

B.Sc. – I Animation (Entire) (Academic Year 2013 – 2014)

Course Structure

Semester - I

Paper	Title of the Paper	Period /	Total
Code.		Week	
AME 101	Fundamentals of computers	03	50
AME 102	Introduction to Hardware's and Software's	03	50
AME 103	Introduction to Internet and Multimedia	03	50
AME 104	Drawing and Sketching - I	03	50
AME 105	Colour Theory	03	50
AME 106	Computer graphics - I	03	50
AME 107	Animation Perspective	03	50
AME 108	'C' Programming	03	50
AME 109	English for Communication - I	03	50

Semester - II

Theory

Theory

Paper	Title of the Paper	Period /	Total
Code.		Week	
AME 201	Drawing and Sketching - II	03	50
AME 202	Script Writing and Storyboarding	03	50
AME 203	Digital Art	03	50
AME 204	Computer graphics - II	03	50
AME 205	Classical Animation	03	50
AME 206	Principles of Animations	03	50
AME 207	HTML	03	50
AME 208	Introduction to Web Development	03	50
AME 209	English for Communication - II	03	50

Practical Course

Course	Title	Period /	Exam	ination N	/larks
No.		Week			
			Internal	Final	Total
AME111	Animation Lab - I	04		50	50
AME112	Animation Lab - II	04		50	50
AME113	Animation Lab - III	04		50	50
AME114	Animation Lab - IV	04		50	50

SYLLABUS

B. Sc. Part – I Animation (Entire) Semester - I

Title of the Paper : Fundamentals of computers

Topics	Lectures
	36
Unit I What is a Computer? Basic Introduction of Computers <u>.</u> History of Computer. Computer Generations.	09
Unit II Introduction of Basic Computer Operations. Computer Units. Memory System in a Computer. Storage Devices.	09
Unit III Definition of Software's. Paint, Microsoft Word, Microsoft Excel, Power Point. Applications of Software Types of databases	09
Unit IV Study of Input Devices and Output Devices Study of Data Processing.	9

Reference Books:-

Fundamental of Computers by V. Rajaraman
Computer Fundamental by P.K. Sinha

3) Introduction to Computer and Data Processing by Pawar, Lad, Shinde, Patil (Dreamtech)

4) Introduction to Computer by Alexis Leon, Mathew Leon

Title of the Paper: Introduction to Hardware's and Software's

Topics	Lectures
	36
Unit - I : Hardware's	09
1). Intel Core 2 Duo 2) 1 MB L2 Cache 3) 512 MB Ram 4)	
Graphics Card 5) 80 GB Hard disk 6) DVD CD/RW combo 7)	
Stereo Speakers 8) 17" Color Monitor 9) Intel 31D1 Open GL 10)	
Mouse 11) Micro Phone 12) Digital Camera cum Webcam	
Unit - II : Software's	09
1) Windows XP 2) Office XP 3) Turbo C/C++ 4) Flash 5) Macro	
Media director 6) Photoshop 7) Audio/Video Capturing and	
Editing software's.	
Unit - III : Study of motherboard and ports	09
Identifying components and their use	
Studying about different types of Motherboards	
Studying about different ports.	
Unit - IV : Operating systems	09
Installing different Operating Systems	
Installation of Anti-virus Software's	
Recovery of system through Anti-virus patches	
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1) Upgrading and repairing PC's – 8th Edition, QUE (PHI) – 1997 by Scott Mueller

2) PC Software for Windows made simple by R K Taxali --- Tata McGraw Hill

3) Fundamentals of MS-Office - BPB Publication

Topics	Lectures 36
Unit I	09
What is the Internet?	
Internet History	
Search Engine	
Unit II Introduction of Web Directories Thinking Critically about Websites Evaluation of Information-Sources	09
Unit-III What is Multimedia? Introduction to Multimedia Systems. History of Multimedia Systems Multimedia Systems and Application	09
Unit-IV Introduction of Internet Graphics Types of Internet Graphics Application and Future of Multimedia and Internet	09

Title of the Paper: Introduction to Internet and Multimedia

Reference Books:-

1) Computer Today by Basandara

2) Computer Fundamental by P.K. Sinha

3) Introduction to Computer and Data Processing by Pawar, Lad, Shinde, Patil (Dreamtech)

4) Raymond Grenlaw, Ellen Hepp - Fundamentals of the internet and World Wide Web,

