FACULTY OF SCIENCE

SYLLABI

FOR

POSTGRADUATE DIPLOMA

IN

COMPUTER GRAPHICS AND ANIMATION

EXAMINATIONS 2012

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<table>
<thead>
<tr>
<th>Paper Code</th>
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<th>Lecture Hrs./Week</th>
<th>Exam. Marks</th>
<th>Int. Ass. Marks</th>
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<td>80</td>
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<tr>
<td>PGDCGA-02</td>
<td>Introduction to Graphics and animation</td>
<td>3 1</td>
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<td>PGDCGA-03</td>
<td>Computer Graphics using CorelDraw</td>
<td>3 1</td>
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<td>PGDCGA-04</td>
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<td>3 1</td>
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<td>PGDCGA-07</td>
<td>Practical based on PGDCGA-01 &amp; 02</td>
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<td>25</td>
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<td>PGDCGA-10</td>
<td>Practical based on PGDCGA-05</td>
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<td>PGDCGA-11</td>
<td>Project work</td>
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Note: Pass Marks 40% in Theory, Internal Assessment and Practical separately
50% marks for project work
50% marks in aggregate to qualify the examinations.
POST GRADUATE DIPLOMA IN COMPUTER GRAPHICS AND ANIMATION

PAPER TITLE: Fundamentals of Information Technology Max Marks: 80 (Th) + 20 (Int.)
Paper code: PGDCGA-01 Time: 3 hours
Course Duration: 60 Lectures of one hour each
Objective: To gain basic computer knowledge & Understand the roles of I.T.

Note:
   i. The Question Paper will consist of Four Sections.
   ii. Examiner will set total of NINE questions comprising TWO questions from each Section and ONE compulsory question of short answer type covering whole syllabi.
   iii. The students are required to attempt ONE question from each Section and the Compulsory question.
   iv. All questions carry equal marks.

SECTION – A
Basics of Computer
Introduction to computer (ALU, Memory, CU), booting process, introduction of the concepts-bit, byte, word, hardware, operating system, system and application software, machine, assembly and high level languages, Input output devices, Graphics input/output devices, Keyboard, Trackball, Joystick, Light Pen, Digitizer Tablets, Mouse, Touch Screen. Image Scanners, Vector and Raster graphics.
Lectures (20)

SECTION – B
Operating systems – DOS, Windows and Unix.
Features of DOS, windows and Unix operating systems and their comparison. Internal and external commands, Concepts of window, menu, icon, opening, closing and resizing windows, creating folder, Using Start, control panel, recycle bin and online help, using windows explorer to manage files and directories.
Lectures (15)

SECTION – C
Memory and Disk Management
Primary and secondary memory: RAM, ROM, PROM, EPROM, Cache, extended and expanded memory. Removable and non-removable secondary memory: tapes, disks, CDROM, DVD. Organization of data on disks: Tracks, sectors, cylinders, heads, access time, seek time and latency time.
Lectures (15)

SECTION – D
Installation and using application softwares: Understanding and using Ms-Word, Ms-Excel, Power Point presentation (Animation), Internet.
Lectures (10)

Text Books
PC Software made simple by R.K. Taxali - Tata McGraw Hill

References Books:
Computers Todays by S.K. Basandra, Galgotia Publications
Computers Todays by Sanders, McGraw Hill New York:
PAPER TITLE: **Introduction to Graphics & Animation**  
Max Marks: 80 (Th) + 20 (Int.)

**Paper code**: PGDCGA-02  
**Time**: 3 hours

Course Duration: 60 Lectures of one hour each

Objective: To understand fundamental methods used in Computer Graphics and Graphics algorithms

**Note:**

i. The Question Paper will consist of Four Sections.
ii. Examiner will set total of **Nine** questions comprising **Two** questions from each Section and **One** compulsory question of short answer type covering whole syllabi.
iii. The students are required to attempt **One** question from each Section and the Compulsory question.
iv. All questions carry equal marks.

