FACULTY OF SCIENCE

SYLLABI

FOR

B.VOC. MULTIMEDIA (GRAPHICS & ANIMATION)

(1st, 2nd, 3rd & 4th SEMESTER)

FOR

EXAMINATIONS 2015-2016

--:O:--
INTRODUCTION

A vocational course is meant to give students skills based on practical activities related to specific Service, trade or profession so that they can get employment or become self-employed professionals. The course has been designed to offer updated syllabi in consultation with leading industries in the respective fields. The students will be required to undergo on the job training in a reputed industry during the course. The aim of the course is, therefore, to train the students as per the latest requirements of the industry so that they can get employment quickly.

This course intended i.e. Multimedia and Animation is proposed for creating high quality graphics and animation professionals. Emphasis on practical based training, in diploma courses and in degree in animation, gives the students hands on experience on various 2D and 3D animation software and other creative skills like drawing, sketching, sculpting, classical animation, model making, short films, creative projects, major / minor projects, pixel animation. There has been a great improvement in the demand for computer professionals during the past few years. To cater to certain graphical oriented requirements of the business sector, the Computer graphics and Animation course syllabus has been drafted.

The three years course comprises of six semesters leads to the bachelor of vocation degree with multiple exits such as Diploma/ Advanced Diploma at first and second year respectively. For admission into degree, it shall be necessary for a student to have obtained not less than 50% marks in the Intermediate +2 examinations. This course is a full time course. The course contents are designed to ensure that the students are given a right mix of theoretical and practical training by a dedicated and qualified faculty with the latest training aids. A Placement Cell of the college/ Tie ups will help students find suitable placement in industry.

Objectives of the Course

- To train the students to acquire skills in generating marketable computer graphics and animated pictures, especially in the area of advertisements/print media/film technology.
- To train the students to acquire skills and mastery in the use of different software producing graphics and animation.
- To impart real-life advertisement, animation exposure in an organization/PTC (Production cum Training centre) under OJT (On Job Training).
## SCHEME OF B. Voc. MULTIMEDIA  
(GRAPHICS & ANIMATION)  
(SEMESTER SYSTEM)  

### 1st YEAR

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<th>PAPER TITLE</th>
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<th>Credit Practical</th>
<th>Total Credit</th>
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<td><strong>Part A: General Foundation Course</strong></td>
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<td>5</td>
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### 2nd SEMESTER

|       |          | **Part A: General Foundation Course**            |               |                 |              |
| 6     | GFC-103  | General English *                                | 06            | ----            | 06           |
| 7     | GFC-104  | State Language [Punjabi / HCP]*                  | 05            | ----            | 05           |

|       |          | **Part B: Skilled Courses**                      |               |                 |              |
| 8     | MGA-104  | Cinematography                                   | 06            | ......           | 06           |
| 9     | MGA-105  | Video and Audio Editing                          | 04            | 02              | 06           |
| 10    | MGA-106  | Art Foundation: Drawing                          | ......         | 06              | 06           |

| SUMMER TRAINING | On the Job Training | After 2nd Semester Exams |  
|  |  |  |  
|  |  | ---- | 02 | 02 |

### TOTAL

|          |  |  |  |  |
|  |  |  |  |  |
| 44       | 16  | 60 |

*Same as BCA-I Semester System Syllabus.*
### 2nd YEAR

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<td><strong>18</strong></td>
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SYLLABUS: SKILLED COURSE

Understanding of Multimedia & Animation
Paper Code: MGA-101

UNIT I

Graphics and Image Data Representations: Graphics/Image Data Types, File Formats GIF, JPEG, PNG, TIFF, EXIF, PDF, WMF, BMP.


UNIT II


UNIT III


UNIT IV
History of Animation, Types of Animation, Skills for Animation Artist, Basic Principles of Animation, Animator’s Drawing Tools, Rapid Sketching & Drawing, Developing Animation Character, Essentials & Qualities of Good Animation Characters, Three Dimensional Drawings of Characters.

References:

UNIT-I


UNIT-II


UNIT-III

Adobe Photoshop Basics: Introducing Adobe Photoshop, Exploring the Photoshop Workspace, Touring the Workspace, Exploring the Photoshop Menu Bar.