Tata McGraw Hill – 2000

5) HTML & Java Script for visual learners by Chris Chamber

6) Multimedia-An Introduction by John Villamil and Louis Molina Printed by

Prentice Hall of India

7) Ramesh Bangia, Multimedia and Web Technology, Firewall Media-2004

Title of the Paper: Drawing and Sketching-I

Topics	Lectures
	36
Unit- I	09
Introduction to Drawing	
How to Draw, How to Choose a Pencil, How to Improve Your,	
Drawing Skills, How to Ink a Drawing, How to Sketch.	
Init-II	ΛQ
Drawing Shapes and Forms	07
Draw a Box Draw a Circle Draw a cylinder Draw a Hexagon	
Draw a Cartoon Car. Draw a Simple House	
Unit- III	09
Free hand sketching from real objects: Total assignments -10 building,	
vehicles, chair, table, trees etc.	
Design- 2 D & 3 D Design	
Unit- IV	09
Still life with drapery (object drawing) Total assignments -5	
(Study of non living objects)	

1) The Animator Survival Kit by Richards Williams

- 2) Basic Drawing Techniques by Richards Box
- 3) Drawing and Anatomy by Victor Perard
- 4) Sketching by Pratap Mulik
- 5) Human Anatomy for Artist by Eliot Goldfinger

Title of the Paper: Colour Theory- I

Topics	Lectures
	36
Unit -I	09
Introduction of colour	
Introduction of materials	
Unit -II Making Colour Wheel Making composition with colors	09
Color Journal	
Unit -III Interactions of Gradation and contrast Warm and cool Colour Color symbolism Mixing of primary, Secondary, Tertiary Colors, Tints, Tones and	09
Shades.	
Unit -IV Colour Wheel Painting of some Scenes Colour Journal	09

Reference Books:-

1) Color Theory(Watson- Guptil's Artist Library) by Jose Parammom

2) Colour by Betty Edwards

3) Colour by Milind Mulik

4) Color Theory by Ron Petrosky

Topics	Lectures
	36
Unit -I	09
Object Overview	
Tools Overview.	
Unit -II	09
Study of Tools	
Set Default Font and Size, Align, Artistic Text, Align Paragraph Text.	
Unit -III	09
Pattern Fill Overview	
Using Preset Full color Fills, Loading Full Color Fills	
Using Bitmap Pattern Fills, Load	
External Bitmap Fills	
Unit -IV	09
Vectors and Bitmaps	
Set View	
Hints for Learning CorelDraw.	
Import/Export Overview	

1) Computer Graphics, Prentice Hall of India. by Donald Hearn & M. Pauline Baker

2) Computer Graphics, Second Edition by Zhigand Xiang, Roy Plastock, Schaum's Outlines, Tata Mc-Graw Hill.

3) Procedural Elements for Computer Graphics by David F Rogers ---- Tata McGraw Hill,

4) Principles of Interactive Computer Graphics by Neuman & Sproul ---- Tata McGraw Hill.

5) Principles of Computer Graphics by Govil Shalin ---- PAI, Springer.

6) Computer Graphics, Steven Harrington by Tata McGraw Hill.

Title of the Paper: Animation Perspective

Topics	Lectures
	36
Unit - I	09
Introduction of Animation Perspective	
Introduction to the equipment.	
Perspective in Various Shapes.	
The animator's drawing tools the animation table (light box Field	
charts Line tests the exposure sheet ("X" sheet)	
charts, Ene tests, the exposure sheet (A sheet),	
Unit II	00
Derenactive blocks and haves Vanishing point in herizon Outside	02
herizen and indeens. Seele diegrome in gereneetige. Different	
norizon and indoors, Scale diagrams in perspective, Different	
viewpoints, Importance of eye level, Curves and cylinders in	
perspective,	
Perspective in 1 point, Perspective in 2 point, Perspective in 3 point,	
Unit - III	09
Perspective in multiple points, Multiple points in animation	
perspective, Objects in perspective,	
Animals in perspective, Human forms in perspective,	
Unit - IV	
Cast shadow exercise,	09
Shapes in perspective with light and shade. Foreshortening.	
Foreshortening of cylinders.	
Construction drawing of animals with foreshortened cylindrical forms	
construction drawing of annuals with foreshortened cylinarical forms.	