**SECTION – A**

**Introduction to Graphics and Animation:**

Lectures (15)

**SECTION – B**

**Two dimensional Geometric Transformations and viewing:** Basic transformations, Rotation, Scaling, Composite transformations, viewing pipeline, clipping operations  
**Three dimensional concepts, transformations and Viewing:** three dimensional display methods, three dimensional transformations, three dimensional viewing pipeline, viewing coordinates.

Lectures (15)

**SECTION – C**

**Image Capturing Methods:** Scanner, Digital Camera etc. Various attributes of images:- size, colour, depth etc. various image tile format-BHP, PNG, JPG, TTF, LIF- their features and limitations. Graphics file format conversions. Head and areas of use, Development platforms for multimedia. Dos, windows, linux. Identifying multimedia elements-text images, sound, animation and video. Making simple multi-media with power-point Microsoft.

Lectures (15)

**SECTION – D**

**Animation:** Concept of Animation, Basics of animation, Principle and use of animation in multimedia, effect of resolutions, pixel depth, image size on quality and storage. Overview of 2D and 3D animation techniques.

Lectures (15)

**Text Books**

1. Multimedia Magic by S. Gokul, BPB, 2009
5. Introduction to Computer Graphics by N Krishnamurthy 2009

**References Books:**

2. Computer Graphics by Hearn and Baker, PHI. 2010
PAPER TITLE: Computer Graphics – using Corel draw

Max Marks: 80 (Th) + 20 (Int.)

Paper code : PGDCGA-03

Time: 3 hours

Course Duration: 60 Lectures of one hour each

Objective: Introduce smart design tool for producing more creative and actuate graphics

Note:

i. The Question Paper will consist of Four Sections.

ii. Examiner will set total of NINE questions comprising TWO questions from each Section and ONE compulsory question of short answer type covering whole syllabi.

iii. The students are required to attempt ONE question from each Section and the Compulsory question.

iv. All questions carry equal marks.

SECTION – A


LECTURES (10)

SECTION – B

Text work : creating artistic text, paragraph text, changing the typeface, type size, applying text effects, aligning text, adjusting spacing, shifting and rotating text, dedicated text editor. Advanced text work : Using tabs, indents, linking frames, editing individual characters, working with text styles, fitting text to a path, searching text, checking spelling and grammar.

LECTURES (15)

SECTION – C

Tools and Techniques: The Outline tool: working with preset outlines. Setting outlines widths, colors, styles. Creating line styles, applying outline arrows, editing arrows, Configuring various corners of the objects, applying calligraphic outlines, setting outline defaults, further outline options. The Fill Tool : applying uniform fills, pattern fills, using two-colour pattern fills, full colour pattern fills, bitmap pattern fills, fountain fills, texture fills, interactive fills. Creating mesh fills, tiling fills interactively etc. The Artistic Media Tool : using preset mode, brush mode, object sprayer mode. The Interactive Tools: distorting objects, extruding objects, blending objects, interactive envelopes etc.

LECTURES (20)

SECTION – D

Working with Images : Importing images, using the scrapbook, colouring a black and white bitmap, tracing bitmaps, cropping bitmaps, resizing, rotating, skewing images, bitmap special effects, colour styles, exporting images.

LECTURES (7)

Printing and Publishing : Layout styles, setting the page size, specifying the background colour, adding a printable page frame, hiding the page border, using facing pages, setting the start page, inserting pages, going to specific pages. Printing components, using print styles, proofing aids, printing to a file, the bureau wizard, publishing to the Internet.

LECTURES (8)

Text books :

1. Coreldraw in easy steps by Stepman 2009
2. Teach Yourself Coreldraw by Karlins David 2009
3. Coreldraw 5, 9, 12 for beginners by David Gary

References Books:

Objective: To learn various drawing tools in Photoshop and to maximize the potential of photographs and creativity.

Note:
  i. The Question Paper will consist of Four Sections.
  ii. Examiner will set total of NINE questions comprising TWO questions from each Section and ONE compulsory question of short answer type covering whole syllabi.
  iii. The students are required to attempt ONE question from each Section and the Compulsory question.
  iv. All questions carry equal marks.

SECTION – A

Introduction: Painting and editing: Opening a file, working with palettes, using the layers palette, using the painting editing tools, smudging a selection, saving palettes. Selections: Tool overview, selecting with the marquee moving a selection selecting with the magic wand tool, selecting with lasso tool, saving and loading selections, transforming a selection, adding a text, cropping the image.

