practical in Web Technologies	04	56	03hrs	25	25	50	02
	Other subject										04
	Other subject										02
	Other subject										04
	Other Subject										02
	Internship-1	Project	016CSC091	Mini Project			--	50	0	50	02
	Total										26

B.A. Semester–V

Discipline Specific Course (DSCC-9)

Course Title: Data Structures and its Applications

Course Code: 015CSC011

Type of Course	Theory /Practical	Credits	Instruction hour per week	Total No.of Lectures/Hours /Semester	Duration of Exam	Formative Assessment Marks	Summative assessment Marks	Total Marks
DSCC-9	Theory	04	04	56	2hrs.	40	60	100

Course Outcomes (COs): At the end of the course students will be able to:

CO1: To impart the basic concepts of data structures algorithms.

CO2: To familiar with data structural algorithms such as sorting & searching, stack & queue, linked list and trees.

CO3: To be familiar with some graph algorithms such as binary tree representation of tree and operations on trees.

CO4: To understand the basic concepts of tree traversal.

CO5: How to use basic data structure for program implementation.

Unit	Contents	56hrs/sem
Unit I	Introduction to Data Structure: Structure Definition, Initialisation, Array as structure, Array within structure, Union. Understanding pointers, Declaring and initializing pointers, accessing a variable through its pointer, static and dynamic memory allocation. Definition of Data Structure, Classification of Data Structure: Primitive and NonPrimitive, Operations on Data Structure, Review of Array.	14
Unit II	Searching and Sorting: Searching Definition, Searching Techniques: Sequential search, Binary search. Comparison Between sequential and binary searching. Sorting Definition, Sorting Techniques: Bubble sort, Merge sort, Selection sort, Quick sort, Insertion Sort.	14
Unit III	Stack and Queue: Definition of stack, Array Representation of Stack, Linked List Representation of stack, Operation Performed on Stack, Infix, Prefix, Postfix notations, Conversion of arithmetic expressions, Application of stack. Definition of Queue, Array Representation of Queue, Types of Queue: Simple queue, Circular queue, Double ended queue, Priority queue, Operations on all types of queue.	14
Unit IV	Linked List: Definition, Representation of linked lists in Memory, Types of linked list: Singly linked list, Doubly linked list and Circular linked list. Operations on linked list: Creation, Insertion, Deletion, Search, Display and Traversing. Advantages and disadvantages of linked list. Trees: Definitions, Tree terminology, Binary tree, Complete binary tree. Operations on Binary Trees, Representation of binary tree	14

Text Books:

1. Kamthane: Introduction to Data Structure in C. Pearson education 2005.
2. Fundamentals of Data structures in C, 2nd Edition, E.Horowitz, S.Sahni and Susan Anderson-Freed, Universities Press.

References:

1. Data Structures using C, A.M.Tanenbaum, Y. Langsam, M.J.Augenstein, Pearson.
2. Data structures and Program Design in C, 2 nd edition, R.Kruse, C.L.Tondo and B.Leung, Pearson.
3. Data structures A Programming Approach with C, D.S.Kushwaha and A.K.Misra, PHI.
4. E. Balaguruswamy, Programming in ANSI C, Tata McGraw-Hill.

Formative Assessment for Theory	
Assessment/Occasion/type	Marks
Internal Assessment Test 1	10
Internal Assessment Test 2	10
Quiz/Assignment/Small Project	10
Seminar	10
Total	40
Formative Assessment as per guidelines.	

B.A. Semester–V

Discipline Specific Course (DSCC-10)

Course Title: Practical in Data Structures

Course Code: 015CSC012

Type of Course	Theory / Practical	Credits	Instruction hours per week	Total No. of Lectures / Hours / Semester	Duration of Exam	Formative Assessment Marks	Summative assessment Marks	Total Marks
DSCC-10	Practical	02	04	56	3hrs.	25	25	50

Course Outcomes (COs): At the end of the course, students will be able to:

CO1: Be able to design & implement list data structure using

- i. Stack & Queue
- ii. Linked list
- iii. Singly & doubly linked list

CO2: Design & implement searching and sorting by applying various operations.

