

Scheme & Syllabus of **B.Sc. (Graphics and Web Designing)**

Batch 2019 onwards



By

Board of Study Computer Applications

Department of Academics

IK Gujral Punjab Technical University

**I. K.Gujral Punjab Technical University
B.Sc. (Graphics and Web Designing)**

B.Sc. in Graphics and Web Designing:

It is an Under Graduate (UG) Program of 3 years duration (6 semesters)

Eligibility:

All those candidates who have passed the 10+2 or its equivalent examination in any stream conducted by a recognized Board / University / Council.

OR

Those candidates who have passed their Matriculation examination AND have also passed three year Diploma in any Trade from Punjab State Board of Technical Education & Industrial Training, Chandigarh or such Examination from any other recognized State Board of Technical Education, or Sant Longowal Institute of Engineering & Technology, Longowal.

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Programme Educational Objectives:

PEO 1: To impart core theoretical and practical knowledge of Graphics and Web Designing for leading successful career in industries, pursuing higher studies or entrepreneurial endeavours.

PEO 2: To develop the ability to critically think, analyze, design and develop Graphics and Web based solutions.

PEO 3: To imbibe the life-long learning and understanding of ethical values, their duties toward environmental issues and sensitize them toward their social responsibility as Graphics Designer and Web Developer.

Programme Outcomes:

PO1: Graphics knowledge: Apply the knowledge of mathematics, science and IT to the complex graphics design.

PO2: Problem analysis: Identify, formulate, research literature, and analyze complex problems reaching substantiated conclusions using principles of mathematics, natural sciences, and IT.

PO3: Design/development of solutions: Develop solutions for complex graphics and web designing problems that meet the specified needs with appropriate consideration for the cultural, societal, and environmental considerations.

PO4: Conduct investigations of complex problems: Use research-based knowledge and methods including analysis and interpretation of data that can explore different approaches in computer graphics and web development.

PO5: Modern tool usage: Create, select, and apply various aspects of interactive websites, motion graphics, video and informational graphics with an understanding of the limitations.

PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional practice.

PO7: Environment and sustainability: Understand the impact of the graphics and website development in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the professional practice.

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PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: Communication: Communicate effectively on complex graphics and web design activities with the professional community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Project management and finance: Demonstrate knowledge and understanding of the development and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Programme Specific Outcomes:

PSO 1: Able to acquire practical competency with emerging technologies and skills needed for becoming an effective graphics and web designer.

PSO 2: Able to assess hardware and software aspects necessary to develop Graphics and Web Designing.

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First Semester

Course Code	Course Type	Course Title	Load Allocation			Marks Distribution		Total Marks	Credits
			L	T	P	Internal	External		
UGCA1901	Core Theory	Mathematics	3	1	0	40	60	100	4
UGCA1902	Core Theory	Fundamentals of Computer and IT	3	1	0	40	60	100	4
UGWD1901	Core Theory	Introduction to Scripting Languages	3	1	0	40	60	100	4
UGCA1904	Practical/Laboratory	Workshop on Desktop Publishing	0	0	4	60	40	100	2
UGWD1902	Core Practical/Laboratory	Introduction to Scripting Languages Laboratory	0	0	4	60	40	100	2
UGCA1906	Core Practical/Laboratory	Fundamentals of Computer and IT Laboratory	0	0	4	60	40	100	2
BTHU103/18	Ability Enhancement Compulsory Course (AECC)-I	English	1	0	0	40	60	100	1
BTHU104/18	Ability Enhancement Compulsory Course (AECC)	English Practical/Laboratory	0	0	2	30	20	50	1
HVPE101-18	Ability Enhancement Compulsory Course (AECC)	Human Values, De-addiction and Traffic Rules	3	0	0	40	60	100	3
HVPE102-18	Ability Enhancement Compulsory Course (AECC)	Human Values, De-addiction and Traffic Rules (Lab/ Seminar)	0	0	1	25	--**	25	1
BMPD102-18		Mentoring and Professional Development	0	0	1	25	--**	25	1
	TOTAL		13	3	16	460	440	900	25

**The Human Values, De-addiction and Traffic Rules (Lab/ Seminar) and Mentoring and Professional Development course will have internal evaluation only. (See guidelines at the last page of this file)

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Second Semester

Course Code	Course Type	Course Title	Load Allocation			Marks Distribution		Total Marks	Credits
			L	T	P	Internal	External		
UGCA1907	Core Theory	Fundamentals of Statistics	3	1	0	40	60	100	4
UGWD1903	Core Theory	Concepts of Website Designing and Development	3	1	0	40	60	100	4
UGCA1909	Core Theory	Object Oriented Programming using C++	3	1	0	40	60	100	4
UGCA1910	Core Practical/Laboratory	Object Oriented Programming using C++ Laboratory	0	0	4	60	40	100	2
UGCA1911	Core Practical/Laboratory	Fundamentals of Statistics Laboratory	0	0	4	60	40	100	2
UGWD1904	Practical/Laboratory	Workshop on Digital Image Editing	0	0	4	60	40	100	2
EVS102-18	Ability Enhancement Compulsory Course (AECC) -III	Environmental Studies	2	0	0	40	60	100	2
BMPD202-18		Mentoring and Professional Development	0	0	1	25	--	25	1
	TOTAL		11	3	13	365	360	725	21

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Third Semester

Course Code	Course Type	Course Title	Load Allocation			Marks Distribution		Total Marks	Credits
			L	T	P	Internal	External		
UGCA1915	Core Theory	Data Structures	3	1	0	40	60	100	4
UGWD1905	Core Theory	Elements of Design	3	1	0	40	60	100	4
UGCA1922	Core Theory	Database Management Systems	3	1	0	40	60	100	4
UGCA1918	Core Practical/Laboratory	Data Structures Laboratory	0	0	4	60	40	100	2
UGWD1906	Core Practical/Laboratory	Elements of Design Laboratory	0	0	4	60	40	100	2
UGCA1925	Core Practical/Laboratory	Database Management Systems Laboratory	0	0	4	60	40	100	2
UGWD1907	Skill Enhancement Course-I	Image Editing & Photography	1	0	0	40	60	100	1
UGWD1908	Skill Enhancement Course- Laboratory	Image Editing & Photography Laboratory	0	0	2	20	30	50	1
BMPD302-18		Mentoring and Professional Development	0	0	1	25	--**	25	1
	TOTAL		10	3	15	385	390	775	21

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Fourth Semester

Course Code	Course Type	Course Title	Load Allocation			Marks Distribution		Total Marks	Credits
			L	T	P	Internal	External		
UGCA1914	Core Theory	Programming in Python	3	1	0	40	60	100	4
UGWD1909	Core Theory	Animation Art	3	1	0	40	60	100	4
UGCA1934	Core Theory	Computer Graphics	3	1	0	40	60	100	4
UGCA1917	Core Practical/Laboratory	Programming in Python Laboratory	0	0	4	60	40	100	2
UGWD1910	Core Practical/Laboratory	Animation Art Laboratory	0	0	4	60	40	100	2
UGCA1940	Core Practical/Laboratory	Computer Graphics Laboratory	0	0	4	60	40	100	2
UGWD1911	Skill Enhancement Course-II	Video Editing	1	0	0	40	60	100	1
UGWD1912	Skill Enhancement Course-Laboratory	Video Editing Laboratory	0	0	2	20	30	50	1
BMPD402-18		Mentoring and Professional Development	0	0	1	25	--**	25	1
	TOTAL		10	3	15	385	390	775	21

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Course Code: UGCA1901

Course Name: Mathematics

Program: B.Sc in Graphics and Web Designing	L: 3 T: 1 P: 0
Branch: Computer Applications	Credits: 4
Semester: 1 st	Contact hours: 44 hours
Internal max. marks: 40	Theory/Practical: Theory
External max. marks: 60	Duration of end semester exam (ESE): 3hrs
Total marks: 100	Elective status: core/elective: Core

Prerequisite: Student must have the knowledge of Basic Mathematics.

Co requisite:NA.

Additional material required in ESE: Minimum two exercises of each concept will be recorded in the file and the file will be submitted in End Semester Examinations.

Course Outcomes: After studying this course, students will be able to:

CO#	Course Outcomes
CO1	Represent data using various mathematical notions.
CO2	Explain different terms used in basic mathematics.
CO3	Describe various operations and formulas used to solve mathematical problems.

Detailed contents	Contact hours
<p><u>Unit-I</u> Set Introduction, Objectives, Representation of Sets (Roster Method, Set Builder Method), Types of Sets (Null Set, Singleton Set, Finite Set, Infinite Set, Equal Set, Equivalent Set, Disjoint Set, Subset, Proper Subset, Power Set, Universal Set) and Operation with Sets (Union of Set, Intersection of Set, Difference of Set, Symmetric Difference of Set) Universal Sets, Complement of a Set.</p>	12 hours
<p><u>Unit-II</u> Logic Statement, Connectives, Basic Logic Operations (Conjunction, Disjunction, Negation) Logical Equivalence/Equivalent Statements, Tautologies and Contradictions.</p>	10 hours
<p><u>Unit -III</u> Matrices Introduction, Types of Matrix (Row Matrix, Column Matrix, Rectangular Matrix, Square Matrix, Diagonal Matrix, Scalar Matrix, Unit</p>	12 hours

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Matrix, Null Matrix, Comparable Matrix, Equal Matrix), Scalar Multiplication, Negative of Matrix, Addition of Matrix, Difference of two Matrix, Multiplication of Matrices, Transpose of a Matrix.	
Unit-IV Progressions Introduction, Arithmetic Progression, Sum of Finite number of quantities in A.P, Arithmetic Means, Geometric Progression, Geometric Mean.	10 hours

Text Books:

1. Discrete Mathematics and Its Applications by Kenneth H. Rosen, McGraw Hill, 6th Edition, 2017.
2. College Mathematics, Schaum Series, Frank Ayers and Philip A. Schmidt published by Tata McGraw Hill, 2010.

Reference Books:

1. Elementary Mathematics, Dr. RD Sharma, RD Sharma Publication.
2. Comprehensive Mathematics, Parmananad Gupta by Luxmi Publisher,2010.
3. Elements of Mathematics, ML Bhargava by jeevansons,2006.

E Books/ Online learning material

1. www.see.leeds.ac.uk/geo-maths/basic_maths.pdf
2. www.britannica.com/science/matrix-mathematics
3. www.pdfdrive.com/schaums-outline-of-discrete-mathematics-third-edition-schaums-e6841453.html

Course Code: UGCA1902

Course Name: Fundamentals of Computer and IT

Program: B.Sc in Graphics and Web Designing	L: 3 T: 1 P: 0
Branch: Computer Applications	Credits: 4
Semester: 1 st	Contact hours: 44 hours
Internal max. marks: 40	Theory/Practical: Theory
External max. marks: 60	Duration of end semester exam (ESE): 3hrs
Total marks: 100	Elective status: Core

Prerequisite: -NA-

Co requisite: -NA-

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Additional material required in ESE: -NA-

Course Outcomes: After studying this course, students will be able to:

CO#	Course outcomes
CO1	Understanding the concept of input and output devices of Computers
CO2	Learn the functional units and classify types of computers, how they process information and how individual computers interact with other computing systems and devices.
CO3	Understand an operating system and its working, and solve common problems related to operating systems
CO4	Learn basic word processing, Spreadsheet and Presentation Graphics Software skills.
CO5	Study to use the Internet safely, legally, and responsibly

Detailed Contents	Contact hours
<p>Unit-I</p> <p>Human Computer Interface Concepts of Hardware and Software; Data and Information.</p> <p>Functional Units of Computer System: CPU, registers, system bus, main memory unit, cache memory, Inside a computer, SMPS, Motherboard, Ports and Interfaces, expansion cards, ribbon cables, memory chips, processors.</p> <p>Devices: Input and output devices (with connections and practical demo), keyboard, mouse, joystick, scanner, OCR, OMR, bar code reader, web camera, monitor, printer, plotter.</p> <p>Memory: Primary, secondary, auxiliary memory, RAM, ROM, cache memory, hard disks, optical disks.</p> <p>Data Representation: Bit, Byte, Binary, Decimal, Hexadecimal, and Octal Systems, Conversions and Binary Arithmetic (Addition/ Subtraction/ Multiplication) Applications of IT.</p>	12
<p>Unit-II</p> <p>Concept of Computing, Types of Languages: Machine, assembly and High level Language; Operating system as user interface, utility programs.</p> <p>Word processing: Editing features, formatting features, saving, printing, table handling, page settings, spell-checking, macros, mail-merge, equation editors.</p>	10
<p>Unit-III</p>	10

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<p>Spreadsheet: Workbook, worksheets, data types, operators, cell formats, freeze panes, editing features, formatting features, creating formulas, using formulas, cell references, replication, sorting, filtering, functions, Charts & Graphs.</p> <p>Presentation Graphics Software: Templates, views, formatting slide, slides with graphs, animation, using special features, presenting slide shows.</p>	
<p>Unit-IV</p> <p>Electronic Payment System: Secure Electronic Transaction, Types of Payment System: Digital Cash, Electronic Cheque, Smart Card, Credit/Debit Card E-Money, Bit Coins and Crypto currency, Electronic Fund Transfer (EFT), Unified Payment Interface (UPI), Immediate Payment System (IMPS), Digital Signature and Certification Authority.</p> <p>Introduction to Bluetooth, Cloud Computing, Big Data, Data Mining, Mobile Computing and Embedded Systems and Internet of Things (IoT)</p>	12

Text Books:

1. Introduction to Information Technology, ITL Education Solutions limited, Pearson Education, second edition, 2012.
2. Computer Fundamentals , A. Goel, Pearson Education, First edition, 2010.
3. Fundamentals of Computers, P. K.Sinha & P. Sinha, BPB Publishers, Reprint Edition 2018 edition (30 November 2004).
4. “Introduction to Information Technology”, Satish Jain, Ambrish Rai & Shashi Singh, Paperback Edition, BPB Publications, 2014.
5. IT Tools, R.K. Jain, Khanna Publishing House.

