

**FACULTY OF ENGINEERING & TECHNOLOGY**

**SYLLABUS**

**FOR**

**DIPLOMA IN COMPUTER ANIMATION  
(ONE YEAR)**

**(SEMESTER: I – II)**

**SESSION: 2019–20**



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**GURU NANAK DEV UNIVERSITY  
AMRITSAR**

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Diploma in Computer Animation (One Year)  
(Semester System)

**Eligibility:**

+2 pass in any stream

**Scheme of Proposed Syllabus****Semester – I:**

<b>Paper No.</b>	<b>Paper</b>	<b>M. Marks</b>
Paper–I	Computer Fundamentals for Animation	50
Paper–II	Principles of Animation	50
Paper–III	Lab-I: Lab Based on Animation and Color	50
Paper–IV	Lab-II: Lab Based on Photoshop and Office Automation	50
<b>Total</b>		<b>200</b>

**Semester – II:**

<b>Paper No.</b>	<b>Paper</b>	<b>M. Marks</b>
Paper–I	Multimedia Technologies	50
Paper–II	2D Animation & Storyboard Pro	50
Paper–III	Lab-I: Lab Based on Corel Draw	50
Paper–IV	Lab-II: Lab Based on Flash	50
<b>Total</b>		<b>200</b>

Diploma in Computer Animation (One Year)  
(Semester – I)

**Paper-I: Computer Fundamentals for Animation**

**Time: 03.00 Hours**

**Max. Marks: 50**

**Instructions for the Paper Setters:-**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**Section–A**

**Introduction to Computers:** Computer as a system, basic concepts, functional units and their inter relation, Hardware and Software, Input and output devices, Memory, Storage devices, Graphic cards, Open GL, Hardware drivers , Role of Computer in animation

**Section–B**

**Operating System Concepts:** Operating System, Types of operating systems, Booting procedure and its types, Fundamentals of Windows Operating Systems

**Internet:** Basics of Internet, E–mail, Browsing the Web, Finding Stuff on the Web and Net

**Section–C**

**MS–Word:** Overview, creating, saving, opening, importing, exporting and inserting files, formatting pages, paragraphs and sections, indents and outdents, creating lists and numbering, Headings, styles, fonts and font size Editing, positioning and viewing texts, Finding and Replacing text, inserting page breaks, page numbers, book marks, symbols and dates. Using tabs and tables, header, footer and printing

**Section–D**

**MS–Power Point:** Presentation overview, entering information, Presentation creation, opening and saving presentation, inserting audio and video

**References:**

1. Computer Basics and Beyond by Michael A. Price.
2. Computer Fundamentals – P.K. Sinha.
3. MS–Office \_ BPB Publications.

Diploma in Computer Animation (One Year)  
(Semester – I)

**Paper-II: Principles of Animation**

**Time: 03.00 Hours**

**Max. Marks: 50**

**Instructions for the Paper Setters:-**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**Section–A**

**Animation:-** Definition, early examples of Animation, Animation tools and Development. History of Animation (Stop Motion Photo Animation, Cell and Paper Animation, Animation Processes), Types of Animation (Cell Animation, puppet animation, Stop Motion Animation, Computer Animation, 2-D Animation, 3-D Animation).

**Section–B**

**Animation Artist Skills:-** Visual and creative development of an Artist , importance of observation with minute details, efficiency to draw gestures, facial expressions, good listener, hard work and patience, creative and innovative.

**Section–C**

**Basic Principles of Animation:-** Illusion of Life, straight action and pose to pose Timing, Exaggeration, Drama and Psychological Effect, Fade in and Fade out, Squash and Stretch, Anticipation, staging, follow through and overlapping action, Arcs, Solid Drawing ,Appeal, slow in and slow out, Secondary Action.

**Section–D**

**Various Terms:-** Animation Drawings/Cells, Rough Drawings, Clean ups, Color reference drawings, Layout, Model Sheet, Key Drawings and in Betweens, Master Background, Concept Piece, Character drawing , Story Board.

**References:**

1. The complete animation course by Chris Patmore Pub.-Baron's Educational Series (New York)
2. Animation Unleashed by Ellen Bessen, Michael Weise Productions, 2008 (U.S.A)
3. The Animator's Survival Kit by Richard Williams, Arrar Straus & Giroux Pub. (U.S.A)

Diploma in Computer Animation (One Year)  
(Semester – I)

**Paper-III: Lab-I: Lab Based on Animation and Color**

**Time: 03.00 Hours**

**Max. Marks: 50**

**Operational Knowledge of:-**

- Rapid Sketching and Drawing
- Developing a Animation Character
- Anatomy and Body Language
- Mixing of different Color Schemes and shades

Diploma in Computer Animation (One Year)  
(Semester – I)

