

UNIVERSITY OF PUNE
PROPOSED STRUCTURE OF B. Sc. (Animation)
(To be established from Academic Year 2011- 2012)

Preamble :-

The relevance of any degree rests on its potential to serve the needs of the day. Considering the latest jobs scenario, the **B.O.S. in Computer Science** finds it necessary to institute an independent **B.Sc. Degree in Animation**. **The Bachelor of Science in Animation** will provide a strong foundation in the fundamentals of Artistic Design, Story Development, Project Management, Digital Content Creation and Portfolio Development. This course will help to gain skills in 3-D Modeling, Character Design, Animation and Game Content Development. This will also help to learn how to complete a strong Portfolio of their work which will help students to sell their skills to employers in the fast paced industry. The contents of the course are dynamic and are based upon the industry trends.

Due to its wide use in all walks of life including industry and business, animation has become synonymous with success and power. The college students, therefore, need to be given the basic theoretical knowledge, required skills and an adequate training in those skills related to animation technology so that they gradually get empowered and enter into the mainstream of the society as confident citizens. Considering these factors, the Faculty of Science proposes starting of a course entitled **Bachelor of Science (Animation) [B. Sc. (Animation)]** from the academic year 2010-11. This course may be taught in any existing College. Any college desiring to start the course will have to follow the rules and procedure laid down by the university.

Objectives of the Course :-

The objectives of the B.Sc.(Animation) Course shall be as follows :-

1. To familiarize the students with various approaches, methods and techniques of Animation Technology.
2. To develop competencies and skills needed for becoming an effective Animator.

3. To enable students to manage Animation Projects from its Conceptual Stage to the final product creation.
4. To train students in applying laws of human motion and psychology 2-D or 3-D characters.
5. To develop expertise in life-drawing and related techniques.
6. To apply Audio and Video Production Techniques to an Animation Project.

Eligibility :-

Candidates with at least 50% marks (45% for Reserve Category) in the 12th Science or Equivalent Examination will be eligible for admission to this course. Admissions will be given as per the selection procedure laid down by the University of Pune.

Reservation and relaxation will be as per the Government rules.

Medium of Instruction :-

The medium of instruction for the course shall be English.

Duration :-

The duration of B.Sc.(Animation) Degree Program shall be three years.

Standard of Passing :-

- i) In order to pass in the first year theory examination, the candidate has to obtain 40 marks out of 100 in each course. (Minimum 32 marks must be obtained in the University Examination.)
- ii) In order to pass in the second year and third year theory examination, the candidate has to obtain 20 marks out of 50 in each course. (Minimum 16 marks must be obtained in the University Theory Examination.)

- iii) In order to pass in practical examination, the candidate has to obtain 40 marks out of 100 in each course. (Minimum 32 marks must be obtained in the University Examination.)

Rules of A.T.K.T. :-

Rules of A.T.K.T. of B.Sc. Degree will be applicable to this Degree Course Aslo.

Fees :- Fees of the course will be decided by competent authority of university.

Evaluation :-

The evaluation pattern for the B.Sc.(Animation) Course will be as follows :-

Examination Pattern :-

1) First Year :- Total 1200 Marks

800 Marks for 8 Theory Papers and

400 Marks for 4 Practical Courses.

Examinations will be conducted as per the University Guidelines.

2) Second and Third Year of B.Sc.(Animation):-

The Semester Pattern followed for B.Sc. Degree will be applicable.

The distribution of papers and marks shall be as follows:-

300 Marks (50 marks for each paper) for 6 Theory Papers per semester.

300 Marks for 3 Practical Courses per year.

***Note :- Examination for all the Six Practical Courses will be conducted at the end of the respective Academic Year.**

Examinations will be conducted as per the University Guidelines.

Syllabus Framework :- (Structure)

1) First Year B.Sc.(Animation) :-

Theory Courses:-

1. Elements of Information Technology.
2. 'C' Programming.
3. Foundation Art.
4. Digital Art.
5. Graphics Design.
6. Architectural Visualization.
7. Classical Animation.
8. Animation Techniques-I.
9. Business Communication

Practical Courses:-

10. Practical Course Paper-I based on Theory Paper-II.
11. Practical Course Paper-II based on Theory Paper-III & IV.
12. Practical Course Paper-III based o Theory Paper-V & VII.
13. Practical Course Paper-IV based on Theory Paper VIII.