Reference Books:-

1) The Animator Survival Kit by Richards Williams

2) Basic Drawing Techniques by Richards Box

- 3) Drawing and Anatomy by Victor Perard
- 4) Sketching by Pratap Mulik
- 5) Cartoon Animation by Preston Blair

Title of the Paper: **'C' Programming**

Topics	Lectures
Unit-I	<u> </u>
Languages Fundamentals	07
Algorithm, Flow Chart	
What is 'C'	
Constants Variable data types in 'C'	
Statements	
Definition Symbolic Constantans	
Unit-II	09
Operators	
Arithmetic Operator	
Relation	
Logical	
Assignments, Conditional, Comma, Increment and Decrement	
Expression	
Unit-III	09
Data Input - Output Statements	07
Data Input and Output Using getch().getche().getchar().putchar()	
Formatted input – output – printf(), scanf()	
Unit-IV	09
Control Structures	
Conditional Statements- if, if else, nested if, switch	
Looping- while, do while, for , nested for	

Reference Books:-

ANCI 'C' by E Balgurusamy
Let us C by Y.C. Kanetkar
'C' Programming by Denis Ritchie

3) 'C' Programming by Denis Ritchie4) Programming with C - Schaum Series

Title of the Paper : Drawing and Sketching-II

Topics	Lectures 36
Unit - I	09
Drawing Text and Lettering	
How to Draw Letters, How to Draw Bubble Letters, How to Have	
Beautiful Writing. How to Design a Logo	
Unit – II	09
Drawing Realistic Characters	
How to Draw Basic Human Figures, How to Draw a Body, How to	
Draw People, How to Draw Realistic People, How to	
Draw Human Faces, How to Draw a Facial Expression.	
Unit - III	09
Drawing Animals	
How to Draw Realistic Animals with Depth, How to Draw an	
Elephant, Draw a Horse, How to Draw a Bird, How to Draw Cat,	
How to Draw a Dog, How to Draw a Pig, How to Draw a Dog Face,	
How to Draw a Frog	
Unit - IV	09
Cartoon and Comic Drawing	
How to Draw a Cartoon like Face, How to Draw a Cartoon Cat,	
How to Draw a Cute Cartoon Person, How to Draw a Cartoon	
Monkey, How to Draw a Stick Figure, How to Draw Monsters,	
How to Draw a Sea Creature.	

Reference Books:-

The Animator Survival Kit by Richards Williams
Basic Drawing Techniques by Richards Box
Drawing and Anatomy by Victor Perard
Sketching by Pratap Mulik
Human Anatomy for Artist by Eliot Goldfinger
How to Draw Baby Animal by Susan Sonkin
Cartoon Animation by Preston Blair
Human anatomy by Victor Ferard
Figure drawing made easy by Aditya Chari
How to Draw Human Figures by Pundalik Waze

Title of the Paper: Script Writing and Story Board

Topics	Lectures
Unit- I	<u> </u>
Basic of script writing	
Elements of script writing, expansion, dialogues interaction	
The three act structure, beginning middle and end	
Dialogue and Description Imagery.	
Unit - II	09
Modern ways to write Script, Quick methods to produce fast scrip,	
Advantage of script writing with software's.	
Unit - III	09
Script writing for cartoon movies and its storyboard, Script for	
dramatic and emotional story and its Storyboard. Script for mythological movie and its story board. Script writing	
for comedy movie and its storyboard.	
Unit- IV : Story Board	09
Importance of story board, Definition, Advantage, Different types	
of story boards, Elements of storyboard, Storyboarding	
Create a storyboard	

Reference Books:-

1) How to Write for Animations by Jeffrey Scott

2) Animation Writing and Development by Jean Wright

3) The Complete Book of Scriptwriting by -J. Michael Straszynski

4) Film Scriptwriting-A practical Mannual by -Dwhite V. Swain and Joye R. Swain

5) Screenplay: Foundation of Screenwriting by -Syd Field

6) The Animator Survival Kit, Richards Williams

7) Cartoon Animation, Preston Blair

Topics	Lectures
	36
Unit -I	09
Introduction of Bitmap images	
Bitmap Imaging with Adobe Photoshop/Image Ready	
Unit - II	09
Digital capture (digital camera or scanner)	
Creating Environments in Adobe Photoshop	
Unit - III	09
Introduction to Toon Boom	
Use of Toon Boom Tools	
Fill colour	
Unit - IV	09
Introduction to Flash	
Introduction to flash Interface	
Import, Trace, Break apart, and loading bitmaps in FLASH	
Creating Environments in Flash	