Reference Books:

1. “Introduction to Computers”, Peter Norton, McGraw Hill Education; 7 edition (1 July 2017).
2. Computers Today, D. H. Sanders, McGraw Hill. First Edition edition (1983)
3. “Computers”, Larry long & Nancy long, Twelfth edition, Prentice Hall. (January 13, 2004)
4. Problem Solving Cases in Microsoft Excel, Joseph Brady & Ellen F Monk, Thomson Learning , Cengage Learning; 15 edition (February 23, 2017).

E Books/ Online learning material

1. www.sakshat.ac.in
2. <https://swayam.gov.in/course/4067-computer-fundamentals>

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Course Code: UGWD1901

Course Name: Introduction to Scripting languages

Program: B.Sc in Graphics and Web Designing	L: 3 T: 1 P: 0
Branch: Computer Applications	Credits: 4
Semester: 1 st	Contact hours: 44 hours
Theory/Practical: Theory	Theory/Practical: Theory
Internal max. marks: 40	Duration of end semester exam (ESE): 3hrs
External max. marks: 60	Elective status: Core
Total marks: 100	

Prerequisite: -NA-

Co requisite: -NA-

Additional material required in ESE: -NA-

Course Outcomes: After studying this course, students will be able to:

CO#	Course outcomes
CO1	Student should be able to understand various tags under HTML.
CO2	Students should be able to write HTML programs.
CO3	To develop HTML pages and websites.

Detailed Contents	Contact hours
<p>Unit-I Introduction to HTML, HTML and the World Wide Web, HTML elements, basic structure elements of HTML, creating HTML pages, HTML tags, colour and fonts, formatting the body section, creating links. Adding graphics with image elements, using image as links, image maps, image files. Adding sound and Video formats, other multimedia formats, adding multimedia to web pages.</p>	10
<p>Unit-II Presenting information in tables, Understanding the use of frames, frame set documents, targetedlinks, non frame elements, inline frames. Building interactivity with forms, form elements and attributes, using form control elements, processing forms.</p>	11
<p>Unit-III Style Sheets & Graphics in HTML: Understanding styles, Style rules, Creating styles for tags, Creating classes & applying style. Formatting text & paragraphs in HTML: Introduction to Font family, Style sheets, Displaying graphics Page Layout & Navigation in HTML: Navigational Aids, Layouts, Tables & Forms, Incorporating Sound & Video</p>	11

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Unit-IV Introduction to Cascading Style Sheets: Concept of CSS, Creating Style Sheet, CSS Properties, CSS Styling(Background, Text Format, Controlling Fonts), Working with block elements and objects, Working with Lists and Tables, CSS Id and Class, Box Model(Introduction, Border properties, Padding Properties, Margin properties), Creating page Layout and Site Designs.	12
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Text Books:

1. HTML & CSS: The Complete Reference, Fifth Edition (English, Paperback, Powell Thomas), edition Tata McGraw-Hill, 2003.
2. Internet & Web Technologies by Raj Kamal, edition Tata McGraw-Hill Education.2009.
3. Fundamentals of Internet and WWW, by Greenlaw R; Heppe, 2nd Edition, Tata McGraw-Hill, 2007.

E-Books/ Online learning material:

1. https://www.tutorialspoint.com/html/html_tutorial.pdf
2. <https://www.w3schools.com/html/>
3. https://www.cs.uct.ac.za/mit_notes/web_programming.html
4. http://www.pagetutor.com/table_tutor/index.html

Course Code: UGCA1904

Course Name: Workshop on Desktop Publishing

Program: B.Sc in Graphics and Web Designing	L: 0 T: 0 P: 4
Branch: Computer Applications	Credits: 2
Semester: 1 st	Contact hours: 4 Hours per week
Internal max. marks: 60	Theory/Practical: Practical
External max. marks: 40	Duration of end semester examinations (ESE): 3hrs
Total marks: 100	Elective status: Core

Prerequisite: Students must have basic understanding of designing/ Painting tools.

Co requisite: Printing & Publishing tools.

Additional material required in ESE: Softcopy & Hardcopy of the exercises are to be maintained during the practical labs and to be submitted during the End Semester Examinations.

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Course Outcomes: After studying this course, students will be able to:

CO#	Course outcomes
CO1	The students will gain professional skills of <i>Desk Top Publishing</i> Tools like designing, Printing & Publishing by using various tools.
CO2	Develop skills in printing jobs through basic understanding of a variety of designing tools.
CO3	Apply these concepts and knowledge in designing field including practice from text formatting to final publishing.
CO4	Workshops are included to enhance professional skills like Brochures, Flexes, Business Cards, Certificates and News Letter layouts etc.

Assignments:

1.	Design and print a <i>Title Page</i> of a Magazine/Book.
2.	Prepare multiple designs for a <i>Flex</i> by using different Tools.
3.	Prepare <i>NSS Certificates</i> for appreciation using logos of University, College & NSS unit.
4.	Prepare 5 different Designing of <i>Business Cards</i> .
5.	Prepare <i>Envelops</i> displaying full address of the company by inserting graphical symbol/ logos of company.
6.	Design and Print <i>Invoices</i> for three companies.
7.	Prepare and print <i>News Letter Layouts</i> for any five activities of your college/ university.
8.	Prepare <i>Invitation Cards</i> for cultural meet held in your college.
9.	Design and print <i>Brochures</i> to advertise a “Blood Donation Camp” in your college.
10.	Design <i>Logos</i> of your college, University & Govt. of Punjab also display these logos on black background as water mark.
11.	Design, Print and Publish 5 motivations Playcards.
12.	Design & Print assignment book of minimum 20 Pages an any Topic.
13.	Design & Print any five most important activities of your college in a collage.
14.	Design & Print Question Paper of any Subject.
15.	Assemble all the latest news cutting of your activities on a 10 X 8 size flex.

Reference Books:

1. DTP Course, First edition by ShirishChavan published by Rapidex, 2003.
2. DTP Course Kit, First edition by Vikas Gupta published by Comdex,2010.
3. CorelDraw 9, first edition by David Karlins published by Techmedia, Pearson Education (US),1999.
4. Adobe Illustrator CC, First edition by Brian Wood published by Adobe Press, 2019.

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5. Page Maker in Easy Steps - Scott Basham, DTECH (2000).

Software Tools:

1. Adobe Illustrator 14.
2. CorelDraw Graphics Suit.
3. GNU image manipulation program.
4. Ink Scape.
5. PhotoScape Setup.
6. PM701.

Course Code: UGWD1902

Course Name: Introduction to Scripting languages Laboratory

Program: B.Sc in Graphics and Web Designing	L: 0 T: 0 P: 4
Branch: Computer Applications	Credits: 2
Semester: 1 st	Contact hours: 4 Hours per week
Theory/Practical: Practical	Duration of end semester exam (ESE): 3hrs
Internal max. marks: 60	Elective status: Core
External max. marks: 40	
Total marks: 100	

Prerequisite: -NA-

Co requisite: -NA-

Additional material required in ESE: -NA-

Course Outcomes: After studying this course, students will be able to:

CO#	Course Outcomes
CO1	Student should be able to understand various tags under HTML.
CO2	Students should be able to write HTML programs.
CO3	To develop HTML pages and websites.

Instructions: Develop all programs in HTML language.

Assignments:

1.	Acquaintance with elements, Tags and basic structure of HTML files.
2.	Practicing basic and advanced text formatting.

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3.	Working with Background, Text and Font properties.
4.	Practicing use of multimedia components (Image, Video & Sound) in HTML document.
5.	Designing of webpage-Document Layout.
6.	Designing of webpage-Working with List.
7.	Designing of webpage-Working with Tables.
8.	Practicing Hyper linking of Webpages.
9.	Designing of webpage-Working with Frames.
10.	Designing of webpage-Working with Forms and Controls.
11.	Acquaintance with creating style sheet, CSS properties and styling.

Course Code: UGCA1906

Course Name: Fundamentals of Computer and IT Laboratory

Program: B.Sc in Graphics and Web Designing	L: 0 T: 0 P: 4
Branch: Computer Applications	Credits: 2
Semester: 1 st	Contact hours: 4 Hours per week
Internal max. marks: 60	Theory/Practical: Practical
External max. marks: 40	Duration of end semester exam (ESE): 3hrs
Total marks: 100	Elective status: Core

Prerequisite: -NA-

Co requisite: -NA-

Additional material required in ESE: - NA-

Course Outcomes: After studying this course, students will be able to:

CO#	Course outcomes
CO1	Familiarizing with Open Office (Word processing, Spreadsheets and Presentation).
CO2	To acquire knowledge on editor, spread sheet and presentation software.
CO3	The students will be able to perform documentation and accounting operations.
CO4	Students can learn how to perform presentation skills.

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Instructions:

Word Orientation:	
The instructor needs to give an overview of word processor. Details of the four tasks and features that would be covered Using word – Accessing, overview of toolbars, saving files, Using help and resources, rulers, format painter.	
1.	Using word to create Resume Features to be covered: - Formatting Fonts in word, Drop Cap in word, Applying Text effects, Using Character Spacing, Borders and Colors, Inserting Header and Footer, Using Date and Time option in Word.
2.	Creating an Assignment Features to be covered: - Formatting Styles, Inserting table, Bullets and Numbering, Changing Text Direction, Cell alignment, Footnote, Hyperlink, Symbols, Spell Check, Track Changes.
3.	Creating a Newsletter Features to be covered :- Table of Content, Newspaper columns, Images from files and clipart, Drawing toolbar and Word Art, Formatting Images, Textboxes and Paragraphs
4.	Creating a Feedback form Features to be covered:- Forms, Text Fields, Inserting objects, Mail Merge in Word.
Excel Orientation:	
The instructor needs to tell the importance of Excel as a Spreadsheet tool, give the details of the four tasks and features that would be covered Excel – Accessing, overview of toolbars, saving excel files,	
1.	Creating a Scheduler Features to be covered :- Gridlines, Format Cells, Summation, auto fill, Formatting Text
2.	Calculations Features to be covered :- Cell Referencing, Formulae in excel – average, std.deviation, Charts, Renaming and Inserting worksheets, Hyper linking, Count function, LOOKUP/VLOOKUP
3.	Performance Analysis Features to be covered :- Split cells, freeze panes, group and outline, Sorting, Boolean and logical operators, Conditional formatting
4.	Game (like Cricket, badminton) Score Card Features to be covered :- Pivot Tables, Interactive Buttons, Importing Data, Data Protection, Data Validation
Presentation Orientation:	
1.	Students will be working on basic power point utilities and tools which help them create basic power point presentation. Topic covered includes :- PPT Orientation, Slide Layouts, Inserting Text, Word Art, Formatting Text, Bullets and Numbering, Auto Shapes, Lines and Arrows

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2.	This session helps students in making their presentations interactive. Topics covered includes : Hyperlinks, Inserting –Images, Clip Art, Audio, Video, Objects, Tables and Charts
3.	Concentrating on the in and out of Microsoft power point. Helps them learn best practices in designing and preparing power point presentation. Topics covered includes: - Master Layouts (slide, template, and notes), Types of views (basic, presentation, slide slotter, notes etc), Inserting – Background, textures, Design Templates, Hidden slides. Auto content wizard, Slide Transition, Custom Animation, Auto Rehearsing
4.	Power point test would be conducted. Students will be given model power point presentation which needs to be replicated
Internet and its Applications The instructor needs to tell the how to configure Web Browser and to use search engines by defining search criteria using Search Engines	
1.	To learn to setup an e-mail account and send and receive e-mails
2.	To learn to subscribe/post on a blog and to use torrents for accelerated downloads
3.	Hands on experience in online banking and Making an online payment for any domestic bill

Reference Books:

1. IT Tools, R.K. Jain, Khanna Publishing House.
2. Introduction to Information Technology, IITL Education Solutions limited, Pearson Education, second edition, 2012.
3. Introduction to information technology, Turban, Rainer and Potter, John Wiley and Sons, 3rd Edition edition (24 May 2004).
4. Problem Solving Cases in Microsoft Excel, Joseph Brady & Ellen F Monk, Thomson Learning , Cengage Learning; 15 edition (February 23, 2017).

