

**MRSPTU B.SC. (GRAPHICS AND WEB DESIGNING)
SYLLABUS 2021 BATCH ONWARDS**

Semester 2 nd		Contact Hrs.			Marks			Credits
Subject Code	Subject Name	L	T	P	Int.	Ext.	Total	
BGWDS1-201	Fundamentals of Animation	3	1	0	40	60	100	4
BGWDS1-202	Web Development Using PHP & MySQL	3	1	0	40	60	100	4
BGWDS1-203	Object Oriented Programming using C++	3	1	0	40	60	100	4
BGWDS1-204	Software Lab IV (Object Oriented Programming Using C++)	0	0	4	60	40	100	2
BGWDS1-205	Software Lab V (Animation Based Minor Project Using Tools such as Scratch etc.)	0	0	4	60	40	100	2
BGWDS1-206	Software Lab VI (Project based on PHP and MySQL)	0	0	4	60	40	100	2
BHSMC0-041	Environmental Sciences	3	0	0	40	60	100	3
BGWDS1-207	Mentoring and Professional Development	0	0	1	25	--**	25	1
Total		-	-	-	365	360	725	22

** The Mentoring and Professional Development course will have internal evaluation only. (See guidelines at the last page of this file)

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FUNDAMENTALS OF ANIMATION

Subject Code- BGWDS1-201

**L T P C
3 1 0 4**

Total Hours: 60

Course Outcomes:

1. Learn the different mediums of Drawing and its importance for animation.
2. Know about the different mediums and techniques of drawing pencils and painting brushes.
3. Draw landscape with proper sketching sense, draw trees, plants, buildings, sky and to create the animation backgrounds.
4. Learn about the light and shadow and surface and texture sketching.

UNIT-I (14 Hrs.)

Starting with the tools for drawing:

Types of pencils:-(HB,B,2B,4B,6B,8B,10B,12B),Charcoal Pencil, Clutch Pencil.

Sheets:-Cartridge, Hand-Made, Ivory, Art-Card, duplex, News-Print, Mount board sheet etc.

Colors:-Poster color, water color, pastel color, pencil color, waterproof ink.

Brushes:-Round and Flat

Object Drawing: Principles of object drawing, draw common shapes, forms on a Two-Dimension(2D)surface with geometry-structure, surface and texture, perspective and points of view, Knowing about line and make effects that can build, definition of light and shadow on objects and an assignment.

UNIT-II (15 Hrs.)

Rendition: Rendition of the effect of light on simple forms and objects mood changing, quality of surface, solidity, drama, and impact.

View point Drawing: Viewpoint Drawing. Theory of viewpoint, one point and two point perspective as applied to objects, furniture, interior and exteriors of the buildings, study of light and shade etc.

Unit-III (14 Hrs.)

Study of Living World: Drawing from Nature, Location drawing and learning to represent trees, plants, bushes, shrubs, insects, birds, and animals with attention to structured morphology, proportion, volume, and behavior.

UNIT-IV (17 Hrs.)

Human Creativity: Explanation to human figure drawing–Drawings from Mannequin, Sketching of person figures from outside as well as inside. To know and catch the signs of the human form, weight, balance, Rhythm and proportion.

Making Storyboard: What is storyboard, usage of storyboard, drawing on storyboard, understanding and drawing movements of camera in storyboard.

Reference Books:

1. Drawing for the Absolute and Utter Beginner, Watson-Guptill, 2018.
2. Sketching for Animation: Developing Ideas, Characters and Layouts in Your Sketchbook, Peter Parr, Fairchild Books, 2016.

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WEB DEVELOPMENT USING PHP & MYSQL

Subject Code- BGWDS1-202

**L T P C
3 1 0 4**

Total Hours: 60

Course Outcomes:

1. Learn about server side script and its environment. Further, compare and contrast it with respect to client side script.
2. Learn the use of control structures and numerous native data types with their methods.
3. Make database connectivity between front end and back end.
4. Develop dynamic websites that can interact with different kinds of Database Languages.

UNIT-I (14 Hrs.)