UNIT-IV

Creating Selections: Using the Selection Tools, Working with Lasso Tools and Quick Selection Tools, Refining and Adjusting Selection.

Applying Sharpness and Blur Adjustment: Using Sharpening Filter, Using Blur Filter, Introducing the Blur Gallery, Using the Healing Brush Tools

References :
1. Dave Karlins, 1999: *Sam’s Teach Yourself CorelDraw9 in 24 hours*, Sams Publishing.
There will be a practical examination in this paper along with theory semester examination. External examiner will evaluate the skills of the students in the field of Corel Draw and Photoshop. Examiner will give on-the-spot assignments to the students. Besides this a viva voce (oral examination) of each student one by one will also be taken by the examiner for testing the knowledge of the students.
UNIT I
Writing with Motion: Conceptual Tools of Cinematography, Frame, Lens, Light and Color, Texture, Movement, Establishment, Point-of-View.
Language of the Lens: Lens and the Frame, Image Control at the Lens.

UNIT II
Lighting Sources: Tools of Lighting, Daylight Source, Xenons, PARs, Soft Lights, Color Correction Fluorescents.

UNIT III
Camera Movement: Basic Techniques, Moves, Moving Shots, Camera Mounting, Crab Dolly, Cranes, Car Shots, Ariel Shots, Motion Control.

UNIT IV
Image Control: Color Printing, Controlling Color & Contrast, LookUp Tables, Camera Filter Types, Color Temperature & Filtration, Image Control with Camera.
Set Operations: Director of Photography, Team, Time Code Slates.
Technical Issues: Flicker, Filming Practical Monitors, Shooting Process, Dimmers, High Speed Photography, Underwater Filming, Image Quality, Effects, Sun Location with Compass, Transferring Film to Video, Film Formats.

References:
UNIT I

Introduction to Video Editing, Non-Linear Editing: Meaning and Process, Hardware Requirements for NLE, Connecting Editing Equipment, Creating Time Line, Cut, Fade, Mix and Wipe, Introduction to Editing Aesthetics.

Unit II


Unit III


Unit IV


References:

Art Foundation: Drawing

Paper Code: MGA-106

There will be a practical examination in this paper along with semester examination. External examiner will evaluate the skills of the students in the field of drawing. Examiner will give on-the-spot assignments/tasks to the students. Besides this a viva voce (oral examination) of each student one by one will also be taken by the examiner for testing the knowledge of the students.

UNIT I
Free Hand Sketching From Real Objects: Building, Vehicles, Chair, Table, Trees etc.
Preparing Colour Charts.
Kind of Design- 2 D & 3 D Design

UNIT II
Designing Letter Heads and Visting Cards, Designing Book Covers and Folders.

UNIT III
Landscape on the Spot & Landscape Form Memory (Hills, Trees, Hut, Rivers etc.), Layout Designing of Newspapers, Magazines, Print Advertisements.

UNIT IV
Poster Making on Various Themes and Designing of Hoarding Making.
THIRD SEMESTER

SYLLABUS: GENERAL FOUNDATION COURSE

Programming in C

Paper Code: GFC-201

UNIT I
Fundamentals of ‘C’: I/O statements, assignment statements, Constants, variables and data types, Operators and Expressions, Standards and Formatted statements, Keywords, Data Types and Identifiers, Structure of a C Program.

UNIT II

UNIT III
Preprocessor Directives: Introduction and Use, Macros, Conditional Preprocessors, Header Files, Arrays: Introduction to Arrays, Array Declaration, Single and Multidimensional Array, Arrays of characters
Pointers: Introduction to Pointers, Address operator and pointers, Declaring and Initializing pointers, operations on pointers, pointers and arrays.

UNIT IV
Structures and Unions: Declaration of structures, Accessing structure members, Structure Initialization, Arrays of structure, nested structures, structure with pointers, Unions.
Strings: Introduction, Declaring and Initializing string variables, Reading and writing strings, String handling functions.