AECC (For UGC courses)

BTHU103-18 English:

Program: B.Sc in Graphics and Web Designing	L: 1 T: 0 P: 0
Branch: Computer Applications	Credits: 1
Semester: 1 st	Contact hours: --
Theory/Practical: Theory	Percentage of numerical/design problems: --
Internal max. marks: 40	Duration of end semester exam (ESE): --
External max. marks: 60	Elective status: core/elective: --
Total marks: 100	

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Course Outcomes: After studying this course, students will be able to:

CO#	Course Outcomes
CO1	The objective of this course is to introduce students to the theory, fundamentals and tools of communication.
CO2	To help the students become the independent users of English language.
CO3	To develop in them vital communication skills which are integral to their personal, social and professional interactions.
CO4	The syllabus shall address the issues relating to the Language of communication. Students will become proficient in professional communication such as interviews, group discussions, office environments, important reading skills as well as writing skills such as report writing, note taking etc.

The recommended readings given at the end are only suggestive; the students and teachers have the freedom to consult other materials on various units/topics given below. Similarly, the questions in the examination will be aimed towards assessing the skills learnt by the students rather than the textual content of the recommended books.

Detailed Contents:

Unit1- 1 (Introduction)

- Theory of Communication
- Types and modes of Communication

Unit- 2 (Language of Communication)

- Verbal and Non-verbal
- (Spoken and Written)
- Personal, Social and Business
- Barriers and Strategies
- Intra-personal, Inter-personal and Group communication

Unit-3 (Reading and Understanding)

- Close Reading
- Comprehension
- Summary Paraphrasing
- Analysis and Interpretation
- Translation(from Hindi/Punjabi to English and vice-versa)

OR

Precise writing /Paraphrasing (for International Students)

- Literary/Knowledge Texts

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Unit-4 (Writing Skills)

- Documenting
- Report Writing
- Making notes
- Letter writing

Recommended Readings:

1. *Fluency in English* - Part II, Oxford University Press, 2006.
2. *Business English*, Pearson, 2008.
3. *Language, Literature and Creativity*, Orient Blackswan, 2013.
4. *Language through Literature* (forthcoming) ed. Dr. Gauri Mishra, DrRanjanaKaul, Dr Brati Biswas
5. *On Writing Well*. William Zinsser. Harper Resource Book. 2001
6. *Study Writing*. Liz Hamp-Lyons and Ben Heasley. Cambridge University Press. 2006.

AECC

BTHU104/18 English Practical/Laboratory

Program: B.Sc in Graphics and Web Designing	L: 0 T: 0 P: 2
Branch: Computer Applications	Credits: 1
Semester: 1 st	Contact hours:
Theory/Practical: Practical	Percentage of numerical/design problems: --
Internal max. marks: 30	Duration of end semester exam (ESE):
External max. marks: 20	Elective status:
Total marks: 50	

Course Outcomes: After studying this course, students will be able to:

CO#	Course Outcomes
CO1	The objective of this course is to introduce students to the theory, fundamentals and tools of communication.
CO2	To help the students become the independent users of English language.
CO3	To develop in them vital communication skills which are integral to their personal, social and professional interactions.
CO4	The syllabus shall address the issues relating to the Language of communication. Students will become proficient in professional communication such as interviews, group discussions, office environments, important reading skills as well as writing skills such as report writing, note taking etc.

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The recommended readings given at the end are only suggestive; the students and teachers have the freedom to consult other materials on various units/topics given below. Similarly, the questions in the examination will be aimed towards assessing the skills learnt by the students rather than the textual content of the recommended books.

Interactive practice sessions in Language Lab on Oral Communication

- Listening Comprehension
- Self Introduction, Group Discussion and Role Play
- Common Everyday Situations: Conversations and Dialogues
- Communication at Workplace
- Interviews
- Formal Presentations
- Monologue
- Effective Communication/ Mis- Communication
- Public Speaking

Recommended Readings:

1. *Fluency in English* - Part II, Oxford University Press, 2006.
 2. *Business English*, Pearson, 2008.
 3. *Practical English Usage*. Michael Swan. OUP. 1995.
 4. *Communication Skills*. Sanjay Kumar and PushpLata. Oxford University Press. 2011.
 5. *Exercises in Spoken English*. Parts. I-III. CIEFL, Hyderabad. Oxford University Press,1997.
-

Course Code: HVPE101-18

Course Name: Human Values, De-addiction and Traffic Rules

Program: B.Sc in Graphics and Web Designing	L: 3 T: 0 P: 0
Branch: Computer Applications	Credits: 3
Semester: 1 st	Contact hours: 33 hours
Internal max. marks: 40	Theory/Practical: Theory
External max. marks: 60	Duration of end semester exam (ESE): 3hrs
Total marks: 100	Elective status: Ability Enhancement

Prerequisite: -NA-

Co requisite: -NA-

Additional material required in ESE: -NA-

Course Outcomes: After studying this course, students will be able to:

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CO#	Course outcomes
CO1	To help the students appreciate the essential complementarity between ‘VALUES’ and ‘SKILLS’ to ensure sustained happiness and prosperity which are the core aspirations of all human beings.
CO2	To facilitate the development of a Holistic perspective among students towards life, profession and happiness, based on a correct understanding of the Human reality and the rest of Existence. Such a holistic perspective forms the basis of Value based living in a natural way.
CO3	To highlight plausible implications of such a Holistic understanding in terms of ethical human conduct, trustful and mutually satisfying human behavior and mutually enriching interaction with Nature.

Note: This course is intended to provide a much needed orientational input in Value Education to the young enquiring minds.

Detailed Contents	Contact hours
<p>Unit-I</p> <p>Course Introduction - Need, Basic Guidelines, Content and Process for Value Education</p> <ol style="list-style-type: none"> 1. Understanding the need, basic guidelines, content and process for Value Education 2. Self-Exploration–what is it? - its content and process; ‘Natural Acceptance’ and Experiential Validation- as the mechanism for self-exploration 3. Continuous Happiness and Prosperity- A look at basic Human Aspirations 4. Right understanding, Relationship and Physical Facilities- the basic requirements for fulfillment of aspirations of every human being with their correct priority 5. Understanding Happiness and Prosperity correctly- A critical appraisal of the current scenario 6. Method to fulfill the above human aspirations: understanding and living in harmony at various levels 	8
<p>Unit-II</p> <p>Understanding Harmony in the Human Being - Harmony in Myself!</p> <ol style="list-style-type: none"> 1. Understanding human being as a co-existence of the sentient ‘I’ and the material ‘Body’ 	8

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<ol style="list-style-type: none"> 2. Understanding the needs of Self ('I') and 'Body' - <i>SukhandSuvridha</i> 3. Understanding the Body as an instrument of 'I' (I being the doer, seer and enjoyer) 4. Understanding the characteristics and activities of 'I' and harmony in 'I' 5. Understanding the harmony of I with the Body: <i>Sanyam</i> and <i>Swasthya</i>; correct appraisal of Physical needs, meaning of Prosperity in detail 6. Programs to ensure <i>Sanyam</i> and <i>Swasthya</i> <ul style="list-style-type: none"> - Practice Exercises and Case Studies will be taken up in Practice Sessions. 	
<p>Unit-III</p> <p>Understanding Harmony in the Family and Society- Harmony in Human-Human Relationship</p> <ol style="list-style-type: none"> 1. Understanding harmony in the Family- the basic unit of human interaction 2. Understanding values in human-human relationship; meaning of <i>Nyaya</i> and program for its fulfillment to ensure <i>Ubhay-tripti</i>; Trust (<i>Vishwas</i>) and Respect (<i>Samman</i>) as the foundational values of relationship 3. Understanding the meaning of <i>Vishwas</i>; Difference between intention and competence 4. Understanding the meaning of <i>Samman</i>, Difference between respect and differentiation; the other salient values in relationship 5. Understanding the harmony in the society (society being an extension of family): <i>Samadhan</i>, <i>Samridhi</i>, <i>Abhay</i>, <i>Sah-astitvaas</i> comprehensive Human Goals 6. Visualizing a universal harmonious order in society- Undivided Society (<i>AkhandSamaj</i>), Universal Order (<i>SarvabhaumVyawastha</i>)- from family to world family! <ul style="list-style-type: none"> - Practice Exercises and Case Studies will be taken up in Practice Sessions. 	6
<p>Unit-IV</p> <p>Understanding Harmony in the Nature and Existence - Whole existence as Co-existence</p> <ol style="list-style-type: none"> 1. Understanding the harmony in the Nature 2. Interconnectedness and mutual fulfillment among the four orders of nature- recyclability and self-regulation in nature 3. Understanding Existence as Co-existence (<i>Sah-astitva</i>) of mutually 	5

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<p>interacting units in all-pervasive space</p> <p>4. Holistic perception of harmony at all levels of existence - Practice Exercises and Case Studies will be taken up in Practice Sessions.</p>	
<p>Unit-V</p> <p>Implications of the above Holistic Understanding of Harmony on Professional Ethics</p> <ol style="list-style-type: none"> 1. Natural acceptance of human values 2. Definitiveness of Ethical Human Conduct 3. Basis for Humanistic Education, Humanistic Constitution and Humanistic Universal Order 4. Competence in professional ethics: <ol style="list-style-type: none"> a) Ability to utilize the professional competence for augmenting universal human order, b) Ability to identify the scope and characteristics of people-friendly and eco-friendly production systems, c) Ability to identify and develop appropriate technologies and management patterns for above production systems. 5. Case studies of typical holistic technologies, management models and production systems 6. Strategy for transition from the present state to Universal Human Order: <ol style="list-style-type: none"> a) At the level of individual: as socially and ecologically responsible engineers, technologists and managers b) At the level of society: as mutually enriching institutions and organizations. 	6

Text Book

1. R R Gaur, R Sangal, G P Bagaria, 2009, *A Foundation Course in Value Education*.

Reference Books

1. Ivan Illich, 1974, *Energy &Equity*,The Trinity Press, Worcester, and HarperCollins, USA.
2. E.F. Schumacher, 1973, *Small is Beautiful: a study of economics as if people mattered*, Blond & Briggs, Britain.
3. A Nagraj, 1998, *JeevanVidyaekParichay*,Divya Path Sansthan, Amarkantak.
4. Sussan George, 1976, *How the Other Half Dies*, Penguin Press. Reprinted 1986, 1991.

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5. PL Dhar, RR Gaur, 1990, *Science and Humanism*, Commonwealth Publishers.
6. A.N. Tripathy, 2003, *Human Values*, New Age International Publishers.
7. SubhasPalekar, 2000, *How to practice Natural Farming*, Pracheen(Vaidik) KrishiTantraShodh, Amravati.
8. Donella H. Meadows, Dennis L. Meadows, Jorgen Randers, William W. Behrens III, 1972, *Limits to Growth – Club of Rome’s report*, Universe Books.
9. E G Seebauer& Robert L. Berry, 2000, *Fundamentals of Ethics for Scientists & Engineers*, Oxford University Press
10. M Govindrajan, S Natrajan& V.S. Senthil Kumar, *Engineering Ethics (including Human Values)*, Eastern Economy Edition, Prentice Hall of India Ltd.
11. B P Banerjee, 2005, *Foundations of Ethics and Management*, Excel Books.
12. B L Bajpai, 2004, *Indian Ethos and Modern Management*, New Royal Book Co., Lucknow. Reprinted 2008.

Relevant CDs, Movies, Documentaries & Other Literature:

1. Value Education website, <http://uhv.ac.in>
2. Story of Stuff, <http://www.storyofstuff.com>
3. Al Gore, An Inconvenient Truth, Paramount Classics, USA
4. Charlie Chaplin, Modern Times, United Artists, USA
5. IIT Delhi, Modern Technology – the Untold Story

Course Code: HVPE102-18

Course Name: Human Values, De-addiction and Traffic Rules (Lab/ Seminar)

Program: B.Sc in Graphics and Web Designing	L: 0 T: 0 P: 1
Branch: Computer Applications	Credits: 1
Semester: 1 st	Contact hours:
Internal max. marks: 25	Theory/Practical: Practical
External max. marks: 0	Duration of end semester exam (ESE): 3hrs
Total marks: 25	Elective status: Ability Enhancement

One each seminar will be organized on Drug De-addiction and Traffic Rules. Eminent scholar and experts of the subject will be called for the Seminar at least once during the semester. It will be binding for all the students to attend the seminar.

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Course Code: UGCA1907

Course Name: Fundamentals of Statistics

Program: B.Sc in Graphics and Web Designing	L: 3 T: 1 P: 0
Branch: Computer Applications	Credits: 4
Semester: 2 nd	Contact hours: 44 hours
Internal max. marks: 40	Theory/Practical: Theory
External max. marks: 60	Duration of end semester exam (ESE): 3hrs
Total marks: 100	Elective status: Core

Prerequisite: Students must have the basic knowledge of mathematic terms.

Co requisite: NA

Additional material required in ESE: Minimum two exercises of each concept will be recorded in the file and the file will be submitted in End Semester Examinations.

Course Outcomes: After studying this course, students will be able to:

CO#	Course Outcomes
CO1	Understand the science of studying & analyzing numbers.
CO2	Identify and use various visualization tools for representing data.
CO3	Describe various statistical formulas.
CO4	Compute various statistical measures.