CO3: Design & implement basic operation on trees

Program Nos,	Programs	56hrs/sem
1	Write a Program to create, Initialize and access a pointer variable.	
3	Write a Program to Calculate the length of the string using a pointer.	
4	Write a Program to swap numbers using pointer.	
5	Write a program to print all permutations of a given string using pointers.	
6	Write a Program to store n student's information using structure.	
7	Write Program to implement Push, Pop and Traverse operation on STACK.	
8	Write Program to convert infix notation to postfix notation.	
9	Write Program to convert Infix notation to prefix notation.	
10	Write a program to convert Prefix notation to postfix notation.	
11	Write Program to perform the operation Insert, Delete and Display on Queue.	
12	Write Program to implement Circular queue.	
12	Write Program to implement Double ended queue.	
13	Write Program to implement Priority queue.	
14	Write a Program to search an element using Linear search.	
15	Write a Program to sort given Array using Insertion sort technique.	
16	Write a Program to sort given Array using Bubble sort technique.	
17	Write a Program to sort given Array using Quick sort technique.	
18	Write a Program to sort given Array using selection sort technique	
19	Write Program to implement Singly Linked List.	
20	Write Program to implement Double Linked List	

Instruction to the Examiners:

Formative Assessment for Practicals	
Assessment/Occasion/type	Marks
Writing Program 1 + Execution without error	10
Writing Program 2 + Execution without error	10
Viva	03
Journal	02
Total	25
Formative Assessment as per guidelines.	

Note: The same shall be used for semester end Examination

B.A. Semester–V

Discipline Specific Course (DSCC-11)

Course Title: Programming in Python

Course Code: 015CSC013

Type of Course	Theory / Practical	Credits	Instruction hours per week	Total No. of Lectures / Hours / Semester	Duration of Exam	Formative Assessment Marks	Summative assessment Marks	Total Marks
DSCC-11	Theory	04	04	56hrs.	2hrs.	40	60	100

Course Outcomes (COs): At the end of the course, students will be able to:

CO1: Explain the basic concepts of Python Programming.

CO2: Demonstrate proficiency in the handling of loops and creation of functions.

CO3: Identify the methods to create and manipulate lists, tuples and dictionaries.

CO4: Discover the commonly used operations involving file handling.

CO5: Interpret the concepts of Object-Oriented Programming as used in Python

Unit	Contents	56hrs/sem
Unit I	Introduction to Features and Applications of Python; Python Versions; Installation of Python; Python Command Line mode and Python IDEs; Simple Python Program. Python Basics: Identifiers; Keywords; Statements and Expressions; Variables; Operators; Precedence and Association; Data Types; Indentation; Comments; Built-in Functions- Console Input and Console Output, Type Conversions; Python Libraries; Importing Libraries with Examples. Python Control Flow: Types of Control Flow; Control Flow Statements- if, else, elif, while loop, break, continue statements, for loop Statement; range () and exit () functions	14
Unit II	Exception Handling: Types of Errors; Exceptions; Exception Handling using try, except and finally. Python Functions: Types of Functions; Function Definition- Syntax, Function Calling, Passing Parameters/arguments, the return statement; Default Parameters; Command line Arguments; Keyword Arguments; Recursive Functions; Scope and Lifetime of Variables in Functions. Strings: Creating and Storing Strings; Accessing String Characters; the str() function; Operations on Strings- Concatenation, Comparison, Slicing and Joining, Traversing; Format Specifiers; Escape Sequences; Raw and Unicode Strings; Python String Methods	14
Unit III	Lists: Creating Lists; Operations on Lists; Built-in Functions on Lists; Implementation of Stacks and Queues using Lists; Nested Lists. Dictionaries: Creating Dictionaries; Operations on Dictionaries; Built-in Functions on Dictionaries; Dictionary Methods; Populating and Traversing Dictionaries. Tuples and Sets: Creating Tuples; Operations on Tuples; Built-in Functions on Tuples; Tuple Methods; Creating Sets; Operations on Sets; Built-in Functions on Sets; Set Methods. File Handling: File Types; Operations on Files– Create, Open, Read, Write, Close Files; File Names and Paths; Format Operator. Object Oriented Programming: Classes and Objects; Creating Classes and Objects; Constructor Method; Classes with Multiple Objects; Objects as Arguments; Objects as Return Values; Inheritance- Single and Multiple Inheritance, Multilevel and Multipath Inheritance; Encapsulation- Definition, Private Instance Variables; Polymorphism- Definition, Operator Overloading.	14