Introduction to PHP: Evolution of PHP & its comparison Interfaces to External systems, Hardware and Software requirements, PHP Scripting. Basic PHP Development, Working of PHP scripts, Basic PHP syntax, PHP data types.

Displaying type information: Testing for a specific data type, changing type with Set type, Operators, Variable manipulation, Dynamic variables and Variables scope.

UNIT-II (15 Hrs.)

Control Statements: if() and elseif() condition Statement, The switch statement, Using the while() Loop, The do while statement, Using the for() Loop.

Functions: Function definition, Creation, Returning values, Library Functions, User defined functions, Dynamic function, default arguments, passing arguments to a function by value.

Array Anatomy of an Array, Creating index based and Associative array, Looping array using each() and for each() loop.

UNIT-III (17 Hrs.)

Forms : Working with Forms, Super global variables, Super global array, Importing user input, Accessing user input, Combine HTML and PHP code, Using hidden fields, Redirecting the user..

Working with File and Directories: Understanding file & directory, Opening and closing a file, Coping, renaming and deleting a file, working with directories, File Uploading & Downloading. Generating Images with PHP: Basics of Computer graphics, Creating Image.

UNIT-IV (14 Hrs.)

Database Connectivity with MySql: Introduction to RDBMS, Connection with MySql Database, Performing basic database operation (DML) (Insert, Delete, Update, Select).

Reference Books:

1. PHP: The Complete Reference, "Steven Holzner", Tata McGraw Hill.
2. Programming PHP, "Kevin Tetroi", O' Reilly.
3. Robin Nixon, Learning PHP, MySQL, and JavaScript, Shroff/O'Reilly.

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OBJECT ORIENTED PROGRAMMING USING C++

Subject Code- BGWDS1-203

**L T P C
3 1 0 4**

Total Hours: 60

Course Outcomes:

1. To learn programming from real world examples.
2. To Understand Object oriented approach for finding Solutions to various problems with the help of C++ language.
3. To create computer based solutions to various real-world problems using C++.
4. To learn various concepts of object oriented approach towards problem solving.

Unit-I (14 hours)

Principles of Object Oriented programming: Introduction to OOP and its basic features, Basic components of a C++, Program and program structure, Compiling and Executing C++ Program. Difference between Procedure Oriented Language (C) and Object Oriented Language

Unit-II (15 hours)

Classes and Objects: Defining Classes, Defining Member Functions, Declaration of Objects To Class, Access to Member Variables from Objects, Different Forms of Member functions, Access specifiers (Private, public, protected), Array of Objects.

Concept of Constructors: Introduction To Constructors, Parameterized Constructor, Copy Constructor, Multiple Constructors in Class, Dynamic Initialization of Objects, Destructors.

Unit-III (17 hours)

Inheritance and Operator Overloading: Introduction to Inheritance, Types Of Inheritance:- Single Inheritance, Multiple Inheritance, Multilevel inheritance, Hierarchical inheritance, Hybrid inheritance, Defining Operator Overloading, Overloading of Unary and Binary operators, Rules for overloading operators.

Unit-IV (14 hours)

Polymorphism and File Handling: Early Binding, Late Binding, Virtual Functions, pure virtual functions, Abstract Classes. Opening and Closing File, Reading and Writing a file.

Reference Books:

1. Object Oriented Programming with C++, E. Balaguru Sami, Fourth Edition, Tata Mc-Graw Hill, 2009.
2. Object Oriented Programming in Turbo C++, Robert Lafore, Fourth Edition Galgotia Publications, 2013.
3. The C++ Programming Language, Bjarne Stroustrup, Third Edition, Addison- Wesley Publishing Company, 2015.
4. Object Oriented Programming Using C++, Salaria, R.S, Fourth Edition, Khanna Book Publishing, 2017.

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OBJECT ORIENTED PROGRAMMING USING C++ (SOFTWARE LAB-IV)

Subject Code: BGWDS1-204

L T PC

0 0 4 2

Course Outcomes:

1. To learn programming from real world examples.
2. To understand an object oriented approach for finding Solutions to various problems with the help of C++ language.
3. To create computer based solutions to various real-world problems using C++.
4. To learn various concepts of object oriented approach towards problem solving.