Detailed Contents	Contact hours
<p>Unit I</p> <p>Statistics and Probability: Introduction to Statistics – Origin of Statistics, Features of Statistics, Scope of Statistics, Functions of Statics, Uses and importance of Statistics, Limitation of Statistics, Distrust of Statistics</p> <p>Collection of Data: Introduction to Collection of Data, Primary and Secondary Data, Methods of Collecting Primary Data, Methods of Secondary Data, Statistical Errors, Rounding off Data (Approximation).</p>	8 hours
<p>Unit II</p> <p>Classification of Data Frequency Distribution: Introduction Classification of Data, Objectives of Classification, Methods of Classification, Ways to Classify Numerical Data or Raw Data.</p>	12 hours

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<p>Tabular, Diagrammatic and Graphic Presentation of Data: Introduction to Tabular Presentation of Data, Objectives of Tabulation, Components of a Statistical Table, General Rules for the Construction of a Table, Types of Tables, Introduction to Diagrammatic Presentation of Data, Advantage and Disadvantage of Diagrammatic Presentation, Types of Diagrams, Introduction to Graphic Presentation of Data, Advantage and Disadvantage of Graphic Presentation, Types of Graphs.</p>	
<p>Unit III Measures of Central tendency: Introduction to Central Tendency, Purpose and Functions of Average, Characteristics of a Good Average, Types of Averages, Meaning of Arithmetic Mean, Calculation of Arithmetic Mean, Merit and Demerits of Arithmetic Mean, Meaning of Median, Calculation of Median, Merit and Demerits of Median, Meaning of Mode, Calculation of Mode, Merit and Demerits of Mode, Harmonic Mean- Properties- Merit and Demerits.</p>	12 hours
<p>Unit IV Measures of Dispersion: Meaning of Dispersion, Objectives of Dispersion, Properties of a good Measure of Dispersion, Methods of Measuring Dispersion, Range Introduction, Calculation of Range, Merit and Demerits of Range, Mean Deviation, Calculation of Mean Deviation, Merit and Demerits of Mean Deviation, Standard Deviation Meaning, Calculation of Standard Deviation, Merit and Demerits of Standard Deviation, Coefficient of Variation, Calculation of Coefficient Variance, Merit and Demerits of Coefficient of Variation.</p>	12 hours

Text Books:

1. Statistics and Data Analysis, A.Abebe, J. Daniels, J.W.Mckean, December 2000.
2. Statistics, Tmt. S. EzhilarasiThiru, 2005, Government of Tamilnadu.
3. Introduction to Statistics, David M. Lane, 2013.
4. Weiss, N.A., Introductory Statistics. Addison Wesley, 1999.
5. Clarke, G.M. & Cooke, D., A Basic course in Statistics. Arnold, 1998.

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Reference Books:

1. Banfield J.(1999), Rweb: Web-based Statistical Analysis, Journal of Statistical Software.
2. Bhattacharya,G.K. and Johnson, R.A.(1997), Statistical Concepts and Methods, New York, John Wiley & Sons.

E-Books/ Online learning material

1. http://onlinestatbook.com/Online_Statistics_Education.pdf
2. <https://textbookcorp.tn.gov.in/Books/12/Std12-Stat-EM.pdf>
3. <https://3lihandam69.files.wordpress.com/2015/10/introductorystatistics.pdf>

Course Code: UGWD1903

Course Name: Concepts of Website designing and development

Program: B.Sc in Graphics and Web Designing	L: 3 T: 1 P: 0
Branch: Computer Applications	Credits: 4
Semester: 2 nd	Contact hours: 44 hours
Theory/Practical: Theory	Duration of end semester exam (ESE): 3hrs
Internal max. marks: 40	Elective status: Core
External max. marks: 60	
Total marks: 100	

Prerequisite: Basics of HTML and WWW

Co requisite: -NA-

Additional material required in ESE: -NA-

Course Outcomes: After studying this course, students will be able to:

CO#	Course outcomes
CO1	Know about the basic functioning of WWW and websites
CO2	Learn various WWW concepts
CO3	Learn the concepts of web designing
CO4	Learn how to host websites

Detailed Contents	Contact hours
Unit-I Introduction to WWW: Protocols and programs, secureconnections, application and development tools, the webbrowser. Web site design principles, planning the siteand navigation	10

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<p>Web Essentials: Clients, Servers, and Communication. The Internet-Basic Internet Protocols. The WorldWide Web-HTTP request message-response message-Web Clients, What is server, choices, setting up servers, Logging users, dynamic IP. Understanding hyperlinks, URLs, Domain names. Concepts of web hosting. Introduction to Web servers- Windows based/Linux based. Introduction to W3C Standards.</p>	
<p>Unit-II Types of Websites: Static and Dynamic websites, Ideas about Open Source, Creative Commons, worldwideweb-based philanthropic projects</p> <p>Web Design: Concepts of effective web design, Web design issuesincluding Browser, Bandwidth and Cache, Display resolution, Look and</p> <p>Feel of the Website, Page Layout andlinking, User centric design,Sitemap, Planning and publishing website, Designing effective navigation.</p>	12
<p>Unit-III Introduction to database- MySQL, Introduction to server-side scripting language- PHP, Introduction to Client -side scripting- Javascript, Understanding how MySQL and PHP works together tocreate a dynamic website, Integrating XML,DHTML</p> <p>Understanding content management system (CMS): Introduction to open source CMS- Joomla, Concepts of Categories and Articles, Concepts of Modules, components and plugins.</p>	10
<p>Unit-IV Blog Interface: What are blogs, The most popular blog engines- Word press and Blogger, Introduction to the blog interface dashboard, Categories, tags, permalinks and shortlinks.</p> <p>Search Engine Optimization: Introduction to SEO, Search Engines- how search engines work, Black Hat vs White Hat SEO, Best SEO practices, Keywords, How to write web content, Parameters/standard of good SEO.</p>	12

Text Books:

1. Web Technologies, Uttam K Roy, Oxford University Press
2. The Complete Reference PHP – Steven Holzner, Tata McGraw-Hill
3. Web Applications : Concepts and Real World Design, Knuckles, Wiley-India
4. Internet and World Wide Web How to program, P.J. Deitel& H.M. Deitel Pearson.

Reference Books:

1. Developing Web Applications, Ralph Moseley and M. T. Savaliya, Wiley-India
2. Steven Holzner,"HTML Black Book", Dremtech press.
3. Web Technologies, Black Book, Dreamtech Press

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4. Web Design, Joel Sklar, Cengage Learning

Course Code: UGCA1909

Course Name: Object Oriented Programming using C++

Program: B.Sc in Graphics and Web Designing	L:3 T:1 P:0
Branch: Computer Applications	Credits: 4
Semester: 2 nd	Contact hours: 44 hours
Internal max. marks: 40	Theory/Practical: Theory
External max. marks: 60	Duration of end semester exam (ESE): 3hrs
Total marks: 100	Elective status: Core

Prerequisite: -NA-

Co requisite: -NA-

Additional material required in ESE: -NA-

Course Outcomes: After studying this course, students will be able to:

CO#	Course outcomes
CO1	To learn programming from real world examples.
CO2	To understand Object oriented approach for finding Solutions to various problems with the help of C++ language.
CO3	To create computer based solutions to various real-world problems using C++
CO4	To learn various concepts of object oriented approach towards problem solving

Detailed Contents	Contact hours
Unit-I 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	12
Unit-II Classes & Objects and Concept of Constructors 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. Introduction to constructors, Parameterized constructors, Copy Constructor,	10

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Multiple constructors in class, Dynamic initialization of objects, Destructors.	
Unit-III 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	12
Unit-IV Polymorphism and File Handling Early Binding, Late Binding, Virtual Functions, pure virtual functions, Abstract Classes. Opening and Closing File, Reading and Writing a file.	10

Text Books:

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

Course Code: UGCA1910

Course Name: Object Oriented Programming using C++ Laboratory

Program: B.Sc in Graphics and Web Designing	L:0 T:0 P:4
Branch: Computer Applications	Credits: 2
Semester: 2 nd	Contact hours: 4 Hours per week
Internal max. marks: 60	Theory/Practical: Practical
External max. marks: 40	Duration of end semester exam (ESE): 3hrs
Total marks: 100	Elective status: Core

Prerequisite: -NA-

Co requisite: -NA-

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Additional material required in ESE: -NA-

Course Outcomes: After studying this course, students will be able to:

CO#	Course outcomes
CO1	To learn programming from real world examples.
CO2	To understand Object oriented approach for finding Solutions to various problems with the help of C++ language.
CO3	To create computer based solutions to various real-world problems using C++
CO4	To learn various concepts of object oriented approach towards problem solving

Instructions: Develop all program in C++

Assignments:

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 pair of integers.
3.	Write a function to find 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 array of objects.
7.	Write a C++ program to compute area of right angle triangle, equilateral triangle, isosceles triangle using function overloading concept.
8.	Consider a publishing company that markets both book and audio cassette version to its works. Create a class Publication that stores the title (a string) and price (type float) of a publication. Derive the following two classes from the above Publication class: Book which adds a page count (int) and Tape which adds a playing time in minutes(float). Each class should have get_data() function to get its data from the user at the keyboard. Write the main() function to test the Book and Tape classes by creating instances of them asking the user to fill in data with get_data() and then displaying it using put_data().
9.	Consider an example of declaring the examination result. Design three classes student, exam and result. The student has data members such as rollno, 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-

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	class and it has own data members like total, avg.
10.	Write a program for overloading of Unary ++ operator.
11.	Write a program for overloading of Binary + operator.
12.	Write a program of Virtual Functions.
13.	Write a program of Abstract Classes.
14.	Write a program to read and write from file.

Reference Books:

1. Object Oriented Programming with C++, E. Balagurusami, Fourth Edition, TataMc-Graw Hill.
2. Object Oriented Programming in Turbo C++, Robert Lafore, Fourth Edition Galgotia Publications.
3. The C++ Programming Language, BjarnaStroustrup, Third Edition, Addison-Wesley Publishing Company.
4. Object Oriented Programming Using C++, Salaria, R. S, Fourth Edition, Khanna Book Publishing.

Course Code: UGCA1911

Course Name: Fundamentals of Statistics Laboratory

Program: B.Sc in Graphics and Web Designing	L: 0 T: 0 P: 4
Branch: Computer Applications	Credits: 2
Semester: 2 nd	Contact hours: 4 Hours per week
Internal max. marks: 60	Theory/Practical: Practical
External max. marks: 40	Duration of end semester exam (ESE): 3hrs
Total marks: 100	Elective status: Core

Prerequisite: Students must have the knowledge of Spreadsheet.

Co requisite: The students will develop analytical behavior & will have better understanding of analyzing data and testing hypotheses.

Additional material required in ESE: Minimum two exercises of each concept will be recorded in the file and the file will be submitted in End Semester Examinations.

Course Outcomes: After studying this course, students will be able to:

CO#	Course Outcomes
CO1	Represent data using various Frequency table and Graphs.
CO2	Apply various operations/ formulas using any software/package to solve statistical problems.

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Instructions:

1:	Display the Maximum and Minimum market data.														
2:	Display year wise strength of the students of a college in Tabular form & Graphical form.														
3:	Calculate the average marks of the students of your College.														
4:	Print measure of Central Tendency using grouped and ungrouped data.														
5:	Construct & print frequency distribution using data with the following Techniques: a) Histogram b) Frequency Polygon c) Frequency Curve c) Ogive curves.														
6:	Find out & display the Median and Mode from the following series by using suitable method: <table style="margin-left: 40px; border-collapse: collapse;"> <tr> <td style="padding: 0 10px;">Class</td> <td style="padding: 0 10px;">156-158</td> <td style="padding: 0 10px;">158-160</td> <td style="padding: 0 10px;">160-162</td> <td style="padding: 0 10px;">162-164</td> <td style="padding: 0 10px;">164-166</td> </tr> <tr> <td style="padding: 0 10px;">Frequency</td> <td style="padding: 0 10px;">4</td> <td style="padding: 0 10px;">8</td> <td style="padding: 0 10px;">28</td> <td style="padding: 0 10px;">51</td> <td style="padding: 0 10px;">89</td> </tr> </table>	Class	156-158	158-160	160-162	162-164	164-166	Frequency	4	8	28	51	89		
Class	156-158	158-160	160-162	162-164	164-166										
Frequency	4	8	28	51	89										
7:	Calculate an appropriate measure of dispersion using grouped and ungrouped data.														
8:	Make an array and calculate range of the data.														
9:	Represent the placement record of the students of your college.														
10:	Calculate & display Letter Grade using spreadsheet.														
11:	Represent the following data by suitable graphs, determine therefrom the number of children having IQ (i) Below 105 (ii) Above 124. <table style="margin-left: 40px; border-collapse: collapse;"> <tr> <td style="padding: 0 10px;">IQ</td> <td style="padding: 0 10px;">75-84</td> <td style="padding: 0 10px;">85-94</td> <td style="padding: 0 10px;">95-104</td> <td style="padding: 0 10px;">105-114</td> <td style="padding: 0 10px;">115-124</td> <td style="padding: 0 10px;">125-134</td> </tr> <tr> <td style="padding: 0 10px;">No. of Children</td> <td style="padding: 0 10px;">8</td> <td style="padding: 0 10px;">20</td> <td style="padding: 0 10px;">45</td> <td style="padding: 0 10px;">54</td> <td style="padding: 0 10px;">28</td> <td style="padding: 0 10px;">16</td> </tr> </table>	IQ	75-84	85-94	95-104	105-114	115-124	125-134	No. of Children	8	20	45	54	28	16
IQ	75-84	85-94	95-104	105-114	115-124	125-134									
No. of Children	8	20	45	54	28	16									

Reference Books:

1. Statistics for Economics, TR Jain, VK Ohri.
2. Statistics and Data Analysis, A.Abebe, J. Daniels, J.W.Mckean, December 2000.