References:


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UNIT-I
Introduction to Internet: Internet Overview, Evolution & History of Internet, Growth of Internet, Internet Services, Anatomy of Internet, Internet Applications, Impact of Internet.
Internet Connectivity: Different Types of Connections, Hardware and Software requirements of Internet, Levels of Internet Connectivity, Internet Service provider.

UNIT-II

UNIT-III

UNIT-IV
Internet Tools and Multimedia: Current Trends on Internet, Interactivity Tools, Multimedia and Animation.

References:
Flash

Paper Code: MGA-201

UNIT-I

Understanding the Adobe Flash: The Topography of Flash CS5, Bitmap Handlers, Vector Based Drawing Programs, Flash in Internet Evolution, Exploring Companion Technologies, Planning Flash Projects.


UNIT –II


Integrating Media Files with Flash: Adding Sound, Importing Sound in Flash, Synchronizing Audio to Animation, Stopping Sounds, Editing Audio in Flash.

UNIT-III

Defining Vector, Bitmaps and Video: Importing and Copying Bitmaps, Setting Bitmap Properties, Bitmap Compression, Converting Raster to Vector.

Displaying Video: Integrating Video, Importing the Video, Compressing Video with Adobe Media Encoder CS5.

Adding Basic Interactivity to Flash Movie: Understanding Action and Event Handlers, First Five Actions, Building Timelines and Interactions.

UNIT-IV

Distributing Flash Movies: Testing Flash Movies, Publishing your Flash Movies, Selecting Formats, Integrating Flash Content with Web Pages, Writing Markup for Flash Movies, Detecting the Flash Player.

Using The Flash Player: Using the Stand-Alone Flash Player, Using the Flash Player Plug In for Web Browsers, Using the Flash Player Setting.

References:

1. Todd Perkins, 2011: Adobe Flash Professional CS5, Bible, Wiley India.
4. Alex Micheal, 2013: Animating with Flash8: Creative Animation Techniques, Focal Press.
UNIT-I
Introduction: Explore the Dreamweaver Workspace, Features of Dreamweaver, Website Development Process, Adding a Folder to the Website, Creating the Homepage, Adding Pages to a Website, Developing a Webpage, Creating Head Content and Set Page Properties, Create, Import and Format Text, Adding Links to Webpages, Using the History Panel, Editing the Code, Adding Image, Enhancing the Image and Use Alternate Text, Creating a Website Color Palette.

UNIT-II
Links: External & Internal Links, Create, Modify and Copy Spry Menu Bar, Create an Image Map, Tables, Creating a Table, Properties, Merging Cells, Insert & Align Images in a Table, Insert Text & Format Cell Content.

UNIT-III
Forms: Plan and Create Forms, Edit & Format the Forms, Form Objects, Test & Process Forms.
Positioning Objects with AP Div: Insert an AP Div, Position and Size, Adding Content to an AP Div, Adding Images, AP Div Properties, Using AP Elements Panel, Cloak Files, Check Files Out and In.

UNIT-IV

References:
5. Patricia Robertson, 2014: Dreamweavers, Dreamweaver Press.
Practical Based on MGA-201 & MGA-202  
Paper Code: MGA-203

There will be a practical examination in this paper along with semester examination. External examiner will evaluate the skills of the students in the Subject of Adobe Flash and Dreamweaver. Examiner will give on-the-spot assignments to the students. Besides this a viva voce (oral examination) of each student one by one will also be taken by the examiner for testing the knowledge of the students.
FOURTH SEMESTER

Internet Programming with Java

Paper Code: GFC-203

UNIT I

Java Script: Features, tokens, data types, variables, operations, control structures, strings, arrays, functions, core language objects, client side objects, event handling. Applications related to client side form validation.

UNIT II

Fundamentals of Java: Java Vs. C++, Byte Code, Java virtual machine, constants, variables, data types, operators, expressions, control structures, defining class, creating objects, accessing class members, constructors, method overloading.

UNIT III


UNIT IV

Multi-threaded Programming: The Java Thread model, Thread priorities, Synchronizations, Messaging. The thread class and runnable interface, The Main Thread: Creating a Thread, Implementing Runnable, Extending Thread, Creating Multiple Threads, Thread Priorities; Synchronizations: Methods, Statements, Inter-Thread Communication, Deadlock, Suspending, Resuming and Stopping Threads.