**Paper-IV: Lab-II: Lab Based on Photoshop and Office Automation**

**Time: 03.00 Hours**

**Max. Marks: 50**

- Practical implementation of Photoshop Tools (Designing of Pamphlet, Brochure, Catalog, Visiting Cards, Photo Manipulation Composition etc.)
- Operational knowledge of MS Word and MS–Power Point: Presentation overview, entering information, Presentation creation, opening and saving presentation, inserting audio and video

Diploma in Computer Animation (One Year)  
(Semester – II)

**Paper-I: Multimedia Technologies**

**Time: 03.00 Hours**

**Max. Marks: 50**

**Instructions for the Paper Setters:-**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**Section–A**

**Introduction:** Multimedia Definition, Design Processes, Morphing, Media Control interfaces. Types of text, Font, insertion, compression, File formats. Types of images, color modes & color models, Basic steps for image processing, principle and working of scanner and digital camera.

**Section–B**

**Audio and Video technology:** Fundamental characteristics of sound, Rasters scanning principles, sensors for TV cameras, color fundamentals, additive and subtractive color mixing, Liquid crystal display (LCD), Plasma Display Panel (PDP), Video for Window,

**Section–C**

**Compression and coding:** What is compression? Need for compression, Types of compression basic compression techniques-run length, Huffman's coding, JPEG, zip coding, Overview of Image and Video compression techniques.

**Section–D**

**Multimedia presentation and authoring:** Overview, multimedia authoring metaphor, multimedia production, presentation and automatic authoring, Design paradigms and user interface, overview of tools like adobe premiere.

**References:**

1. Prabhat K. Andleigh and Kiran Thakrar, "Multimedia Systems Design", PHI publication
2. John F. Koegal Buford, "Multimedia systems", Pearson Education.
3. Ze-Nian Li and MS Drew, "Fundamentals of multimedia", PHI EEE edition.
4. A Banerji& A M Gosh, "Multimedia Technologies", Tata McGraw Hill.

Diploma in Computer Animation (One Year)  
(Semester – II)

**Paper-II: 2D Animation and Storyboard Pro**

**Time: 03.00 Hours**

**Max. Marks: 50**

**Instructions for the Paper Setters:-**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**Section–A**

**Fundamental & Concept of 2D:** Introduction to Drawing and Design, Perspective Study and Background Design, Posing and Character Design, Eye Blink. Fundamental of Storyboarding & Camera angles, creating a storyboard with paper and pencil, Introduction to Storyboard Pro.

**Section–B**

**2D Drawing Tools:** Working with objects Using Primary drawing tools Working with selection tools, Creating lines, choosing line styles Drawing panels Symbols & instances Working with colors & text, Color basics Color panels, Color mixer panels Text field types, Text tool, Font Export & Display, Font symbols Modifying text.

**Section–C**

**Layers And Frames:** Library, Insert layer, Motion Guide, Frame rate, making animation, Compiling objects, Key frames, Frame by Frame Animation, Onion Skins, Frame Rate, Motion Tweening, Stop Action, Rotate & Spin, Info Panel, Movie Explorer, Shape Tweening, Button Symbols, Action, Adding Sound to Buttons, Publishing and Exporting.

**Section–D**

**Cartoon Animation:** 2D workspace, Character development, Model sheet creation, Cartoon animation, Draw expressions, Lip synchronization, Exposure to theatre, 2D animation for web and broadcast, Doing and recording voice over Music selection for background, working with a music composer. Producing 2D animated advertisement, producing 2D animated presentation, producing 2D animated portfolio.

**References:**

1. Ramesh Bangia (Khanna Book Publishing Co. Pvt. Ltd).
2. Learning Flash MX 2004



Diploma in Computer Animation (One Year)  
(Semester – II)

**Paper-III: Lab-I: Lab Based on Corel Draw**

**Time: 03.00 Hours**

**Max. Marks: 50**

Practical implementation of Corel Draw

- Importing & Opening files
- Drawing lines of all shapes & Sizes, Creating & Manipulating Text,
- Selecting and Transforming Objects
- Object Ordering, Layers & the object Manager
- Enveloping & perspective, Extruding
- Transparency & Power-clip
- Colour-Management, Exporting & Page Setup, Printing

(Advertisement design, Poster, Folders, Pamphlet, Press Ad, Calendar etc.)

Diploma in Computer Animation (One Year)  
(Semester – II)

**Paper-IV: Lab-II: Lab Based on Flash**

**Time: 03.00 Hours**

**Max. Marks: 50**

Practical implementation of 2D animation using flash

- Managing windows & panels, Toolbox, Document window
- Drawing in Flash
- Working with colors & text
- Basic Interactivity to Flash Movies, Actions & Event Handlers
- 2D Animation, embedding video

(Character animation, 2D composition, Flash videos, websites etc.)