E-Books/ Online learning material

1. https://www.meritnation.com/cbse-class-11-commerce/economics/class_13_tr_jain.
2. http://college.cengage.com/mathematics/brase/understandable_statistics/9780618949922_ch03.pdf
3. http://www.rockcreekschools.org/pages/uploaded_files/Excel%201%20Lab%20Exercises.pdf

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Course Code: UGWD1904

Course Name: Workshop on Digital Image Editing

Program: B.Sc in Graphics and Web Designing	L:0 T:0 P:4
Branch: Computer Applications	Credits: 2
Semester: 2 nd	Contact hours: 4 Hours per week
Theory/Practical: Practical	Percentage of numerical/design problems: --
Internal max. marks: 60	Duration of end semester exam (ESE): 3hrs
External max. marks: 40	Elective status: Core
Total marks: 100	

Prerequisite: -NA-

Co requisite: -NA-

Additional material required in ESE: -NA-

Course Outcomes: After studying this course, students will be able to:

CO#	Course outcomes
CO1	The students will be able to learn photo editing
CO2	The students will understand the function of Photoshop
CO3	The students will understand various types of photo editing tasks

Detailed Contents
Introduction to Photoshop, Creating a New File, Main Selections, Picking color, Filling a selection with color, More ways to choose colors and fill selections, Painting with paintbrush tool, Using the magic wand tool and applying a filter, Saving your document Color Mode, Gray Scale Color Mode, RGB Color Mode, CMYK Color Mode, Bitmap Mode, Open a file, Preference.
Foreground & background, Changing Foreground and Background colors, Using the Large color selection Boxes and small color swathes, Using the Eyedropper tool to sample Image color, Changing the Foreground Color While using a Painting Tool. Using Brushes, Selecting the Brush Shape, Drawing a vertical and Horizontal Straight lines with any brush, Drawing connecting Straight Lines (at any angle) with any brush, Creating a New Brush, Saving Brushes, Loading Brushes, Creating a Custom Brushes, Using the Painting Modes, Fade, Airbrush Options, Pencil Options.
Rubber stamping an Aligned Clone, Rubber Stamping, Impressionist Style, Using line tool, Using the Editing Tool, The Smudge Tool, The Blur and Sharpen Tool, The Dodge / Burn Tool, Shadows, Mid,tones and Highlights, Selection Tools, Making Rectangular and Square Selections, Feathering a Selections, Lasso Features, Lasso Options, Making selections by color or Gray Scale value using the Magic Wand, Moving an anchor point or Direction point to change the shape of curve, Adding and Removing Anchor points, Moving Path, Saving, Loading and Creating New Path, Filling & Stroking Path.
Introduction to layers, Creating & editing New layers, Adding a background, Creating Layer Mask, Layer Masks, Adjustment Layers, Adding Fills and Gradients, Filling with paint bucket tools, Filling type with grading Fills, Applying Filters, Blur Filters, Render Filters, Sharpen

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Filters, Sketch Filters, Texture Filters, Other Special Filters, Printing your document, Save your file, Save file as a JPEG, TIFF, GIF, PNG

Assignments:

1. Simple text effects
2. Image restoration
3. Image manipulation in Photoshop
4. Movie poster concept
5. Creating story board
6. Digital scenery creation
7. UI Design for smart phones
8. Creating website layout
9. Set extension in Photoshop
10. Digital Matte painting

Text Books:

1. Photoshop CS6 Training Guide, English Paperback, By Satish Jain,(BPB Publications),2015.
2. Adobe Photoshop Cs6 Bible,By Lisa Danae and Brad Dayley, Wiley India 2013 Edition.

Reference Books:

1. Photoshop 7 - the ultimate reference by Barstow Bruce & Martin tony.

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**Ability Enhancement Compulsory Course
EVS102-18 Environmental Studies**

Program: BCA	L: 2 T: 0 P: 0
Branch: Computer Applications	Credits: 2
Semester: 2nd	Contact hours: --
Theory/Practical: Theory	Percentage of numerical/design problems: --
Internal max. marks: 40	Duration of end semester exam (ESE): --
External max. marks: 60	Elective status: Core
Total marks: 100	

Course Outcomes:

1. Students will enable to understand environmental problems at local and national level through literature and general awareness.
2. The students will gain practical knowledge by visiting wildlife areas, environmental institutes and various personalities who have done practical work on various environmental Issues.
3. The students will apply interdisciplinary approach to understand key environmental issues and critically analyze them to explore the possibilities to mitigate these problems.
4. Reflect critically about their roles and identities as citizens, consumers and environmental actors in a complex, interconnected world

UNIT-1: Introduction to Environmental Studies

Multidisciplinary nature of Environmental Studies: Scope & Importance
Need for Public Awareness

UNIT-2: Ecosystems

Concept of an Ecosystem: Structure & functions of an ecosystem (Producers, Consumers & Decomposers)

Energy Flow in an ecosystem: Food Chain, Food web and Ecological Pyramids

Characteristic features, structure & functions of following Ecosystems:

- Forest Ecosystem
- Aquatic Ecosystem (Ponds, Lakes, River & Ocean)

UNIT-3: Natural Resources

Renewable & Non-renewable resources

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Forest Resources: Their uses, functions & values (Biodiversity conservation, role in climate change, medicines) & threats (Overexploitation, Deforestation, Timber extraction, Agriculture Pressure), Forest Conservation Act

Water Resources: Their uses (Agriculture, Domestic & Industrial), functions & values, Overexploitation and Pollution of Ground & Surface water resources (Case study of Punjab), Water Conservation, Rainwater Harvesting,

Land Resources: Land as a resource; Land degradation, soil erosion and desertification

Energy Resources: Renewable & non-renewable energy resources, use of alternate energy resources (Solar, Wind, Biomass, Thermal), Urban problems related to Energy

UNIT-4: Biodiversity & its conservation

Types of Biodiversity: Species, Genetic & Ecosystem

India as a mega biodiversity nation, Biodiversity hot spots and biogeographic regions of India

Examples of Endangered & Endemic species of India, Red data book

UNIT-5: Environmental Pollution & Social Issues

Types, Causes, Effects & Control of Air, Water, Soil & Noise Pollution

Nuclear hazards and accidents & Health risks

Global Climate Change: Global warming, Ozone depletion, Acid rain, Melting of Glaciers & Ice caps, Rising sea levels

Environmental disasters: Earthquakes, Floods, Cyclones, Landslides

UNIT-6: Field Work

Visit to a National Park, Biosphere Reserve, Wildlife Sanctuary

Documentation & preparation of a Biodiversity (flora & fauna) register of campus/river/forest

Visit to a local polluted site: Urban/Rural/Industrial/Agricultural

Identification & Photography of resident or migratory birds, insects (butterflies)

Public hearing on environmental issues in a village

Suggested Books:

1. Bharucha, E. Text Book for Environmental Studies. University Grants Commission, New Delhi.
2. Agarwal, K.C. 2001 Environmental Biology, Nidi Publ. Ltd. Bikaner.
3. Bharucha Erach, The Biodiversity of India, Mapin Publishing Pvt. Ltd., Ahmedabad – 380 013, India, Email:mapin@icenet.net (R)
4. Brunner R.C., 1989, Hazardous Waste Incineration, McGraw Hill Inc. 480p
5. Clark R.S., Marine Pollution, Clarendon Press Oxford (TB)
6. Cunningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 2001, Environmental Encyclopedia, Jaico Publ. House, Mumabai, 1196p
7. De A.K., Environmental Chemistry, Wiley Eastern Ltd.
8. Down to Earth, Centre for Science and Environment (R)

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9. Gleick, H.P. 1993. Water in crisis, Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute Oxford Univ. Press. 473p
 10. Hawkins R.E., Encyclopedia of Indian Natural History, Bombay Natural History Society, Bombay (R)
 11. Heywood, V.H &Waston, R.T. 1995. Global Biodiversity Assessment. Cambridge Univ. Press 1140p.
 12. Jadhav, H &Bhosale, V.M. 1995. Environmental Protection and Laws. Himalaya Pub. House, Delhi 284 p.
 13. Mckinney, M.L. & School, R.M. 1996. Environmental Science systems & Solutions, Web enhanced edition. 639p.
 14. Mhaskar A.K., Matter Hazardous, Techno-Science Publication (TB)
 15. Miller T.G. Jr. Environmental Science, Wadsworth Publishing Co. (TB)
 16. Odum, E.P. 1971. Fundamentals of Ecology. W.B. Saunders Co. USA, 574p
 17. Rao M N. &Datta, A.K. 1987. Waste Water treatment. Oxford & IBH Publ. Co. Pvt. Ltd. 345p.
 18. Sharma B.K., 2001. Environmental Chemistry. Geol Publ. House, Meerut
 19. Survey of the Environment, The Hindu (M)
 20. Townsend C., Harper J, and Michael Begon, Essentials of Ecology, Blackwell Science (TB)
 21. Trivedi R. K. and P.K. Goel, Introduction to air pollution, Techno-Science Publication (TB)
 22. Wanger K.D., 1998 Environmental Management. W.B. Saunders Co. Philadelphia, USA 499p
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Course Name: Data Structures

Course Code: UGCA1915

Program: B.Sc. (Graphics and Web Designing)	L: 3 T: 1 P: 0
Branch: Computer Applications	Credits: 4
Semester: 3rd	Contact hours: 44 hours
Internal max. marks: 40	Theory/Practical: Theory
External max. marks: 60	Duration of end semester exam (ESE): 3hrs
Total marks: 100	Elective status: core/elective: Core

Prerequisite:- NA

Co requisite:- NA

Additional material required in ESE:-

Course Outcomes: Students will be able to

CO#	Course Outcomes
CO1	Apply appropriate constructs of Programming language, coding standards for application development.
CO2	Use appropriate data structures for problem solving and programming.
CO3	Use algorithmic foundations for solving problems and programming.
CO4	Apply appropriate searching and/or sorting techniques for application development.
CO5	Develop programming logic and skills.

Detailed contents	Contact hours
<p><u>UNIT-I</u></p> <p>Introduction to Data Structures: Algorithms and Flowcharts, Basics Analysis on Algorithm, Complexity of Algorithm, Introduction and Definition of Data Structure, Classification of Data, Arrays, Various types of Data Structure, Static and Dynamic Memory Allocation, Function, Recursion.</p>	10 hours

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<p>Arrays, Pointers and Strings: Introduction to Arrays, Definition, One Dimensional Array and Multi Dimensional Arrays, Pointer, Pointer to Structure, various Programs for Array and Pointer. Strings. Introduction to Strings, Definition, Library Functions of Strings.</p>	
<p><u>UNIT-II</u> Stacks and Queue Introduction to Stack, Definition, Stack Implementation, Operations of Stack, Applications of Stack and Multiple Stacks. Implementation of Multiple Stack Queues, Introduction to Queue, Definition, Queue Implementation, Operations of Queue, Circular Queue, De-queue and Priority Queue.</p>	8 hours
<p><u>Unit -III</u> Linked Lists and Trees Introduction, Representation and Operations of Linked Lists, Singly Linked List, Doubly Linked List, Circular Linked List, And Circular Doubly Linked List. Trees Introduction to Tree, Tree Terminology Binary Tree, Binary Search Tree, Strictly Binary Tree, Complete Binary Tree, Tree Traversal, Threaded Binary Tree, AVL Tree B Tree, B+ Tree.</p>	14 hours
<p><u>UNIT-IV</u> Graphs, Searching, Sorting and Hashing Graphs: Introduction, Representation to Graphs, Graph Traversals Shortest Path Algorithms. Searching and Sorting: Searching, Types of Searching, Sorting, Types of sorting like quick sort, bubble sort, merge sort, selection sort. Hashing: Hash Function, Types of Hash Functions, Collision, Collision Resolution Technique (CRT), Perfect Hashing</p>	12 hours

Text Books:

1. Brijesh Bakariya. Data Structures and Algorithms Implementation through C, BPB Publications.
2. Kruse R.L. Data Structures and Program Design in C; PHI
3. Aho Alfred V., Hopperoft John E., Ullman Jeffrey D., “Data Structures and Algorithms”, AddisonWesley

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Reference books:

1. Horowitz & Sawhney: Fundamentals of Data Structures, Galgotia Publishers.
 2. Yashwant Kanetkar, Understanding Pointers in C, BPB Publications.
 3. Horowitz, S. Sahni, and S. Rajasekaran, Computer Algorithms, Galgotia Pub. Pvt. Ltd., 1998.
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Course Name: Elements of Design

Course Code: UGWD1905

Program: B.Sc. (Graphics and Web Designing)	L: 3 T: 1 P: 0
Branch: Computer Applications	Credits: 4
Semester: 3rd	Contact hours: 44 hours
Internal max. marks: 40	Theory/Practical: Theory
External max. marks: 60	Duration of end semester exam (ESE): 3hrs
Total marks: 100	Elective status: core/elective: Core

Prerequisite: Student must have the basic knowledge of Photoshop and CorelDraw.