2) Second Year B.Sc.(Animation) :-

Semester-I

Theory Courses:-

1. Technical English-I.
2. 3-D Animation-I.
3. Production Process-I.
4. Multimedia-I.
5. Compositing and Editing.
6. Color Theory.

Practical Courses:-

1. Practical Course Paper-I based on Theory Paper-II.
2. Practical Course Paper-II based on Theory Paper-III & IV.
3. Practical Course Paper-III based o Theory Paper-V & VI.

Semester-II

Theory Courses:-

1. Technical English-II.
2. 3-D Animation-II.
3. Production Process-II.
4. Multimedia-II.
5. Layout and Perspective.
6. Sketching and Landscaping.

Practical Courses:-

7. Practical Course Paper-I based on Theory Paper-II.
8. Practical Course Paper-II based on Theory Paper-III & IV.
9. Practical Course Paper-III based o Theory Paper-V & VI.

Note: - Examination for all the Six Practical Courses will be conducted at the end of Academic Year.

3) Third Year B.Sc.(Animation) :-

Semester-III

Theory Courses:-

1. Script Writing-I.
2. Content Development Direction-I.
3. Modeling-I.
4. Digital Editing and Motion Graphics-I.
5. Visual Effects-I.
6. V.F.X.-I.

Practical Courses:-

7. Practical Course Paper-I based on Theory Paper-II.
8. Practical Course Paper-II based on Theory Paper-III & IV.
9. Practical Course Paper-III based o Theory Paper-V & VI.

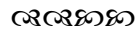
Semester-IV

Theory Courses:-

1. Script Writing-II.
2. Content Development Direction-II.
3. Modeling-II.
4. Digital Editing and Motion Graphics-II.
5. Visual Effects-II.
6. V.F.X.-II.

Practical Courses:-

7. Practical Course Paper-I based on Theory Paper-II.
8. Practical Course Paper-II based on Theory Paper-III & IV.
9. Practical Course Paper-III based o Theory Paper-V & VI.



Syllabus details of the First Year Animation:

2. Elements of information Technology

1 Ch 1: Introduction to Computers

1.1 Introduction

1.2 Characteristics of Computers

1.3 Block diagram of computer

1.4 Types of computers and features

1.4.1 Mini Computers

1.4.2 Micro Computers

1.4.3 Mainframe Computers

1.4.4 Super Computers

1.5 Types of Programming Languages

1.5.1 Machine Languages

1.5.2 Assembly Languages

1.5.3 High Level Languages

1.6 Data Organization

1.6.1 Drives

1.6.2 Files

1.6.3 Directories

1.7 Types of Memory (Primary And Secondary)

1.7.1 RAM

1.7.2 ROM

1.7.3 PROM

1.7.4 EPROM

1.7.5 Secondary Storage Devices (FD, CD, HD, Pen drive)

1.8 I/O Devices

1.8.1 Scanners

1.8.2 Digitizers

1.8.3 Plotters

1.8.4 LCD

1.8.5 Plasma Display

1.9 Number Systems

1.9.1 Introduction to Binary, Octal,

Hexadecimal system

1.9.2 Conversion

1.9.3 Simple Addition, Subtraction, Multiplication, Division

2 Ch 2: Algorithm and Flowcharts

2.1 Algorithm

2.1.1 Definition

2.1.2 Characteristics

2.1.3 Advantages and disadvantages

2.1.4 Examples

2.2 Flowchart

2.2.1 Definition

2.2.2 Define symbols of flowchart

2.2.3 Advantages and disadvantages

2.2.4 Examples

3 Ch 3: Operating System and Services in O.S.

3.1 Dos - History

3.2 Files and Directories

3.3 Internal and External Commands

3.4 Batch Files

3.5 Types of O.S.

4 Ch 4: Windows Operating Environment

4.1 Features of MS – Windows

4.1.1 Control Panel

4.1.2 Taskbar

4.1.3 Desktop

4.1.4 Windows Application

4.1.5 Icons

4.2 Windows Accessories

4.2.1 Notepad

4.2.2 Paintbrush

5 Ch 5: Editors and Word Processors

5.1 Basic Concepts

5.2 Examples : MS-Word

5.3 Introduction to desktop publishing

6 Ch 6: Spreadsheets and Database packages

6.1 Purpose, usage, commands

6.2 MS-Excel

6.3 Creation of files in MS-Access

6.4 Switching between application

6.5 MS -PowerPoint

7 Ch 7: Linux

7.1 File system

7.2 Linux Commands

7.3 Permission and inodes

7.4 I/O redirection

7.5 Pipes

7.6 VI Editor

Referential Books :