UnitIV	GU Interface: The tkinter Module; Window and Widgets; Layout Management- pack, grid and place. Python SQLite: The SQLite3 module; SQLite Methods- connect, cursor, execute, close; Connect to Database; Create Table; Operations on Tables Insert, Select, Update. Delete and Drop Records. Data Analysis: NumPy- Introduction to NumPy, Array Creation using NumPy, Operations on Arrays; Pandas- Introduction to Pandas, Series and DataFrames, Creating DataFrames from Excel Sheet and .csv file, Dictionary and Tuples. Operations on DataFrames. Data Visualisation: Introduction to Data Visualisation; Matplotlib Library; Different Types of Charts using Pyplot- Line chart, Bar chart and Histogram and Pie chart.	14
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References:

1. Think Python How to Think Like a Computer Scientist, Allen Downey et al., 2nd Edition, Green Tea Press. Freely available online @ <https://www.greenteapress.com/thinkpython/thinkCSpy.pdf>, 2015.
2. Introduction to Python Programming, Gowrishankar S et al., CRC Press, 2019.
3. Python Data Analytics: Data Analysis and Science Using Pandas, matplotlib, and the Python Programming Language, Fabio Nelli, Apress®, 2015
4. Advance Core Python Programming, MeenuKohli, BPB Publications, 2021.
5. Core PYTHON Applications Programming, Wesley J. Chun, 3rd Edition, Prentice Hall, 2012.
6. Automate the Boring Stuff, Al Sweigart, No Starch Press, Inc, 2015.
7. Data Structures and Program Design Using Python, D Malhotra et al., Mercury Learning and Information LLC, 2021.
8. <http://www.ibiblio.org/g2swap/byteofpython/read/>
9. <https://docs.python.org/3/tutorial/index.html>

Formative Assessment for Theory	
Assessment/Occasion/type	Marks
Internal Assessment Test 1	10
Internal Assessment Test 2	10
Quiz/Assignment/Small Project	10
Seminar	10
Total	40
Formative Assessment as per guidelines.	

B.A. Semester–V

Discipline Specific Course (DSCC-12)

Course Title: Practical in Python Programming

Course Code: 015CSC014

Type of Course	Theory / Practical	Credits	Instruction hours per week	Total No. of Lectures / Hours / Semester	Duration of Exam	Formative Assessment Marks	Summative assessment Marks	Total Marks
DSCC-12	Practical	02	04	56	3hrs.	25	25	50

Course Outcomes (COs): At the end of the course, students will be able to:

CO1: To demonstrate different number data types in Python.

CO2: Perform different Arithmetic Operations on numbers in Python.

CO3: Ability to explore python especially the object oriented concepts, and the built in objects of Python

CO4: To be able to introduce core programming basics and program design with functions using Python programming language

Program Nos.	Programs	56hrs/sem
1	Check if a number belongs to the Fibonacci Sequence	
2	Solve Quadratic Equations	
3	Find the sum of n natural numbers	
4	Display Multiplication Tables	
5	Check if a given number is a Prime Number or not	
6	Implement a sequential search	
7	Create a calculator program	
8	Explore string functions	
9	Implement Selection Sort	
10	Implement Stack	
11	Read and write into a file	

Instruction to the Examiners

Formative Assessment for Practical	
Assessment/Occasion/type	Marks
Writing Program 1 + Execution without error	10
Writing Program 2 + Execution without error	10
Viva	03
Journal	02
Total	25
Formative Assessment as per guidelines.	