Co requisite: NA

Additional material required in ESE:

Course Outcomes: Students will be able to

CO#	Course Outcomes
CO1	Learn methods & means to create images using the elements of design – space, depth, overlaps, transparency, plane, volume etc.
CO2	Create any type of Graphic Design in the software.
CO3	Gain the knowledge of formal systems of visual representation, using the basic principles and elements of design.

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CO4	Learn about the components of Design.
CO5	Students will know the use of typography in Design.

Detailed contents	Contact hours
<p><u>UNIT-I</u></p> <p>Introduction: Visual Perception and Design: Introduction of art and ideas - Visual & Critical thinking and analysis of 2Dimensional (2D) Art through history. Theoretical introduction to the perception, phenomenology, Definition of Design – Different applications of Design.</p> <p>Design Elements: Elements of design: The concepts of design space and concepts of design. Visual elements - Line and shape, Form, value, texture, color - Measure, Type, Direction, Character visual elements.</p>	12 hours
<p><u>UNIT-II</u></p> <p>Principles of Design: Composition in contrast: black and white, positive and negatives, tessellation, units and their shapes, transformations, alteration. Unity and variety / element of interest, contrast, elaboration, Dominance, Expressive content. Color and Composition – Balance, Harmony and rhythm.</p>	10 hours
<p><u>Unit –III</u></p> <p>Composition:</p> <ul style="list-style-type: none"> • Three Principles: Unity, Balance, Centre of interest. • Achieving Emphasis: Light shade, Details, contrasts. • Balance: Asymmetrical Balance, Informal Balance, Radial Balance. <p>Text:</p> <ul style="list-style-type: none"> • Type, text, and meaning. Typography as text and as image, Typography as text and as image combined with pictorial representation. 	12 hours

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<u>UNIT-IV</u>	
Color Wheel: <ul style="list-style-type: none"> • Mixing of Primary, Secondary and Tertiary Colors. • Tint, Shades, Hues, Tones. • Warm Colors and Cool Colors. • Different Color schemes (Complimentary, Split Complimentary, Analogous, Triadic etc. 	10 hours

Text Books:

1. Elements and Principles of Design: Student Guide with Activities, Gerald F. Brommer, Crystal Productions, 2000.

Reference books:

1. The Elements of Graphic Design, Alex W. White, Second Edition, Allworth Publications, 2011.

Course Name: Database Management Systems

Course Code: UGCA1922

Program: B.Sc. (Graphics and Web Designing)	L: 3 T: 1 P: 0
Branch: Computer Applications	Credits: 4
Semester: 3rd	Contact hours: 44 hours
Internal max. marks: 40	Theory/Practical: Theory
External max. marks: 60	Duration of end semester exam (ESE): 3hrs
Total marks: 100	Elective status: core/elective: Core

Prerequisite: --

Co requisite: --

Additional material required in ESE: --

Course Outcomes: Students will be able to

CO#	Course outcomes
CO1	Understand the basic concepts of DBMS.

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CO2	Formulate, using SQL, solutions to a broad range of query and data update problems.
CO3	Demonstrate an understanding of normalization theory and apply such knowledge to the normalization of a database.
CO4	Understand the concept of Transaction and Query processing in DBMS.

Detailed Contents	Contact hours
<p><u>UNIT-I</u></p> <p>Introduction of DBMS, Data Modeling for a Database, Three level Architecture of DBMS, Components of a DBMS. Introduction to Data Models, Hierarchical, Network and Relational Model, Comparison of Network, Hierarchical and Relational Model, Entity Relationship Model.</p>	10
<p><u>UNIT-II</u></p> <p>Relational Database, Relational Algebra and Calculus, SQL Fundamentals, DDL, DML, DCL, PL/SQL Concepts, Cursors, Stored Procedures, Stored Functions, Database Triggers.</p>	12
<p><u>UNIT-III</u></p> <p>Introduction to Normalization, First, Second, Third Normal Forms, Dependency Preservation, Boyce-Codd Normal Form, Multi-valued Dependencies and Fourth Normal Form, Join Dependencies and Fifth Normal Form, Domain-key normal form (DKNF).</p>	12
<p><u>UNIT-IV</u></p> <p>Database Recovery, Concurrency Management, Database Security, Integrity and Control. Structure of a Distributed Database, Design of Distributed Databases.</p>	10

Text Books:

1. "An Introduction to Database System", Bipin C. Desai, Galgotia Publications Pvt Ltd-New Delhi, Revised Edition, (2012).
2. "Database System Concepts", Abraham Silberschatz, Henry F. Korth, S. Sudharshan, Tata McGraw Hill, 6th Edition, (2013).

Reference Books:

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1. “SQL, PL/SQL The Programming Language of Oracle”, Ivan Bayross, BPB Publications, 4th Revised Edition (2009).
 2. “An Introduction to Database Systems”, C. J. Date, A. Kannan, S. Swamynathan, 8th Edition, Pearson Education, (2006).
 3. Database Management Systems, Raghu Ramakrishnan, McGraw-Hill, Third Edition, 2014.
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Course Name: Data Structures Laboratory

Course Code: UGCA1918

Program: B.Sc. (Graphics and Web Designing)	L: 0 T: 0 P: 4
Branch: Computer Applications	Credits: 2
Semester: 3rd	Contact hours: 4 hours per week
Internal max. marks: 60	Theory/Practical: Practical
External max. marks: 40	Duration of end semester exam (ESE): 3hrs
Total marks: 100	Elective status: Core

Prerequisite: -- Student must have the basic knowledge of C programming

Co requisite:--NA

Additional material required in ESE: -- Hardcopy of the exercises are to be maintained during the practical labs and to be submitted during the End Semester Examinations.

Course Outcomes: Students will be able to

CO#	Course outcomes
CO1	Apply appropriate constructs of Programming language, coding standards for application development.
CO2	Develop programming skills for solving problems.
CO3	Apply appropriate searching and/or sorting techniques for application development.

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Instructions: Programs may be developed in C, C++ or Python programming language

1	Program for using Dynamic Functions (malloc(), calloc(), realloc() and free()) functions.
2	Program to insert, delete and traverse an element from an array.
3	Program to merge two one dimensional array.
4	Program for addition, subtraction and multiplication of two matrix.
5	Program for implementing multiplication of two matrices.
6	Implement linear search using single and 2 dimensional array.
7	Program for implementing selection sort.
8	Program for implementing insertion sort.
9	Program for implementing quick sort.
10	Program for implementing merge sort.
11	Program to calculate length of the string using user defined function.
12	Program to concatenate and compare two strings using user defined function.
13	Program for using the concept of pointer to string.
14	Program to reverse a sentence by recursion.
15	Program to delete all repeated words in string.
16	Program to find the number of vowels, consonants, digits and white space in a string.
17	Program to find the length of the longest repeating sequence in a string.
18	Program to find highest and lowest frequency character in a string.
19	Program for implementing Stack using array.
20	Program for implementing Stack using pointer.
21	Program for implementing multiple stack.
22	Program for converting infix to postfix form.
23	Program for implementing Queue using array.

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24	Program for dynamic implementation of queue.
25	Program for implementing of circular queue.
26	Program for implementing of dequeue.
27	Program for implementing of priority queue
28	Program for implementing Singly Linked list.
29	Program for implementing Doubly Linked list
30	Program for implementing Binary Search Tree.
31	Program for Breadth First Search (BFS) for graph traversal.
32	Program for Depth First Search (DFS) for graph traversal.

Reference Books:

1. Brijesh Bakariya. Data Structures and Algorithms Implementation through C, BPB Publications.
 2. Aho Alfred V., Hopperoft John E., Ullman Jeffrey D., “Data Structures and Algorithms”, AddisonWesley.
 3. Horowitz & Sawhaney: Fundamentals of Data Structures, Galgotia Publishers.
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Course Name: Elements of Design Laboratory

Course Code: UGWD1906

Program: B.Sc. (Graphics and Web Designing)	L: 0 T: 0 P: 4
Branch: Computer Applications	Credits: 2
Semester: 3rd	Contact hours: 4 hours per week
Internal max. marks: 60	Theory/Practical: Practical
External max. marks: 40	Duration of end semester examinations (ESE): 3hrs
Total marks: 100	Elective status: Core

Prerequisite: Students must have basic understanding of designing/ Painting tools.

Co requisite: NA

Additional material required in ESE: Hardcopy of the exercises are to be maintained during the practical labs and to be submitted during the End Semester Examinations.

Course outcomes: Students will be able to

CO#	Course outcomes
CO1	Learn the skills about Visual Perceptions and Design.
CO2	Know about design measurements and the concepts of design.
CO3	Learn the concept of composition in contrast.
CO4	Enhance designing skills like sketching, shapes and visual designs.

Instructions:

16.	Assignment on pattern design by sketching
17.	Assignment on create cartoon character design.
18.	Assignment on visual logo designing
19.	Assignment on designing 5 different types of conceptual Branding creative's.

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20.	Assignment on magazine covers design by using typography.
21.	Assignment on line and shape design
22.	Assignment on creating character visual elements design
23.	Assignment on Masking and Manipulation of pictures
24.	Assignment on to develop one creative by Radial Balance.
25.	Assignment on creating design by mixing of Primary, Secondary and Tertiary Colors.
26.	Assignment on text and as image combined with pictorial representation.
27.	Assignment on creating Background design by using Warm Colors and Cool Colors.
28.	Assignment on design & Print any five most important activities of your college in a collage.
29.	Assignment on designing & Printing any brochure.
30.	Assignment on assemble all the latest news cutting of your activities on a 10 X 8 size flex.

Text Books:

1. Exploring the Elements of Design, Poppy Evans, Mark A. Thomas, 3rd Edition, Cengage Publications, 2013.
2. The Practical Guide to Information Design, Ronnie Lipton, 1st edition, Wiley Publications, 2007.

Reference books:

1. Design Elements, Timothy Samara, 2nd Edition”, Rockport Publishers, 2014.
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Course Name: Database Management Systems Laboratory

Course Code: UGCA1925

Program: B.Sc. (Graphics and Web Designing)	L: 0 T: 0 P: 4
Branch: Computer Applications	Credits: 2
Semester: 3 rd	Contact hours: 4 hours per week
Internal max. marks: 60	Theory/Practical: Practical
External max. marks: 40	Duration of end semester exam (ESE): --
Total marks: 100	Elective status: Core

Prerequisite:--

Co requisite:-- NA.

Additional material required in ESE:--

Course Outcomes: Students will be able to

CO#	Course outcomes
CO1	Able to understand various queries and their execution
CO2	Populate and query a database using SQL DML/DDL commands.
CO3	Declare and enforce integrity constraints on a database
CO4	Programming PL/SQL including stored procedures, stored functions, cursors, packages
CO5	Able to design new database and modify existing ones for new applications and reason about the efficiency of the result

Instructions:

1.	Used of CREATE, ALTER, RENAME and DROP statement in the database tables (relations)
2.	Used of INSERT INTO, DELETE and UPDATE statement in the database tables (relations)
3.	Use of simple select statement.
4.	Use of select query on two relations
5.	Use of nesting of queries.
6.	Use of aggregate functions.
7.	Use of substring comparison.
8.	Use of order by statement.

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9.	<p>Consider the following schema for a LibraryDatabase: BOOK (<i>Book_id, Title, Publisher_Name, Pub_Year</i>) BOOK_AUTHORS (<i>Book_id, Author_Name</i>) PUBLISHER (<i>Name, Address, Phone</i>) BOOK_COPIES (<i>Book_id, Branch_id, No-of_Copies</i>) BOOK_LENDING (<i>Book_id, Branch_id, Card_No, Date_Out, Due_Date</i>) LIBRARY_BRANCH (<i>Branch_id, Branch_Name, Address</i>)</p> <p>Write SQL queries to</p> <ol style="list-style-type: none"> 1. Retrieve details of all books in the library_id, title, name of publisher, authors, number of copies in each branch, etc. 2. Get the particulars of borrowers who have borrowed more than 3 books between Jan 2018 to Jun 2018 3. Delete a book in BOOK table. Update the contents of other tables to reflect this data manipulation operation. 4. Partition the BOOK table based on year of publication. Demonstrate its working with a simple query. 5. Create a view of all books and its number of copies that are currently available in the Library.
10.	<p>Consider the following schema for Order Database: SALESMAN (<i>Salesman_id, Name, City, Commission</i>) CUSTOMER (<i>Customer_id, Cust_Name, City, Grade, Salesman_id</i>)</p>
11	<p>ORDERS (<i>Ord_No, Purchase_Amt, Ord_Date, Customer_id, Salesman_id</i>) Write SQL queries to</p> <ol style="list-style-type: none"> 1. Count the customers with grades above Amritsar's average. 2. Find the name and numbers of all salesmen who had more than one customer. 3. List all salesmen and indicate those who have and don't have customers in their cities (Use UNION operation.) 4. Create a view that finds the salesman who has the customer with the highest order of a day. 5. Demonstrate the DELETE operation by removing salesman with id 1000. All his orders must also be deleted.
12.	Write a PL/SQL code to add two numbers and display the result. Read the numbers during run time.
13.	Write a PL/SQL code to find sum of first 10 natural numbers using while and for loop.
14.	Write a program to create a trigger which will convert the name of a student to upper case before inserting or updating the name column of student table.
15.	Write a PL/SQL block to count the number of rows affected by an update statement using SQL% ROWCOUNT

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16.	Write a PL/SQL block to increase the salary of all doctors by 1000.
17.	Write a PL/SQL code to multiply two numbers using procedure inside the block.
18.	Write a PL/SQL code to calculate factorial of a given number using function.
19.	Create a package that contains function and procedure.
20.	Design database for Student Management System for your college using E-R model and Normalization.
21.	Design and Develop Conceptual Data Model (E-R Diagram) for Library Management System with all the necessary entities, attributes, constraints and relationships. Design and build Relational Data Model for application specifying all possible constraints.