1. Fundamental of Computers – By V. Rajaraman B.P.B. Publications
2. Fundamental of Computers – By P. K. Sinha
3. Computer Today- By Suresh Basandra
4. Unix Concepts and Application – By Sumitabha Das
5. MS- Office 2000(For Windows) – By Steve Sagman
6. Computer Networks – By Tennenbum Tata MacGrow Hill Publication

2. C Programming Language

1. Introductory Concepts

Overview of programming and programming languages

Types of programming Languages.

Introduction to C

Features of C

Structure of C program

2. C Fundamentals

2.1 C Character Set

2.2 Identifiers and Keywords

2.3 Variables and constants

2.4 Data types

2.4.1 Basic data types

2.4.2 Enumerated types

2.4.3 Type casting

2.5 Declarations

2.6 Expressions

3. Operators and Expressions

3.1 Unary plus minus operators

3.2 Binary arithmetic operators

3.3 Increment Decrement operators

3.4 Relational and logical operators

3.5 Bit wise operators

3.6 Assignment operator

3.7 Comma operator, size of operator, ternary conditional operator.

3.8 Precedence and Associativity

3.9 Library Functions

4. Data Input output statements

4.1 printf, scanf functions

4.2 getchar, putchar, getch, getche functions

4.3 gets, puts functions

4.4 Escape sequence characters

4.5 Format specifiers

5. Control Statements

5.1 If , If- Else statements

5.2 Nested If statements

5.3 Conditional Branching – switch statement

5.4 Loops (while, do-while, for)

5.5 break, continue, goto statements

6. Functions

6.1 Declaration (Prototyping)

6.2 Function call, function header and definition

6.3 Passing arguments (Actual and formal arguments)

6.4 Recursion

6.5 Scope of variable (local/global)

6.6 Storage classes: auto, static, extern, register.

6.7 Library Functions.

7. Arrays

7.1 Defining an array

7.2 Processing an array

7.3 Multi dimensional arrays

7.4 Strings

8. Pointers

8.1 Fundamentals

8.2 Pointer declaration

8.3 Passing pointers to function (call by value/ call by reference)

8.4 Operations on pointers

8.5 Pointer to an array.

8.6 Dynamic memory allocation

8.7 Array of pointers

8.8 Function pointers

9. Structures and unions

9.1 Defining structure and union

9.2 Processing structure and union

9.3 User defined data types (typedef)

9.4 Pointer to structure

9.5 Self referential structures

10. Files

10.1 Opening and closing file

10.2 Creating files

10.3 Processing files

10.4 File handling using command line arguments

10.5 Library functions for file handling.

11. C Preprocessor

12. Graphics using C [internal]

11.1 VDU Basics

11.2 Simple library functions (getpixel, putpixel, line, rectangle, circle, ellipse, arc)

Text Books:

Programming with C: Bryon Gottfried

Let us C : Yashwant Kanetkar.

Reference Books:

C programming: Dennis Ritchie

Programming in ANCI C: Balgurusamy

Graphics under C: Yashwant Kanetkar

Pointers in C: Yashwant Kanetkar

3. Foundation Art.

Demonstration and lectures on required skills for an animation artist, Visual and creative development of an artist, How to draw gestures, facial expressions etc. Introduction to pose to pose sketching (Action analysis). Rapid sketching from live models, Introduction to Acting, Modelling, Sketching from Acting, Sketching from live models, Introduction to Rapid Sketching Techniques, Sketching from Memory, live action. Basics of Acting - Style breaking, Movements. Imagination and implementation-Making gestures, Facial expressions, acting on small sentences, Acting in couple and acting in group. Acting as story teller - Single act on a song or a small story, Group competition, Usage of Acting into animation - Acting V/s Animation