This laboratory course will comprise of following assignments and projects:

1. Write a program to enter mark of 6 different subjects and find out the total mark (Using cin and cout statement)
2. Write a function using reference variables as arguments to swap the values of pairs of integers.
3. Write a function to find the largest of three numbers.
4. Write a program to find the factorial of a number.
5. Define a class to represent a bank account which includes the following members as

Data Members:

- a) Name of the depositor
- b) Account Number
- c) Withdrawal amount d) Balance amount in the account

Member Functions:

- a) To assign initial values
- b) To deposit an amount
- c) To withdraw an amount after checking the balance
- d) To display name and balance.

6. Write the above program for handling n number of account holders using an array of objects.
7. Write a C++ program to compute the area of right angle triangle, equilateral triangle, isosceles triangle using function overloading concept.
8. Consider an example of declaring the examination result. Design three classes: student, exam and result. The student has data members such as roll no, name. Create the class exam by inheriting the student class. The exam class adds data members representing the marks scored in 5 subjects. Derive the result from exam-Class and it has its own data members like total, avg.
9. Write a program for overloading the Unary ++ operator.
10. Write a program for overloading of Binary + operator.
11. Write a program of Virtual Functions.
12. Write a program of Abstract Classes.
13. Write a program to read and write from a file.

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Reference Books:

1. Object Oriented Programming with C++, E. Balaguru Sami, Fourth Edition, Tata Mc-Graw Hill, 2009.
2. To understand an object oriented approach for finding Solutions to various problems with the help of C++ language.
3. To create computer based solutions to various real-world problems using C++.
4. To learn various concepts of object oriented approach towards problem solving.

ANIMATION BASED MINOR PROJECT (SOFTWARE LAB-V)

Subject Code: BGWDS1-205

L T P C

0 0 4 2

Course Outcomes:

1. Create basic shapes and forms on a two-dimensional surface using geometry.
2. Analyze how to draw various objects based on their attributes.
3. Learn how to visually observe, visualize, and experience content based on nature.
4. Study about human figures for character drawing.

This laboratory course will comprise as exercises with tools such as Scratch to supplement that is learnt under the subject code:

- 1 Assignment on sketching by using Drawing pencils:- (HB, B, 2B,4B, 6B,8B, 10B, 12B), Charcoal Pencil, Clutch Pencil.
- 2 Assignment on drawing scenery by using colors (poster color, Water Color, Pastel color, Pencil Color, waterproof ink).
- 3 Assignment on poster designs with shades by using sheets (Cartridge, Hand Made, Ivory, Art Card, Duplex, News Print, Mount board sheet etc.).
- 4 Assignment on Round and Flat brush painting.
- 5 Assignment on design based on geometry - structure, surface and texture.
- 6 Assignment on light and shadow on objects and an assignment.
- 7 Assignment on design based on objects mood changing, quality of surface, solidity, drama, and impact.
- 8 Assignment on one point and two point perspective.
- 9 Assignment on furniture, interior and exteriors of the buildings Designs.
- 10 Assignment on drawing Nature & Location scene.
- 11 Assignment on Design based on light and shade of the pencils and brushes.
- 12 Drawing assignments on Nature, Location drawing, trees, plants, bushes, shrubs, insects, birds, and animals.
- 13 Assignment on drawings from Mannequin, Sketching of person figures from outside as well as inside.
- 14 Assignment on drawing on storyboard, understand and draw movements of camera in storyboard.

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Reference Books:

1. Sketching for Animation: Developing Ideas, Characters and Layouts in Your Sketchbook, Peter Parr, Fairchild Books, 2016.

PROJECT BASED ON PHP AND MYSQL (SOFTWARE LAB VI)

Subject Code: BGWDS1-206

L T PC

0 0 4 2

Course Outcomes:

1. Solve simple to advanced online problems of web pages.
2. Develop logics of various programming problems using numerous data types and control structures.
3. Client Server concepts, Static & Dynamic environment of the websites etc.
4. Design and implement the concept of Database connectivity.