Reference Books:

1. “SQL, PL/SQL the Programming Language of Oracle”, 4th Revised Edition, Ivan Bayross (2009).
2. “Oracle PL/SQL Programming”, 5th Edition, Steven Feuerstein and Bill Pribyl (2009).

Course Name: Image Editing & Photography

Course Code: UGWD1907

Program: B.Sc. (Graphics and Web Designing)	L: 1 T: 0 P: 0
Branch: Computer Applications	Credits:1
Semester: 3 rd	Contact hours: 16 hours
Internal max. marks: 40	Theory/Practical: Theory
External max. marks: 60	Duration of end semester exam (ESE): 3hrs
Total marks: 100	Elective status: Skill Enhancement

Prerequisite: --Students must have basic knowledge of Camera and Photoshop.

Co requisite: --NA

Additional material required in ESE:--

Course Outcomes: Students will be able to

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CO#	Course Outcomes
CO1	Know about the basic functions and features of digital camera
CO2	Learn the various formats of camera and functioning of SLR camera and its controls such that they can handle it well and get correct exposure for their photographs.
CO3	Have a clear understanding of describe image quality and will able to enhance it.
CO4	Familiarize themselves with the vitality of the subjects and develop their sensibility to a certain minimum extent

Detailed contents	Contact hours
<p><u>UNIT-I</u> Camera Controls: Introductions of camera: its parts and types. Menu items and shooting modes (Auto vs. Scene vs. Priority). Exposure, Black and White Conversion, Intro to Lighting Black and White photographs angle and their conceptual editing - Black & White conversion practice Exposure compensation. Concept of high- and low key Studio session.</p>	4 hours
<p><u>UNIT-II</u> The Portrait: Introduction of Portrait Image and its types. Discussion of portrait genres and lighting techniques (studio, natural) Review aperture, shutter speed, ISO. Practice editing and cropping. Composition tips, and Shooting: Composition tips and photography shooting methods. Night/Day photography and low light shooting and there difference.</p>	4 hours
<p><u>Unit -III</u> Conceptual Photography and Contemporary Art: Photography Methods for conceptual click. Contemporary art shoot and editing techniques. Creating a Body of Work: Sequence editing Trouble shooting with editing.</p>	4 hours

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UNIT-IV Basics of Editing: Introduction to Editing, fixing blemishes, color correcting and selective edits. Output: Ready images for final output. Web vs. print. Color space conversion.	4 hours
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Text books:

1. The Art of Photography: A Personal Approach to Artistic Expression, Bruce Barnbaum, 2nd Edition, 2017.

Reference Books:

1. Tate - The Photography Ideas Book, Lorna Yabsley, 2019.

Course Name: Image Editing & Photography Laboratory

Course Code: UGWD1908

Program: B.Sc. (Graphics and Web Designing)	L: 0 T: 0 P: 2
Branch: Computer Applications	Credits: 1
Semester: 3rd	Contact hours: 2 hours per week
Internal max. marks: 20	Theory/Practical: Practical
External max. marks: 30	Duration of end semester examinations (ESE):
Total marks: 50	Elective status: Skill Enhancement Course

Prerequisite: --Student must have the basic knowledge of CorelDraw and Photoshop.

Co requisite: --NA

Additional material required:-- Hardcopy of the exercises are to be maintained during the practical labs and to be submitted during the End Semester Examinations.

Course Outcomes: Students will be able to

CO#	Course Outcomes
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**I. K.Gujral Punjab Technical University
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CO1	Handle photography related to above mention subjects and shall be able to edit or fine tune their photographs using software.
CO2	Learn about in depth knowledge of using Photoshop’s various tools and techniques.
CO3	Learn about vector software illustrator and its different tools and techniques.
CO4	Feel conversant with the terminology used while discussing exposures and lighting conditions.

Instructions:-

1.	Assignment on lighting techniques for product photography and portrait photography.
2.	Assignment on photo shoots (Exposure, Role of different focal lengths, Visual Composition).
3.	Assignment on clicking the photos from different genres.
4.	Assignment on digital workflow (Editing the image in the software).
5.	Assignment on working with strobe lights & on-camera Flash.
6.	Assignment on detailed understanding of exposure metering.
7.	Assignment on digital workflow (Digital black and white photography).
8.	Assignment on High Dynamic Range (HDR Photography).
9.	Assignment on studio photography techniques (post shoot processing of photographs).
10.	Assignment on the submission of Theme/Project based campaign .
11.	Assignment on the submission of Studio Portraits.
12.	Assignment on the submission of Product Photographs shot in studio.
13.	Assignment on the submissions of outdoor HDR Photographs.
14.	Assignment on the submissions architectural and interior photography shoot.

Text Books:

- 1: Scott Kelby “Peachpit Press Book: The Digital Photography Book, Part 1”
Second Edition – 2013.

Reference Books:

1. Raghu Rai “People: His Finest Portraits” Aleph Book Company, 2016.
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**I. K.Gujral Punjab Technical University
B.Sc. (Graphics and Web Designing)**

Course Name: Programming in Python

Course Code: UGCA1914

Program: B.Sc. (Graphics and Web Designing)	L: 3 T: 1 P: 0
Branch: Computer Applications	Credits: 4
Semester: 4 th	Contact hours: 44 Hours
Internal max. marks: 40	Theory/Practical: Theory
External max. marks: 60	Duration of end semester exam (ESE): 3hrs
Total marks: 100	Elective status: Core

Prerequisite:-Student must have the basic knowledge of C++ programming

Co requisite:--NA

Additional material required in ESE:-

Course Outcomes: Students will be able to

CO#	Course Outcomes
CO1	Familiar with Python environment, data types, operators used in Python.
CO2	Compare and contrast Python with other programming languages.
CO3	Learn the use of control structures and numerous native data types with their methods.
CO4	Design user defined functions, modules, and packages.
CO5	Create and handle files in Python

etailed Contents	Contact hours
<p><u>UNIT-I</u></p> <p>Introduction to Python Programming Language: Programming Language, History and Origin of Python Language, Features of Python, Limitations, Major Applications of Python, Getting, Installing Python, Setting up Path and Environment Variables, Running Python, First Python Program, Python Interactive Help Feature, Python differences from other languages.</p> <p>Python Data Types & Input/ Output: Keywords, Identifiers, Python Statement, Indentation, Documentation, Variables, Multiple Assignment, Understanding Data Type, Data Type Conversion, Python Input and Output Functions, Import command.</p> <p>Operators and Expressions: Operators in Python, Expressions, Precedence, Associativity of Operators, Non Associative Operators.</p>	12

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<p><u>UNIT-II</u></p> <p>Control Structures: Decision making statements, Python loops, Python control statements.</p> <p>Python Native Data Types: Numbers, Lists, Tuples, Sets, Dictionary, Functions&MethodsofDictionary,Strings(indetailwiththeirmethodsand operations).</p>	10
<p><u>UNIT-III</u></p> <p>Python Functions: Functions, Advantages of Functions, Built-in Functions, and User defined functions, Anonymous functions, Pass by value Vs. Pass by Reference, Recursion, Scope and Lifetime of Variables.</p> <p>Python Modules: Module definition, Need of modules, Creating a module, Importing module, Path Searching of a Module, Module Reloading, Standard Modules, Python Packages.</p>	12
<p><u>UNIT-IV</u></p> <p>Exception Handling: Exceptions, Built-in exceptions, Exception handling, User defined exceptions in Python.</p> <p>File Management in Python: Operations on files (opening, modes, attributes, encoding, closing), read () & write () methods, tell() & seek() methods, renaming & deleting files in Python, directories in Python.</p> <p>Classes and Objects: The concept of OOPS in Python, Designing classes, Creating objects, Accessing attributes, Editing class attributes, Built-in class attributes, Garbage collection, Destroying objects.</p>	10

Text Books:

1. Programming in Python, Pooja Sharma, BPB Publications, 2017.
2. Core Python Programming, R. Nageswara Rao, 2nd Edition, Dreamtech.

Reference Books:

1. Python, The complete Reference, Martin C. Brown, Mc Graw Hill Education.
 2. Python in a Nutshell, A. Martelli, A. Ravenscroft, S. Holden, OREILLY.
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Course Name: Animation Art

Course Code: UGWD1909

**I. K.Gujral Punjab Technical University
B.Sc. (Graphics and Web Designing)**

Program: B.Sc. in Graphics and Web Designing	L: 3 T: 1 P: 0
Branch: Computer Applications	Credits: 4
Semester: 4 th	Contact hours: 44 hours
Internal max. marks: 40	Theory/Practical: Theory
External max. marks: 60	Duration of end semester exam (ESE): 3hrs
Total marks: 100	Elective status: Core

Prerequisite Student must have the basic knowledge of Sketching & Drawing.

Co requisite: NA.

Additional material required in ESE:

Course Outcomes: Students will be able to

CO#	Course Outcomes
CO1	Learn the different mediums of Drawing and its importance for animation.
CO2	Know about the different medium and techniques of drawing pencils and painting brushes.
CO3	Draw landscape with proper sketching sense, draw trees, plants, buildings, sky and to create the animation backgrounds.
CO4	Learn about the light and shadow and surface and texture sketching.

Detailed contents	Contact hours
<p><u>UNIT-I</u></p> <p>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</p>	12 hours

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<p>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.</p>	
<p><u>UNIT-II</u></p> <p>Rendition of the effect of light on simple forms and objects mood changing, quality of surface, solidity, drama, and impact.</p> <p>Viewpoint 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.</p>	10 hours
<p><u>Unit -III</u></p> <p>Study of Living World : Drawing from Nature, Location drawing and learning to represent trees, plants, bushes, shrubs, insects, birds, and animals with attention to structure and morphology, proportion, volume, and behavior.</p>	12 hours
<p><u>UNIT-IV</u></p> <p>Human Creativity: Explanation to human figure drawing –Drawings from Mannequin, Sketching of person figure from outside as well as inside. To know and catch the signs of the human form, weight, balance, Rhythm and proportion.</p> <p>Making Storyboard What is storyboard, usage of story board, drawing on storyboard, understand and draw movements of camera in story board.</p>	10 hours

Text books:

1. The Complete Book of Drawing Techniques: A Complete Guide for the Artist, Peter Stanyer, Arcturus Publishing,2004.

Reference books:

1. Drawing for the Absolute and Utter Beginner, Watson- Guptill, 2018.
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**I. K.Gujral Punjab Technical University
B.Sc. (Graphics and Web Designing)**

Course Name: Computer Graphics

Course Code: UGCA1934

Program: B.Sc. (Graphics and Web Designing)	L:3 T:1 P:0
Branch: Computer Applications	Credits: 4
Semester: 4 th	Contact hours: 44 Hours
Internal max. marks: 40	Theory/Practical: Theory
External max. marks: 60	Duration of end semester exam (ESE): --
Total marks: 100	Elective status: Core

Prerequisite:-

Co requisite:--

Additional material required in ESE:-

Course Outcomes: Students will be able to

CO#	Course outcomes
CO1	Let students understand basics of Computer Graphics, Input/output primitive and basic transformations, which can be applied on objects of graphics.
CO2	To develop the logical and reasoning skills of the students.
CO3	Learn graphical primitives and their algorithms

Detailed contents	Contact hours
<p><u>UNIT-I</u></p> <p>Introduction to Computer Graphics Applications of Computer Graphics. Graphs and Types of Graphs</p> <p>Input Devices: Light Pens, Graphic Tablets, Joysticks, Track Ball, Data Glove, Digitizers, Image Scanner.</p> <p>Video Display Devices: Refresh Cathode Ray Tube, Raster Scan displays, Random Scan displays, Color CRT - monitors and Color generating techniques (Shadow Mask, Beam Penetration), Flat-Panel Displays; 3-D Viewing Devices, Graphics monitors and work stations, Color Models (RGB and CMY), Lookup Table.</p> <p>Introduction Virtual Reality & Environments: Applications in Engineering, Architecture, Education, Medicine, Entertainment, Science, Training.</p>	12

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<u>UNIT-II</u> Scan-conversions Process and need of Scan Conversion, Scan conversion algorithms for Line, Circle and Ellipse using direct method, Bresenham's algorithms for line & circle and Midpoint Ellipse Algorithm along with their derivations, Area Filling Techniques, Flood Fill Techniques, Character Generation.	10
<u>UNIT-III</u> 2 – Dimensional Graphics Cartesian and need of Homogeneous co-ordinate system, Geometric transformations (Translation, Scaling, Rotation, Reflection, Shearing), Viewing transformation and clipping (line, polygon and text) using Cohen-Sutherland, Sutherland Hodgeman and Liang Barsky algorithm for clipping.	12
<u>UNIT-IV</u> 3 – Dimensional Graphics Introduction to 3-dimensional Graphics: Geometric Transformations (Translation, Scaling, Rotation), Mathematics of Projections (Parallel & Perspective). Color Shading. Introduction to Morphing techniques.	10

Text Books:

1. D. Hearn and M.P. Baker, *Computer Graphics*, PHI New Delhi.
 2. J.D. Foley, A.V. Dam, S.K. Feiner, J.F. Hughes., R.L Phillips, *Computer Graphics Principles & Practices*, Second Edition, Pearson Education, 2007.
 3. R.A. Plastock and G. Kalley, *Computer Graphic*, McGraw Hill, 1986.
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**I. K.Gujral Punjab Technical University
B.Sc. (Graphics and Web Designing)**

Course Name: Programming in Python Laboratory

Course Code: UGCA1917

Program: B.Sc. (Graphics and Web Designing)	L:0 T:0 P:4
Branch: Computer Applications	Credits: 2
Semester: 4 th	Contact hours: 4 hours per week
Internal max. marks: 60	Theory/Practical: Practical
External max. marks: 40	Duration of end semester exam (ESE):- -
Total marks: 100	Elective Status: Core

Prerequisite: -

Co requisite:-- NA

Additional material required in ESE: - Hardcopy of the exercises are to be maintained during the practical labs and to be submitted during the End Semester Examinations.