References:

Animation Theory

Paper Code: GFC-204

UNIT I

Development: Idea Creation, Evolving a Storyline, Scriptwriting.
Character Design: Evolution of 2D and Evolution of 3D Character design, Animation Style, Concept and Environment Design.
Project Financing: Animation Markets, Scheduling and Budgeting, Investment, Marketing and Distribution Possibilities. Short and Independent Film Developing.

UNIT II

Rules of Filmmaking: Camera Positions, Camera Lenses, Lighting and Filters, Camera Moves, Staging, Scene-to-Scene Transitions, Screen Aspect Ratios.

UNIT III

Digital Desktop Production: Stages of Animation Production, Production Team and Workflow, Project Management.
Animating Step by Step: Key Poses, Drawing for Animators.

UNIT IV

2D Animation Overview: It’s All About Pencil and Paper, Tools of the Trade.
Finessing 2D Animation: Tracebacks, Eccentric Movement and Staggers, Panning & Camera Moves, Pan Speed & Strobing Problems, Shadows and Effects.
2D Vector Animation: Basic Approach, Vector Film Production, Being Resourceful, Non-Web Vector Animation.
The Paperless Animation Studio: The Technology, Importance of Drawing

References:
UNIT I

Working with Files: 3ds Max Scene Files, Importing and Exporting, File Utilities, Accessing File Information.

UNIT II

Setting Preferences: General, File, Gamma & Look-Up Table, Rendering & Radiosity, Animation, Kinematic, Gizmo, Mental Ray, Global Container Preferences.
Primitive Objects: Selecting System Units, Creating Primitive Objects, Exploring the Primitive Object Types, Architecture Primitives, Modeling Helpers.

UNIT III

Transforming Objects: Translating, Rotating & Scaling Objects, Transformation Tools, Pivot Points, Align Commands, Grids, Snap Options.
Cloning & Creating Object Arrays: Cloning Objects, Cloning Options, Mirroring Objects, Cloning Over Time, Creating Object Arrays.
Organizing Scenes: Containers, Referencing External Objects, File Link Manager, Schematic View Window, Hierarchies.

UNIT IV

Subobjects & Modifiers: Model Types, Normals, Subobjects, Modifiers, Modifiers Stack.
2D Splines & Shapes: Drawing in 2D, Editing inSplines.
Modelling with Polygons: Poly Objects, Creating Editable Poly Objects.
Compound Objects: Types, Morphing Objects, Terrain Objects, Blob Mesh Objects, ProBoolean & ProCutter Objects.

References:

5. Todd Daniele, 2009: *Poly-modeling with 3ds Max: Thinking Outside of the Box*, Focal Press.
3ds Max: Texturing, Lighting & Rendering

Paper Code: MGA-205

UNIT I


UNIT II
Working with Backgrounds Cameras and Lightening: Configuring and Aiming Cameras, Setting Camera Parameters, Camera Connection Modifier, Loading a Background Image and Camera.

Using Lights and Basic Lighting Techniques: Understanding the Basic of Lights, Types of Lights, Creating and Positioning Light Objects, Viewing a Scene from Light.

UNIT III

Rendering: Working with Render Parameters, Adding Pre-Render and Post-Render Scripts, Rendering Stylized Scenes, Managing Render States.

UNIT IV
Batch and Network Rendering: Batch Rendering Scenes, Understanding Network Rendering, Setting up a Network Render System, Setting up 3ds Max.

Rendering with Mental Ray and Iray: Enabling Mental Ray and Iray, working with Mental Ray and Iray, using Render Elements.

References:

5. Todd Daniele, 2009: Poly-modeling with 3ds Max: Thinking Outside of the Box, Focal Press.
There will be a practical examination in this paper along with semester examination. External examiner will evaluate the skills of the students in the field of animation using 3ds Max. Examiner will give on-the-spot assignments to the students. Besides this a viva voce (oral examination) of each student one by one will also be taken by the examiner for testing the knowledge of the students.