1) The Animator Survival Kit by Richards Williams

2) Inside Flash, Tech Media, Fig Leaf Software by Keating, Jody

3) Flash MX Professional 2004 Unleashed by David Vogeleer Mathew Pizzi

4) Flash in Easy Steps, Dreamtech Press by Vandome, Nick

5) Flash character animation: applied studio techniques By Lee Purcell (Sams publishing)

Title of the Paper: Computer graphics-II

Topics	Lectures
	36
Unit - I	09
Introduction & Interface – What is Image? Pixel - Pixel –	
Resolution – Image Resolution – Printing Resolution – Monitor	
Resolution – Color Modes (RGB – CMYK – Lab Color – Gray	
Scale – Bitmap – Duotone – Indexed Color and Multi channel).	
Unit - II	09
Viewing and Navigating Images – Cascading – Tiling – Close –	
Close All – Zoom In – Zoom Out – Planning – Fit to Screen –	
Actual Size – Rulers – Guides – Grid – Selections Edge – Snap.	
Unit - III	09
Transforming the Images – Scale – Rotate – Skew – Distort –	
Perspective – Flip and Canvas – Rotate Canvas – Lassos –	
Polygonal – Tools and Options – Magic Wand and Options.	
Unit - IV	09
Tools Box – Painting Tools – Healing – Brush Tool and Patch	
Tool – Brush Tool and Pencil Tool – Eraser Tool – Background	
Eraser Tool and Magic Eraser Tool – Dodge – Burn and Sponge	
Tool.	

Reference Books:-

1) Computer Graphics, Prentice Hall of India. Donald Hearn & M. Pauline Baker

2) Computer Graphics, Second Edition by Zhigand Xiang, Roy Plastock, Schaumi's Outlines, Tata Mc-Graw Hill.

3) Procedural Elements for Computer Graphics by David F Rogers, Tata McGraw Hill,

4) Principles of Interactive Computer Graphics by Neuman & Sproul, Tata McGraw Hill.

5) Principles of Computer Graphics by Govil Shalin PAI, Springer.

6) Computer Graphics by Steven Harrington, Tata McGraw Hill.

Title of the Paper: Classical Animation

Topics	Lectures 36
Unit- I Classical 2D Animation orientation – Basic factors affecting the illusion of motion – Impact of digital techniques on the craft of film and video animation – Professional Animation practice and job description – Prevailing file format standards and other Compatibility issues – History and future trends of computer animation.	09
Unit- II 2D animation application software interface – Default setting and user preferences – Document setup. Import and export formats – Document and timeline window feature – Tools and commands palettes – Media-selection tools and techniques Asset-management Features.	09
Unit- III 2D graphics editing features – Basic geometric transformation – Object stroke attributes – Object fill attributes – Shading Techniques (blends – gradients) – Packaged effects (extensions – Plug-ins) – Features Specific to the program in use.	09
Unit- IV 2D animation frame-sequencing features – Straight-ahead animation – Key Frames animation – Motion paths – Applying geometric transformations over time –Intertwining options – Looping and palindrome motion – Features specific to the program in use.	09

Reference Books:-

The Animator Survival Kit by Richards Williams
Basic Drawing Techniques by Richards Box
Drawing and Anatomy by Victor Perard

4) Cartoon Animation by Preston Blair

5) Timing for Animation by Harold Whitaker

6) Animation the Mechanics of Motion by Chris Webster

Title of the Paper : **Principles of Animations**

Topics	Lectures 36
Unit- I	09
What are the principles of animation?	
Caricaturing the Action. Thumbnails, Drama and psychological	
effect. Motion studies, drawing for motion.	
The body language, Re-defining the drawings.	
Unit- II	09
Introduction to animation production process. Basic principles	
in animation.	
Squash and Stretch, Anticipation, Staging. Straight ahead and	
pose to pose.	
Unit- III	09
Anticipation, Follow through and overlapping action, Slow in	
and slow out, Arcs, Secondary action. Timing,	
Exaggeration, Solid drawing, Appeal. Mass and weight,	
Character acting, Volume. Line of action, Path of	
Action, Walk cycles of animal and human.	
Unit- IV	09
Introduction to the equipment	
Flip Books. Stop motion techniques.	
Technique of working in groups.	
The Exposure sheet (X sheet)".	