Note: The same shall be used for semester end Examination

B.A. Semester–V

Skill Enhancement Course: SEC-3

Course Title: Cyber Security
Course Code: 015CSC061

Type of Course	Theory / Practical	Credits	Instruction hour/week	Total No. of Lectures/Hours /Semester	Duration of Exam	Formative Assessment Marks	Summative assessment Marks	Total Marks
SEC-3	Practical	02	04	56	3hrs.	25	25	50

Course Outcomes (COs): At the end of the course, students will be able to:

CO1: Analyze and evaluate the cyber security needs of an organization.

CO2: Conduct a cyber security risk assessment.

CO3: Measure the performance and troubleshoot cyber security systems.

CO4: Implement cyber security solutions.

Unit	Contents	42hrs/sem
Unit I	<p>Introduction – Cyber security: Definition, Types of Cyber Attacks, Defence Strategies and Techniques, Guiding Principles, Cryptography; Mathematical Background for Cryptography: Modulo Arithmetic, The Greatest Common Divisor.</p> <p>Computer Security Concepts - Definition, The Challenges of Computer Security; Security Attacks: Passive Attacks, Active Attacks; Security Services: Authentication, Access Control, Data Confidentiality, Data Integrity, Non repudiation, Availability Service; Security Mechanisms ; Attack Surfaces and Attack Trees; A Model for Network Security.</p> <p>Symmetric Ciphers: Symmetric Cipher Model: Cryptography, Cryptanalysis and Brute-Force Attack; Substitution Techniques: Caesar Cipher, Hill Cipher, One-Time Pad, Simple XOR, Transposition Techniques, Steganography.</p>	14
Unit II	<p>Asymmetric Ciphers: Principles Of Public-Key Cryptosystems, Public-Key Cryptosystems, Applications for Public-Key Cryptosystems, Requirements for Public-Key Cryptography, RSA.</p> <p>Cryptographic Hash Functions: Applications of Cryptographic Hash Functions: Message Authentication, Digital Signatures, Other Applications; Requirements and Security: Security Requirements for Cryptographic Hash Functions, Brute-Force Attacks, Cryptanalysis, ;Secure Hash Algorithm (SHA).</p>	14

Program Nos	Programs	56hrs/sem
1	Write a Python program that defines a function and takes a password string as input and returns its SHA-256 hashed representation as a hexadecimal string.	
2	Write a Python program that defines a function to generate random passwords of a specified length. The function takes an optional parameter length, which is set to 8 by default. If no length is specified by the user, the password will have 8 characters.	
3	Write a Python program to check if a password meets the following criteria: a. At least 8 characters long, b. Contains at least one uppercase letter, one lowercase letter, one digit, and one special character (!, @, #, \$, %, or &), c. If the password meets the criteria, print a message that says "Valid Password." If it doesn't meet the criteria, print a message that says "Password does not meet requirements."	
4	Write a Python program that reads a file containing a list of passwords, one per line. It checks each password to see if it meets certain requirements (e.g. at least 8 characters, contains both uppercase and lowercase letters, and at least one number and one special character). Passwords that satisfy the requirements should be printed by the program.	
5	Write a Python program that creates a password strength meter. The program should prompt the user to enter a password and check its strength based on criteria such as length, complexity, and randomness. Afterwards, the program should provide suggestions for improving the password's strength.	
6	Write a Python program that reads a file containing a list of usernames and passwords, one pair per line (separated by a comma). It checks each password to see if it has been leaked in a data breach. You can use the "Have I Been Pwned" API (https://haveibeenpwned.com/API/v3) to check if a password has been leaked.	
7	Write a Python program that simulates a brute-force attack on a password by trying out all possible character combinations.	
8	Python program for implementation symmetric encryption using Caesar cipher algorithm	
9	Python program implementation for hacking Caesar cipher algorithm	
10	Python program to implement asymmetric encryption using rsa python library	
11	Python program for encoding and decoding using Base64	
12	Python program to implement symmetric encryption using python library	