This laboratory course will comprise of following assignments and projects:

1. Take values from the user and compute sum, subtraction, multiplication, division and exponent of value of the variables.
2. Write a program to find the area of following shapes: circle, rectangle, triangle, square, trapezoid and parallelogram.
3. Compute and print roots of quadratic equations.
4. Write a program to determine whether a triangle is isosceles or not?
5. Print multiplication table of a number input by the user.
6. Calculate sum of natural numbers from one to n number.
7. Print Fibonacci series up to n numbers e.g. 0 1 1 2 3 5 8 13 21.....n
8. Write a program to find the factorial of any number.
9. Determine prime numbers within a specific range.
10. Write a program to compute the Average and Grade of student's marks.
11. Compute addition, subtraction and multiplication of a matrix.
12. Count the total number of vowels in a word "Develop & Empower Individuals".
13. Determine whether a string is palindrome or not?
14. Display word after Sorting in alphabetical order.
15. Check whether a number is in a given range using functions.
16. Write a program that accepts a string and calculates the number of upper case letters and lower case letters available in that string.
17. Design a program to reverse a string word by word.
18. Write a program to create a login form. On submitting the form, the user should navigate to the profile page.
19. Design the front page of a college or department using a graphics method.
20. Write a program to upload and download files.

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Reference Books:

PHP: The Complete Reference, "Steven Holzner", January 1, 2007. Tata McGraw- Hill Education.
Programming PHP, "Kevin Tetroi", O' Reilly. Published by Wiley Publishing, Inc. 10475 Cross point
Boulevard Indianapolis, IN 46256

ENVIRONMENTAL SCIENCES

Subject Code: BHSMC0-041

L T P C
3 0 0 3

Duration: 45 Hrs.

Unit-I

(08 Hours)

The Multidisciplinary nature of environmental studies, Natural Resources: Renewable and non-renewable resources

Unit-II

(15 Hours)

Natural resources and associated problems

a) Forest resources; b) Water resources; c) Mineral resources; d) Food resources; e) Energy resources;
f) Land resources: Role of an individual in conservation of natural resources.

Unit-III

(12 Hours)

Ecosystems, Concept of an ecosystem, Structure and function of an ecosystem, Introduction, types, characteristic features of the ecosystems (a) Forest ecosystem (b) Grassland ecosystem (c) (d) Desert ecosystem (e) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

Unit- IV

(10 Hours)

Environmental Pollution: Air pollution; Water pollution; Soil pollution

Recommended Books (Latest edition):

1. Y.K. Sing, Environmental Science, New Age International Pvt, Publishers, Bangalore
2. Agarwal, K.C. 2001 Environmental Biology, Nidi Publ. Ltd. Bikaner.
3. Bharucha Erach, The Biodiversity of India, Mapin Pu blishing Pvt. Ltd., Ahmedabad – 380 013, India,
4. Brunner R.C., 1989, Hazardous Waste Incineration, McGraw Hill Inc. 480p
5. Clark R.S., Marine Pollution, Clarendon Press Oxford
6. Cunningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 2001, Environmental Encyclopedia, Jaico Publ. House, Mumbai, 1196p
7. De A.K., Environmental Chemistry, Wiley Eastern Ltd. 8. Down of Earth, Centre for Science and Environment

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**** Guidelines regarding Mentoring and Professional Development**

The objective of mentoring will be development of:

- Overall Personality
- Aptitude (Technical and General)
- General Awareness (Current Affairs and GK)
- Communication Skills
- Presentation Skills

The course shall be split in two sections i.e. outdoor activities and class activities.
For achieving the above, suggestive list of activities to be conducted are:

Part – A (Class Activities)

1. Expert and video lectures
2. Aptitude Test
3. Group Discussion
4. Quiz (General/Technical)
5. Presentations by the students
6. Team building Exercises

Part – B (Outdoor Activities)

1. Sports/NSS/NCC
2. Society Activities of various students chapter i.e. ISTE, SCIE, SAE, CSI, Cultural Club, etc.

Evaluation shall be based on rubrics for Part – A & B Mentors/Faculty in charge shall maintain proper record student wise of each activity conducted and the same shall be submitted to the department.