Lectures (18)

SECTION – B

Promotional piece: Creating and Viewing layers, rearranging layers, changing the mode of a layer, feathering a selection, defining and filling with a pattern, adding a layer effect to a type layer, pattering and saving files.

Lectures (15)

SECTION-C

Using, Paths: Drawing paths with pen tool, storing a path, drawing curved paths, filling a path, combining straight and curved lines, making a path into a selection, Drawing a path around an artwork, transforming a path channels and masks: working with masks and channels, Using channels, coating a quick mask: Editing a quick mask, saving a selection as a mask, loading mask as a selection and using the replace colour comment, creating 3 gradient mask, applying filters to mask.

Lectures (15)

SECTION – D

Advanced layer techniques: Working with layer masks, creating a clipping group, Adding adjustment layers, adjusting hue and saturation, removing layer masks, save layered files understanding colour making colour correction, using the navigations command, adjusting colour with the level command and the wires commands, making selective colour correction, lightening, darkening and saturating areas.

Lectures (12)

Text Books
  3. Photoshop CS4 – studio techniques by Ben Willmore 2009
  4. Desktop Publishing and Design by C Roger 2009
  5. Designing Web Animations by Nicola Brown

References Books:
  1. Photoshop 7 - Savvy by Romaniello, BPB.
  3. Mastering digital photography and imaging, 2009
PAPER TITLE: Flash and Adobe Illustrator  
Max Marks: 80 (Th) + 20 (Int.)
Paper code : PGDCGA-05  
Time: 3 hours
Course Duration: 60 Lectures of one hour each
Objective: To design and develop animation using various features of Flash and Adobe Illustrator

Note:
   i. The Question Paper will consist of Four Sections.
   ii. Examiner will set total of **NINE** questions comprising **TWO** questions from each Section and **ONE** compulsory question of short answer type covering whole syllabi.
   iii. The students are required to attempt **ONE** question from each Section and the Compulsory question.
   iv. All questions carry equal marks.

SECTION-A

**Introduction:** Introduction to Flash, Applications of Flash, Features of Flash, demonstration of some applications develop in Flash. Flash Interface: Menu Bar, Timeline Layers, Work Area, View or Zoom, Panels. Frames: Types and Its Use. Tool Bar: Basic Tools and Advanced Tools. **Working with an object:** The Object Initialization, Selecting Object with Arrow tool and Lasso Tool, Grouping Objects, Moving Objects, Resizing Object, Rotating and Skewing Object, Reshaping Object.

Lectures (8)

SECTION-B

**Frames and layers:** Working with Frame: Key Frames, Regular Frames, Working with Layers, Layers Types, Reorganize Layers.

Lectures (14)

**Symbol and instance:** Creating Symbol and Instance, Modifying an Instance, Instance Property Panel, Editing Symbols and Duplicating Symbols.

Lectures (10)

SECTION-C

**Graphics:** Bitmap and Vectored File, Importing Bitmap, Exporting Flash Object as Bitmap. **Output settings in flash:** shockwave and video formats, Publishing settings. **Animation and effects:** Using mask layers, Animate object along paths, adding timeline effects, timeline effect settings.

Lectures (12)

SECTION-D

**Illustrator basics:** working with illustrator documents, understanding drawing and painting techniques, creating objects, graphs and symbols, learning how to select and edit, understanding colour, gradients and mesh. **Putting illustrator to work:** Using illustrator to organize objects, using creative strokes and fills with patterns, applying transformations and distortions, using path blends, compound paths and Masks.

Lectures (16)

Text Books

1. Flash in Easy Steps, DreamTech Press, Nick Vandome 2009
2. Inside Flash, Techmedia, Jody Keating, Fig Leaf Software 2010
3. Flash Web Design by Hillman 2009
4. Adobe Illustrator CS 4 Techmedia 2009
5. Flash MX in easy step by Nick Vandome 2009

References Books:

1. Flash Mx Professional 2010 by Unleashed, David Vogeleer, Matthew Pizzi
2. Adobe Illustrator CS 3 CS 4, Techmedia 2009
3. After Effect for Flash, Richard 2009
4. Macromedia Flash animation and Cartooning IBS 2009
PAPER TITLE: Autodesk 3D Max
Max Marks: 80 (Th) + 20 (Int.)