References:

1. W. Stallings. Cryptography and Network Security: Principles and Practices (7th edition). Prentice Hall, 2016, ISBN-13: 978-0134444284.
2. Bruce Schneier, Applied Cryptography, John Wiley & Sons, Second Edition, 2007, ISBN 978-1-119-09672-6.
3. William Stallings & Lawrie Brown, Computer Security: Principles and Practice, Pearson 2008, Indian Edition 2010.

Instruction to the Examiners

Formative Assessment for Practical	
Assessment/Occasion/type	Marks
Writing Program 1 + Execution without error	10
Writing Program 2 + Execution without error	10
Viva	03
Journal	02
Total	25
Formative Assessment as per guidelines.	

B.A. in Computer Application

VI Semester

W. e. f : 2023-24

B.A. Semester–VI

Discipline Specific Course (DSCC-13)

Course Title: PHP and MySQL

Course Code: 016CSC011

Type of Course	Theory / Practical	Credits	Instruction hours per week	Total No. of Lectures / Hours / Semester	Duration of Exam	Formative Assessment Marks	Summative assessment Marks	Total Marks
DSCC-13	Theory	04	04	56	2hrs.	40	60	100

Course Outcomes (COs): At the end of the course students will be able to:

CO1: Design dynamic and interactive web pages and websites.

CO2: Run PHP scripts on the server and retrieve results.

CO3: Handle databases like MySQL using PHP in websites.

Unit	Contents	56.hrs/sem
Unit I	Introduction to PHP: Introduction to PHP, History and Features of PHP, Installation & Configuration of PHP, Embedding PHP code in Your Web Pages, Understanding PHP, HTML and White Space, Writing Comments in PHP, Sending Data to the Web Browser, Data types in PHP, Keywords in PHP, Using Variables, Constants in PHP, Expressions in PHP, Operators in PHP.	14
Unit II	Programming with PHP: Conditional statements: if, if-else, switch, The ? Operator, Looping statements: while Loop, do-while Loop, for Loop Arrays in PHP: Introduction- What is Array?, Creating Arrays, Accessing Array elements, Types of Arrays: Indexed v/s Associative arrays, Multidimensional arrays, Creating Array, Accessing Array, Manipulating Arrays, Displaying array, Using Array Functions, Including and Requiring Files- use of Include() and Require(), Implicit and Explicit Casting in PHP.	14
Unit III	Using Functions, Class- Objects, Forms in PHP: Functions in PHP, Function definition, Creating and invoking user-defined functions, Formal parameters versus actual parameters, Function and variable scope, Recursion, Library functions, Date and Time Functions Strings in PHP: What is String?, Creating and Declaring String, String Functions Class & Objects in PHP: What is Class & Object, Creating and accessing a Class & Object, Object properties, object methods, Overloading, inheritance, Constructor and Destructor Form Handling: Creating HTML Form, Handling HTML Form data in PHP Database Handling Using PHP with MySQL: Introduction to MySQL: Database terms, Data Types.	14
Unit IV	Accessing MySQL –Using MySQL Client and Using phpMyAdmin, MySQL Commands, Using PHP with MySQL: PHP MySQL Functions, Connecting to MySQL and Selecting the Database, Executing Simple Queries, Retrieving Query Results, Counting Returned Records, Updating Records with PHP	14

References:

- 1 PHP & MySQL for Dynamic Web Sites-Fourth Edition By Larry Ullman.
- 2 Learning PHP, MySQL and JavaScript By Robin Nixon–O'REILLY Publications
- 3 Programming PHP By RasmusLerdorf, Kevin Tatroe, Peter MacIntyre
- 4 SAMS Teach Yourself PHP in 24 hours, Author:MattZandstra, SamsPublishing

Formative Assessment for Theory	
Assessment/Occasion/type	Marks
Internal Assessment Test 1	10
Internal Assessment Test 2	10
Quiz/Assignment/Small Project	10
Seminar	10
Total	40
Formative Assessment as per guidelines.	