4. Digital Art.

Introduction to paint

Introduction to flash

Bitmap Imaging with Adobe Photoshop/ImageReady

Digital capture (digital camera or scanner) composition, & editing

Preparing Web Graphics

Gif Animation- Image optimization for optimal download time

Import, Trace, Break apart, and loading bitmaps in FLASH

Creating Environments in Painter

5. Graphics Design

Drawing Basis

- about vector and bitmap graphics
- Flash drawing mode

- About overlapping shapes
- Using Flash drawing and painting tools
 - Draw with the pencil tools
 - Draw straight lines
- Reshaping lines and shape outlines
- Snapping (object snapping, pixel snapping, snap alignment)
- Working with color, strokes and fills

Working with graphic objects

- . Selection objects
- Moving, copying and deleting objects
- . Arranging object (Stack, Align, Group, Break apart groups and object)
- . Transforming object

6. Architectural Visualization./Animation principles(This subject should be introduce)

Introduction to the equipment. The animator's drawing tools, the animation table (light box, Field charts, Line tests, the exposure sheet ("X" sheet), Perspective in animation.

Perspective- blocks and boxes, Vanishing point in horizon, Outside horizon 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, Perspective in multiple points, Multiple points in animation perspective, Objects in perspective, Animals in perspective, Human forms in perspective, Cast shadow exercise, Shapes in perspective with light and shade, Foreshortening, Foreshortening of cylinders, Construction drawing of animals with foreshortened cylindrical forms.

7. Classical Animation.

How to draw the drawings with the help of basic shapes.

Animal study, Human anatomy, shading techniques.

Live model study.

Introduction- Importance of confidence, Difference between “looking at the drawing” and “seeing the drawing”, what is observation.

Procedure- How to approach, Importance of Guideline- Line of action, Overcome the fear, Drawing for animation

An Introduction on how to make drawings for animation, Shapes and forms, About 2d and 3d drawings, Caricaturing – fundamentals, Exaggeration, Attitude, Silhouettes, Boundary breaking exercises and warm ups, gesture drawing, Line drawing and quick sketches, Drawing from observation, memory and imagination

8. Animation Techniques-I.

- Animation basics
- Creating motion
- Creating key frames
- Representations of animation in the Timeline
- Frame rates
- Frame-by-frame animation
- Onion skinning
- Extend still images
- Mask layers
- Using Timeline effects
- Twinned animation
- Special effects
- Filter
- Animation Filters
- Create preset filter libraries
- Blend modes in Flash
- Working with text
- Working with sound
- Working with video

9. BUSINESS COMMUNICATION

I Language and Communication

- Linguistic Communication
- Barriers to Communication

II Oral Component

1. Non – Verbal Communication

- Personal Appearance
- Posture
- Gestures
- Facial Expression
- Eye Contact
- Space Distancing

2. Oral Communication

Face to Face Communication

- Telephonic Conversation
- Interviews
- Instruction
- Dictation

3. Seminars and Conferences

- Organization – Use of Audio – visual Aids
- Oral Presentation

4. Group Discussion

Group Dynamics

- Purposes
- Organization

III Written Communication

- **Report Writing**
 - i.) Commercial
 - ii.) Technical
- **Business Correspondence**
 - a) Business Letters
 - i.) Purpose
 - ii.) Structure
 - iii.) Layout
 - iv.) Types
- **Job Application and Resume Writing**
- **Notices Agenda and Minutes**
- **Advertisements**
 - i.) Billboards
 - ii.) Hard bills

- iii.) Pamphlets
 - iv.) Copywriting
- **Manuals**
 - i.) Research Papers
 - ii.) Research Articles
 - iii.) Graphic aids
Tables, Figures, Graphics Pie Charts, Flow Charts
- **Web Correspondence**
E-mail, fax, etc.

Reference Books:-

1. Principles and Practices of Business Communications:- Aspi Doctor
Rhoda Doctor
2. Developing Communication Skills:- Krishna Mohan
Meera Banerji
3. A Handbook of Communication Skills in English:- Prin. R.A.Kulkarni
4. Business Communication -Building Critical Skills:- Kitty O Locker
5. Business Communication Today:- Bovee , Thill Schatzman

Practical Courses:-

10. Practical Course Paper-I based on Theory Paper-II.
11. Practical Course Paper-II based on Theory Paper-III & IV.
12. Practical Course Paper-III based o Theory Paper-V & VII.
13. Practical Course Paper-IV based on Theory Paper VIII.