Reference Books:-

1) The Animator Survival Kit by Richards Williams

2) Basic Drawing Techniques by Richards Box

3) Drawing and Anatomy by Victor Perard

4) Cartoon Animation by Preston Blair

5) Timing for Animation by Harold Whitaker

6) Animation the Mechanics of Motion by Chris Webster

7) Character Animation Crash Course! By Eric Goldberg.

8) Cartoon Animation (The Collector's Series) by Preston Blair.

9) Animation from Pencils to Pixels: Classical Technique by Tony White.

Title of the Paper: **HTML**

Topics	Lectures 36
Unit-I : Introduction to HTML History, Creating a Web page, Page installation, Viewing and checking. Working with text, HTML tags, Physical and logical styles, Headings. Presenting and arranging text, Using DIV and SPAN, Layers, Preformatting text. Working with images, Graphic formats, Clip art, Graphic Colour, creating images.	09
Unit-II : Links, Lists, Tables and Frames Hyperlinks, URLs, Maps, Lists, Table creation, Border, Aligning Data, Creation of frames, Horizontal and Vertical frames, naming to frames, Browser windows.	09
Unit-III : Working with Multimedia and Style sheets Multimedia sound, Video, 3D, Creating own multimedia, Connecting multimedia files, Creating inline sound and video. Style sheets, External and embedded, Inline styles, Cascading and organizing styles, Style specification and background colour.	09
Unit-IV : Creating HTML forms and HTML controls Introduction to forms, Controls, Creating a form, Submitting data form, Uploading, pasting, testing and maintaining the website, HTML design with Flash method, Flash websites with Splash preloaded pages.	09

Reference Books:-

1) HTML Black Book By Steven Holzner, DreamTech Press, USA

2) HTML XHTML & CSS - Bible By Schafersm – Wiley

3) HTML in Simple Steps By Kogent - Wiley

4) HTML 5 By Bluttman & Cottrell – Tata McGraw Hill

5) Introducing HTML 5 By Lawson - Pearson

Title of the Paper: Introduction to Web Development

Topics	Lectures 36
UNIT – I: Foundation of Web Design Basic principle of web design, Web design themes, User centered design, User characters, User world, Web medium, Introduction to HTML, XHTML, XML, Web design process and website evaluation, evaluation reports.	09
UNIT – II : Site organization and navigation Architecture, Navigation theory in brief, Basic navigation practices, search, site maps and other navigational aids in brief, Site indexes.	09
UNIT – III : Elements of page Design Pages and layout, entrance pages, layout examples, texts and fonts, text layout, text details, web colour basics, practical web colour, images and HTML, image formats, image uses, GUI design implications , forms, usable forms and form validation, Advanced web GUI Widgets.	09
UNIT – IV : Technology and Web design Web technology best practices, Browser, HTML, CSS, XML best practices, client side Programming, multimedia best practices, Site delivery and management, Web servers, Delivering the payloads, Managing Web servers.	09

Reference Books:-

 The Complete Reference Web Design (2nd Edition) by Thomas A. Powell Tata McGraw Hill Publication.
Web Design in Easy Steps by Sean McManus – Tata McGraw Hill Publication
Web Design: A Beginner's Guide Second Edition by Wendy Willard Tata McGraw Hill Publication

LABORATORY COURSE

Laboratory course Animation Lab- I

Group I

- 1. Microsoft DOS
- 2. Microsoft Word
- 3. Microsoft Excel
- 4. Microsoft PowerPoint
- 5. Microsoft Access

'C' Programming Practical's

6. Area of Circle

- 7. Area of Rectangle
- 8. Use of if else statement
- 9. Use of switch statement
- 10. Use of For statement

Group II

HTML Practical's

- 11. Create HTML pages using HTML tags, insert images and clip art
- 12. Working with Hyperlinks and Tabular information of Students bio data
- 13. Insert sound and Video in web pages
- 14. Create a form design with controls
- 15. Create simple Flash website application

Web Development Practical's

- 16. Design a simple Web site template and themes
- 17. Design a simple Website with site map, search facility
- 18. Design a GUI for any application with use of text, images and forms
- 19. Design a GUI application for College Administrative System
- 20. Case study for Website application