B.A. Semester–VI

Discipline Specific Course (DSCC-14)

Course Title: Practical in PHP and MySQL

Course Code: 016CSC012

Type of Course	Theory / Practical	Credits	Instruction hours per week	Total No. of Lectures / Hours / Semester	Duration of Exam	Formative Assessment Marks	Summative assessment Marks	Total Marks
DSCC-14	Practical	02	04	56	3hrs.	25	25	50

Course Outcomes (COs): At the end of the course, students will be able to:

CO1: Using PHP MyAdmin to work with MySQL

CO2: Different ways of connecting to MySQL through PHP

CO3: Creating tables, entering data, selecting data, changing data, and deleting data

CO4: Learning or advancing existing knowledge of PHP

Program Nos.	Programs	56hrs/sem
1	Write a PHP script to print "hello world".	
3	Write a PHP script to find odd or even number from given number.	
4	Write a PHP script to find maximum of three numbers.	
5	Write a PHP script to swap two numbers.	
6	Write a PHP script to find the factorial of a number.	
7	Write a PHP script to check whether given number is palindrome or not.	
8	Write a PHP script to reverse a given number and calculate its sum	
9	Write a PHP script to generate a Fibonacci series using Recursive function	
10	Write a PHP script to implement at least seven string functions.	
11	Write a PHP program to insert new item in array on any position in PHP.	
12	Write a PHP script to implement constructor and destructor	
13	Write a PHP script to implement form handling using get method	
14	Write a PHP script to implement form handling using post method.	
15	Write a PHP script that receives form input by the method post to check the number is prime or not	
16	Write a PHP script that receives string as a form input	
17	Write a PHP script to compute addition of two matrices as a form input.	
18	Write a PHP script to show the functionality of date and time function.	
19	Write a PHP program to upload a file	
20	Write a PHP script to implement database creation	
21	Write a PHP script to create table	
22	Develop a PHP program to design a college admission form using MySQL database.	

Instruction to the Examiners

Formative Assessment for Practical	
Assessment/Occasion/type	Marks
Writing Program 1 + Execution without error	10
Writing Program 2 + Execution without error	10
Viva	03
Journal	02
Total	25
Formative Assessment as per guidelines.	

Note: The same shall be used for semester end Examination

B.A. Semester–VI

Discipline Specific Course (DSCC-15)

Course Title: Web Technologies

Course Code: O16CSC013

Type of Course	Theory / Practical	Credits	Instruction hours per week	Total No. of Lectures / Hours / Semester	Duration of Exam	Formative Assessment Marks	Summative assessment Marks	Total Marks
DSCC-15	Theory	04	04	56	2hrs.	40	60	100

Course Outcomes (COs): At the end of the course, students will be able to:

CO1: Describe and differentiate different Web Extensions and Web Services.

CO2: Apply fundamental computer theory to basic programming techniques and fundamental skills to maintain web server services required to host a website.

CO3: Select and apply markup languages for processing, identifying, and presenting of information in web pages.

CO4: Use scripting languages and web services to transfer data and add interactive components to web pages.

CO5: Create and manipulate web media objects using editing software.