Paper code : PGDCGA-06
Time: 3 hours

Course Duration: 60 Lectures of one hour each
Objective: To learn 3D modeling, animation and rendering

Note:

i. The Question Paper will consist of Four Sections.

ii. Examiner will set total of **NINE** questions comprising **TWO** questions from each Section and **ONE** compulsory question of short answer type covering whole syllabi.

iii. The students are required to attempt **ONE** question from each Section and the Compulsory question.

iv. All questions carry equal marks.

**SECTION-A**


Lectures (10)

Exploring the max interface: Interface Elements, Menus, Toolbar, Viewports, Command Panel, Lower Interface Gar Controls, Interacting With the Interface.

Lectures (6)

**SECTION-B**

Working with the viewports: 3D Space, Viewport Navigation Controls, Configuring the Viewports, Viewport backgrounds.

Lectures (6)

Working with objects: Creating Primitive Objects, Primitive Object Types, Selecting Objects And Setting Object Properties, Cloning Objects.

Lectures (8)

**SECTION-C**

Transforming objects: Moving, Rotating and Scaling Objects, Using Pivot Points, Grids and Snap Options.

Lectures (8)

Modifiers: Exploring the Modifier Stack, Exploring Modifier Types, Using Instanced 'Modifiers.

Lectures (8)

**SECTION-D**

Animation and rendering: Animation: About Key Frame Set Key Animation Mode. The Track View-Dope Sheet, Rendering: Rendering Options. The Render Scene Dialog, The Render frame Window, Rendering for Animation.

Lectures (14)

**Text Books**

1. 3Ds Max 5, DreamTech Press, Prof. Sham Teckoo 2009
2. Introducing 3Ds Max 9 by H K Shoni 2009
3. Mastering 3Ds Max by Cat Woods 2008
4. 3Ds Max 7 fundamentals, Ted Boardman 2009

**References:**

1. 3Ds Max 5 Bible, Kelly L. Murdock, Wiley Pub. Inc .2009
2. 3Ds Max 5 Fundamentals
3. 3Ds Max 9 Bible by Murdock
4. Mastering Autodesk 3Ds Max 2010 by Mark Gerhard
PGCGA-07 : PRACTICAL based on PGDCGA-01 & PGDCGA-02
Max Marks: 75 (50 + 25)
Practical work – assignments related with:
- Differentiation of DOS and Unix OS
- Windows XP (desktop, control panel, buttons and icons, administrative tools etc.),
- Working on word-pad, notepad,
- Drawing lines, circles, ellipses in Paintbrush
- Text editing in Microsoft-Word, Microsoft Excel,
- Making simple presentation using Microsoft Power-point.

PGCGA-08 : PRACTICAL based on PGDCGA-03
Max Marks: 75 (50 + 25)
Practical work – assignments related with:
- Drawing lines, curves, circles, ellipses, polygons
- Create pamphlets of any institute
- Create Magazine cover relating to Graphics.
- Creating Information Broacher of Schools
- Create various banners, logos, magazines (10 pages)

PGCGA-09 : PRACTICAL based on PGDCGA-04
Max Marks: 75 (50 + 25)
Practical work – assignments related with:
- Create collage of various photographs
- Personal Logo
- Personal Collage
- Clone Stamp
- Cinema Poster Designing

PGCGA-10 : PRACTICAL based on PGDCGA-05
Max Marks: 75 (50 + 25)
Practical work – assignments related with:
- Create any web application
- Create any corporate presentation using Adobe Flash
- Create advertisement.
- Create layout designs using Adobe Illustrator

PGCGA-11 : PROJECT WORK : (using Autodesk 3D-MAX)
Max Marks: 100
Project must be taken up from the real life examples like:
- Science Project related to Physics / Chemistry
- Story Narration for Kids.
- Interactive Kindergarten tutorial
- Corporate presentation/Movie
- Advertisement
- Any other relevant projects.

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