Laboratory course : Animation Lab- II

AME-112

AME-111

Group I

- 1. Internet connectivity
- 2. Working with Web browser
- 3. Working with e-mail clients (Sending/receiving/attachments)
- 4. Working with PDF files using Acrobat Reader
- 5. Storing Photos using digital media and Copying Video Media into digital media
- 6. Identifying components and Interfacing
- 7. Identifying different Hardware's Elements
- 8. Installing System and application software
- 9. Understanding control panel settings
- 10. Working with anti-virus software and Working with backups

Group II

- 11. Free hand sketching from real objects: Building, vehicles, chair, table, trees etc.
- 12. Kind of Design- 2 D
- 13. Still life with drapery (object drawing) (Study of non living objects)
- 14. Landscape on the spot & landscape form Memory
- (Hills, Trees, Hut, Rivers etc.) 15. Basic Head Drawings male, female, children, old person
- 16. Draws Text, letters, logos.
- 17. Draw BG (Backgrounds) Layouts for Animation.
- 18. Realistic Human Drawings, Anatomy.
- 19. Animal Drawings
- 20. Cartoons and Comic Drawings

Group I

- 1. Getting started in CorelDraw
- 2. Working with pages and layout tools
- 3. Using CorelDraw tools
- 4. Working with objects
- 5. Using transparency of objects
- 6. Working with workspace
- 7. Working with Tools
- 8. Creating Logo Designing
- 9. Working with Menu bar, Layers, Colours, Filters
- 10. Importing/Exporting Formats in Different Patterns Designs

Group II

- 11. Primary, Secondary, Tartary, Quarter Class Colour Scheme
- 12. Making 6, 12, 18 parts of Colour Wheel
- 13. Relationship between Different colour Schemes
- 14. Still life painting
- 15. Memory painting
- 16. Concept Telling & Writing on Own Script
- 17. Developing concept With Dialogue and description Imagery.
- 18. Writing script for children and adult programmers.
- 19. Graphical storyboard and hand drawn story board.
- 20. Create a storyboard and finally prepare an Animatic.

Laboratory course : Animation Lab- IV

AME-114

Group I

- 1. Capture Images by Camera /Scanner and Import Images into Computer.
- 2. Import Scanning Images for Toon Boom, Using ToonBoom Interface.
- 3. Creating Bitmap images From Photoshop.
- 4. Using flash Interface and Import, Trace, Break apart, and loading bitmaps in FLASH
- Animation exercises on following principles using sketching, Toon Boom and Flash Animation. 5. Squash and Stretch.
- 6. Anticipation.
- 7. Follow through and overlapping action.
- 8. Slow in and slow out.
- 9. Arcs.
- 10. Exaggerations.

Group II

- 11. Draw Various Shapes in 2 Point Perspective.
- 12. Draw Same Objects in 2 Point Perspective.
- 13. Draw Shapes in 1 Point Perspective with Light And Shade.
- 14. Draw Buildings Layouts in Multiple Point Perspective.
- 15. Draw Human Sketches in Multiple Point Perspective.
- 16. Object Animations.
- 17. Water Ripple.
- 18. Human Walk cycle and Animal Walk cycle.
- 19. Various Actions of Human, Animal and Cartoons.
- 20. Facial Expression Human, Animal, Cartoons.

PRACTICALS GROUPING

Animation Lab I Fundamentals of computers + 'C' Programming HTML + Introduction to Web Development

Animation Lab II

Introduction to Internet and Multimedia + Introduction to Hardware's and Software's Drawing and Sketching-I + Drawing and Sketching-II

Animation Lab III

Computer graphics-I + Computer graphics-II Color Theory + Script Writing and Storyboarding

Animation Lab IV Digital Art + Principles of Animations Animation Perspective + Classical Animation Common Nature of Question Paper for B.Sc. Part-I, BCS Part-I & BFTM Part-I theory paper to be implemented from academic year 2012 (Except Chemistry)

Q.No.1	Multiple Choice questions	10Marks
	(1 marks each)	
Q.No. 2	Long answer questions (solve any 2 out of 3)	20 Marks
	(10 marks each)	
Q.No. 3	Shot answer questions (4 out of 6)	20 Marks
	(5 marks each)	
	Total	50 marks

Practical Exam : Annual Pattern (Applicable for all Laboratory Courses)

Total Number of the Experiments = 20 Journal Marks = 10 The Candidates need to perform 2 Experiments, Each experiments carries 20 Marks