Unit	Contents	56hrs/sem
Unit I	Introduction and Web Design: Introduction to Internet, WWW and Web 2.0, Web browsers, Web protocols and Web servers, Web Design Principles and Web site structure, client-server technologies, Client side tools and technologies, Server side Scripting, URL, MIME, search engine, web server- Apache, IIS, proxy server, HTTP protocol. Introduction to HTML. HTML5 Basics tags, Formatting tags in HTML, HTML5 Page layout and Navigation concepts, Semantic Elements in HTML, List, type of list tags, tables and form tags in HTML, multimedia basics, images, iframe, map tag, embedding audio and video clips on webpage.	14
Unit II	Introduction to XML: XML Syntax, XML Tree, Elements, Attributes, Namespace, Parser, XSLT DOM, DTD, Schema. Introduction to CSS: CSS syntax, CSS selectors, CSS Background, Cursor, CSS text fonts, CSS-List Tables, CSS Box Modeling, Display Positioning, Floats, CSS Gradients, Shadows, 2D and 3 Transform, Transitions, CSS Animations. Introduction to JavaScript: JavaScript Data type and Variables, JavaScript Operators, Conditional Statements, Looping Statements, JavaScript Functions, Number, Strings, Arrays, Objects in JavaScript, Window and Frame objects, Event Handling in JavaScript, Exception Handling, Form Object and DOM, JSON, Browser Object Model.	14
Unit III	Introduction to Servlets: Common Gateway Interface (CGI), Lifecycle of a Servlets, deploying a Servlets, The Servlets API, Reading Servlets parameters, reading initialization parameters, Handling HTTP Request & Responses, Using Cookies and sessions, connecting to a database using JDBC.	14
Unit IV	Web Security: Authentication Techniques, Design Flaws in Authentication, Implementation Flaws in Authentication, Securing Authentication, Path Traversal Attacks. Injecting into Interpreted Contexts, SQL Injection, NoSQL Injection, XPath Injection, LDAP Injection, XML Injection, HTTP Injection, Mail Service Injection. Types of XSS, XSS in Real World, Finding and Exploiting XSS Vulnerabilities, Preventing XSS Attacks.	14

References:

1. Web Programming, building internet applications, Chris Bates 2nd edition, Wiley Dremtech
2. Java Server Pages – Hans Bergsten, SPD O'Reilly
3. Java Script, D.Flanagan, O'Reilly, SPD
4. Beginning Web Programming-Jon Duckett WROX.
5. Web Applications : Concepts and Real World Design, Knuckles, Wiley-India
6. Internet and World Wide Web – How to program, Dietel and Nieto, Pearson.

Formative Assessment for Theory	
Assessment/Occasion/type	Marks
Internal Assessment Test 1	10
Internal Assessment Test 2	10
Quiz/Assignment/Small Project	10
Seminar	10
Total	40
Formative Assessment as per guidelines.	

B.A. Semester–VI

Discipline Specific Course (DSCC-16)

Course Title: Practical in Web Technologies

Course Code: O16CSC014

Type of Course	Theory / Practical	Credits	Instruction hours per week	Total No. of Lectures / Hours / Semester	Duration of Exam	Formative Assessment Marks	Summative assessment Marks	Total Marks
DSCC-16	Practical	02	04	56	3hrs.	25	25	50

Course Outcomes (COs): At the end of the course, students will be able to:

CO1: Design HTML tables, forms, multimedia and frames

CO2: To write Servlet and Java Script Programs.

Program Nos	Programs	56hrs/sem
1	Design web pages for your college containing college name and Logo, departments list using href, list tags.	
2	Create a class timetable using table tag.	
3	Write a HTML code to design Student registrations form for your college Admission	
4	Design Web Pages with includes Multi-Media data (Image, Audio, Video, GIFs etc)	
5	Create a web page using frame.	
6	Write code in HTML to develop a webpage having two frames that divide the webpage into two equal rows and then divide the row into equal columns fill each frame with a different background color.	
7	Write CSS code to Use Inline CSS to format your ID Card.	
8	Using HTML, CSS create display a text called —Hello India !! on top of an image of India-Map using an overlay.	
9	Write a JavaScript Program to perform Basic Arithmetic operations	
10	JavaScript Program to Check Prime Number	
11	JavaScript Program to implement Javascript Object Concept	
12	JavaScript Program to Create Array and inserting Data into Array	
13	JavaScript Program to Validate an Email Address	
14	Write a Program for printing System Date & Time using SERVLET	
15	Write a server side SERVLET program for accept number from HTML file and Display.	
16	Write a program to Creating the Life-Cycle Servlet Application	

Instruction to the Examiners

Formative Assessment for Practical	
Assessment/Occasion/type	Marks
Writing Program 1 + Execution without error	10
Writing Program 2 + Execution without error	10
Viva	03
Journal	02
Total	25
Formative Assessment as per guidelines.	