Course Outcomes: Students will be able to

CO#	Course outcomes
CO1	Solve simple to advanced problems using Python language.
CO2	Develop logic of various programming problems using numerous data types and Control structures of Python.
CO3	Implement different data structures using Python.
CO4	Implement modules and functions using Python.
CO5	Design and implement the concept of object oriented programming structures.
CO6	Implement file handling.

Instructions: All programs are to be developed in *Python* programming language.

1.	Compute sum, subtraction, multiplication, division and exponent of given variables input by the user.
2.	Compute area of following shapes: circle, rectangle, triangle, square, trapezoid and Parallelogram.
3.	Compute volume of following 3D shapes: cube, cylinder, cone and sphere.
4.	Compute and print roots of quadratic equation $ax^2+bx+c=0$, where the values of a, b, and c are input by the user.
5.	Print numbers up to N which are not divisible by 3, 6, 9,, e.g., 1, 2, 4, 5, 7,....
6.	Write a program to determine whether a triangle is isosceles or not?
7.	Print multiplication table of a number input by the user.
8.	Compute sum of natural numbers from one to n number.
9.	Print Fibonacci series up to n numbers e.g. 0 1 1 2 3 5 8 13.....n

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10.	Compute factorial of a given number.
11.	Count occurrence of a digit 5 in a given integer number input by the user.
12.	Print Geometric and Harmonic means of a series input by the user.
13.	Evaluate the following expressions: a. $x - x^2/2! + x^3/3! - x^4/4! + \dots x^n/n!$ b. $x - x^3/3! + x^5/5! - x^7/7! + \dots x^n/n!$
14.	Print all possible combinations of 4, 5, and 6.
15.	Determine prime numbers within a specific range.
16.	Count number of persons of age above 60 and below 90.
17.	Compute transpose of a matrix.
18.	Perform following operations on two matrices. 1) Addition 2) Subtraction 3) Multiplication
19.	Count occurrence of vowels.
20.	Count total number of vowels in a word.
21.	Determine whether a string is palindrome or not.
22.	Perform following operations on a list of numbers: 1) Insert an element 2) delete an element 3) sort the list 4) delete entire list
23.	Display word after Sorting in alphabetical order.
24.	Perform sequential search on a list of given numbers.
25.	Perform sequential search on ordered list of given numbers.
26.	Maintain practical note book as per their serial numbers in library using Python dictionary.
27.	Perform following operations on dictionary 1) Insert 2) delete 3) change
28.	Check whether a number is in a given range using functions.
29.	Write a Python function that accepts a string and calculates number of upper case letters and lower case letters available in that string.
30.	To find the Max of three numbers using functions.
31.	Multiply all the numbers in a list using functions.
32.	Solve the Fibonacci sequence using recursion.

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33.	Gets the factorial of a non-negative integer using recursion.
34.	Write a program to create a module of factorial in Python.
35.	Design a Python class named Rectangle, constructed by a length & width, also design a method which will compute the area of a rectangle.
36.	Design a Python class named Circle constructed by a radius and two methods which will compute the area and the perimeter of a circle.
37.	Design a Python class to reverse a string 'word by word'.
38.	Write a Python program to read an entire text file.
39.	Design a Python program to read first n lines of a text file.
40.	Construct a Python program to write and append text to a file and display the text.

Text Books:

1. Programming in Python, Pooja Sharma, BPB Publications, 2017.
2. Core Python Programming, R. Nageswara Rao, 2nd Edition, Dreamtech.

Reference Books:

1. Python, The complete Reference, Martin C. Brown, Mc Graw Hill Education.
 2. Python in a Nutshell, A. Martelli, A. Ravenscroft, S. Holden, OREILLY.
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**I. K.Gujral Punjab Technical University
B.Sc. (Graphics and Web Designing)**

Course Name: Animation Art Laboratory

Course Code: UGWD1910

Program: B.Sc. (Graphics and Web Designing)	L: 0 T: 0 P: 4
Branch: Computer Applications	Credits: 2
Semester: 4 th	Contact hours: 4 hours per week
Internal max. marks: 60	Theory/Practical: Practical
External max. marks: 40	Duration of end semester exam (ESE):
Total marks: 100	Elective status: Core

Prerequisite:--Student must have the basic knowledge of sketching.

Co requisite:-- NA.

Additional material required in ESE:- Hardcopy of the exercises are to be maintained during the practical labs and to be submitted during the End Semester Examinations.

Course Outcomes: Students will be able to

CO#	Course Outcomes
CO1	Create basic shapes and forms on a two-dimensional surface using geometry.
CO2	Learn observation, visualization and visually experiencing the content.
CO3	Study about human figure for character drawing.

Instructions:

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.

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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 assignment on Nature, Location drawing, trees, plants, bushes, shrubs, insects, birds, and animals.
13	Assignment on drawings from Mannequin, Sketching of person figure from outside as well as inside.
14	Assignment on drawing on storyboard, understand and draw movements of camera in story board.

Test books:

1. Drawing for the Absolute Beginner: A Clear & Easy Guide to Successful Drawing (Art for the Absolute Beginner), Mark Willenbrink, 2006.

Reference books:

1. Sketching for Animation: Developing Ideas, Characters and Layouts in Your Sketchbook, Peter Parr, Fairchild Books, 2016.
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**I. K.Gujral Punjab Technical University
B.Sc. (Graphics and Web Designing)**

Course Name: Computer Graphics Laboratory

Course Code: UGCA 1940

Program: B.Sc. (Graphics and Web Designing)	L:0 T:0 P:4
Branch: Computer Applications	Credits: 2
Semester: 4 th	Contact hours: 4 hours per week
Internal max. marks: 60	Theory/Practical: Practical
External max. marks: 40	Duration of end semester exam (ESE): --
Total marks: 100	Elective status: Core

Prerequisite: --

Co requisite: -- NA

Additional material required in ESE:- Hardcopy of the exercises are to be maintained during the practical labs and to be submitted during the End Semester Examinations.

Course Outcomes: Students will be able to

CO#	Course outcomes
CO1	To equip students with techniques for developing structured computer Program.
CO2	Learn the basic knowledge of computer graphics
CO3	Develop the logical and reasoning skills
CO4	Learn about the Practical applications of graphics, Program development and basic Animations without using graphical software.

Instructions:

1.	Use of basic functions of graphic available like circle, put pixel, rectangle, arc, ellipse, flood fill, set color etc.
2.	Design a logo/poster using primitive functions.
3.	Draw a 3 D object using palettes.
4.	Line Drawing Algorithm : Direct method and DDA
5.	Bresenham's Line Drawing Algorithm
6.	Circle Generating Algorithm : Equation and trigonometric function.
7.	Bresenham's Circle Generating Algorithm
8.	Draw an ellipse using Midpoint Algorithm.
9.	Translation transformation on a polygon.
10.	Scaling transformation on a polygon.
11.	Rotation transformation on a polygon.
12.	Reflection transformation on a polygon.
13.	Shearing transformation on a polygon.
14.	Mixed transformation on an object

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15.	Minor project (eg. Game/ Animation etc.)
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Text Books:

1. D. Hearn and M.P. Baker, *Computer Graphics*, PHI New Delhi.
2. J.D. Foley, A.V. Dam, S.K. Feiner, J.F. Hughes, R.L Phillips, *Computer Graphics Principles & Practices*, Second Edition, Pearson Education,2007.

Reference Books:

1. R.A. Plastock and G. Kalley, *Computer Graphic*, McGraw Hill,1986.
2. Mark Lutz, *Learning Python*,O'REILY
3. Pooja Sharma, *Programming in Python*,BPB

Course Name: Video Editing

Course Code: UGWD1911

Program: B.Sc. (Graphics and Web Designing)	L: 1 T: 0 P: 0
Branch: Computer Applications	Credits: 1
Semester: 4 th	Contact hours: 16 hours
Internal max. marks: 40	Theory/Practical: Theory
External max. marks: 60	Duration of end semester examinations (ESE): 3hrs
Total marks: 100	Elective status: Skill Enhancement Course

Prerequisite: Students must have basic understanding of Photoshop and Designing.

Co requisite: NA

Additional material required in ESE:

Course outcomes: Students will be able to

CO#	Course outcomes
CO1	Create different moods using various sounds, which will further help them integrate the same into their film projects.
CO2	Know about editing basics, tools and broadcast system.
CO3	Knowledge of working with footages in an editing software.

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Detailed contents	Contact hours
<p><u>UNIT-I</u> Sound- Introduction to Audio, interrelationship between sound, culture and media theory. Ear Training, Critical listening, Role of sound in film, Storytelling through sound, Sound editing, working with Dialogue.</p>	4 hours
<p><u>UNIT-II</u> Mixing- The mixing process, Monitoring basics of mixing, Basic Mixing Rules and techniques, Equalizing, Audio equipment, Studio Production Techniques, Effects introduction, overview, compression.</p>	4 hours
<p><u>Unit –III</u> Audio Formats - Digital and Analogue practical assignments and practice, Mastering -Introduction to mastering - Mastering setups – Monitoring (The whole practice will be done practically).</p>	4 hours
<p><u>UNIT-IV</u> Voiceover-The art of voiceover, how to lend voice to a short film, Voice modulation, voice sync. Submission-Design a sound track for a short film.</p>	4 hours

Text books:

1. The Technique of Film and Video Editing: History, Theory, and Practice, 6th Edition, Ken Dancyger, Routledge Publishers, 2018.
2. Adobe Premiere Pro Bible, 1st edition, Adele Droblas, John Wiley & Sons, 2003.

Reference Books:

1. Editing Digital Video (Digital Video and Audio Series, Robert Goodman & Patrick McGrath, McGraw-Hill Education, 2002.

**I. K.Gujral Punjab Technical University
B.Sc. (Graphics and Web Designing)**

Course Name: Video Editing Laboratory

Course Code: UGWD1912

Program: B.Sc. (Graphics and Web Designing)	L: 0 T: 0 P: 2
Branch: Computer Applications	Credits: 1
Semester: 4 th	Contact hours: 2 hours per week
Internal max. marks: 20	Theory/Practical: Practical
External max. marks: 30	Duration of end semester examinations (ESE):
Total marks: 50	Elective status: Skill Enhancement Course

Prerequisite: Students must have basic understanding of Photoshop and Designing.

Co requisite: NA

Additional material required in ESE: Hardcopy of the exercises are to be maintained during the practical labs and to be submitted during the End Semester Examinations.

Course outcomes: Students will be able to

CO#	Course outcomes
CO1	Render out final films using appropriate compressors and formats.
CO2	Know about the video editing in frames with time setting.
CO3	Know about working, editing and synchronization of sound with footages
CO4	Students will know about the time durations of the video and rendering.

Instructions:

1.	Assignment on creating one short video footage by using basic functions of the software
2.	Assignment on designing a background, text and colors editing in video
3.	Assignment on editing a video by using a time in frames
4.	Assignment based on the mixing of 2 or more videos.

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5.	Assignment based on Audio equipment, Studio Production Techniques
6.	Assignment based on effects introduction, overview, compression
7.	Assignment based on Audio Formats- Digital and Analogue practical assignments and practice
8.	Assignment based on mastering setups – Monitoring the sound, background
9.	Assignment based on video editing by adding Voiceover
10.	Assignment based on voice modulation, voice synchronization
11.	Assignment based on design a sound track for a short film.

Text Books:

1. Film Editing: Great Cuts Every Filmmaker and Movie Lover Must Know, Gael Chandler , Michael Wiese Productions, 2009.

Reference Books:

1. Cut by Cut: Editing Your Film or Video, Gael Chandler, Michael Wiese Productions, 2004.

**** 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

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**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 charges shall maintain proper record student wise of each activity conducted and the same shall be submitted to the department.