Note: The same shall be used for semester end Examination

B.A. Semester–VI

Internship-1

Course Title: Internship-1

Course Code: 016CSC091

Type of Course	Theory / Practical	Credits	Instruction hour/week	Total No. of Lectures/Hours /Semester	Duration of Exam	Formative Assessment Marks	Summative assessment Marks	Total Marks
Internship	Mini Project	02				50	0	50

CO 1: The student will be able to analyse, specify, design, implement and test application software.

CO 2: Allows a student to demonstrate their capabilities while working independently.

CO 3: Design a project through technical knowledge to meet customer/End user needs.

CO 4: Apply process of Project Development to analyze and design the real-world problem.

CO 5: Document the project report of various phases for future scope of the project development.

Formative Assessment for Internship-1	
Assessment/Occasion/type	Marks
Dissertation/Project Report evaluation :	20
Presentation/Demo of the application developed : (navigation of the application, features incorporated, data validation, UI, reports, etc.)	20
Viva-voce	10
Total	50
Formative Assessment as per guidelines.	

Execution of the Project:

1. The individual student is required to carry out the project under the guidance of course teacher.
2. Project work problem statement shall be identified by the students with the help of the course teachers and students shall submit the synopsis/project proposal of the same.
3. During project development students are expected to define a project problem, do requirements analysis, systems design, software development, apply testing strategies and do documentation with an overall emphasis on the development of a robust, efficient and reliable software systems.
4. The project development process has to be consistent and should follow standards identified by the guide monitoring the project work.
5. There is no restriction on use of hardware's and software's for carrying out the project work except that ready application packages are not allowed.
6. The students have to submit the project dissertation of the project work carried out in one hard copy along with soft copy written on compact disc.

Internship/Project:

A course requiring students to participate in a professional activity or work experience, or cooperative education activity with an entity external to the education institution, normally under the supervision of an expert of the given external entity. A key aspect of the internship is induction into actual work situations for 8 credits. Internships involve working with local industry, local governments or private organizations, business organizations, and similar entities to provide opportunities for students to actively engage in on-site experiential learning.

Note:

1. One credit internship is equal to 30 hrs.
2. Internship shall be Discipline Specific of 35-60 hours (2 credits) with duration 4-8weeks.
3. Internship may be full-time/part-time (full-time during last 1-2 weeks before closure of the semester or weekly 4hrs in the academic session for 14-16 weeks). College shall decide the suitable method for programme wise but not subject wise.
4. Internship mentor/supervisor shall avail work allotment during 6th semester for a maximum of 35-60 hours.
5. The student should submit the final internship report (35-60hours of Internship) to the mentor for completion of the internship.
6. Method of evaluation: Presentations/Report submission/Activity etc.

Whenever Internship is not feasible, the students can to choose the Project Work.

UG Programme: 2023-24

GENERAL PATTERN OF THEORY QUESTION COURSE FOR DSCC/ OEC

(60 marks for semester end Examination with 2 hrs duration)

Part-A

1. Question number 1-06 carries 2 marks each. Answer any 05 questions : 10 marks

Part-B

2. Question number 07- 11 carries 05Marks each. Answer any 04 questions : 20 marks

Part-C

3. Question number 12-15 carries 10 Marks each. Answer any 03 questions : 30 marks

(Minimum 1 question from each unit and 10 marks question may have subquestions for 7+3 or 6+4 or 5+5 if necessary)

Total: 60 Marks

Note: Proportionate weight age shall be given to each unit based on number of hours prescribed