PUNJAB TECHNICAL UNIVERSITY, JALANDHAR

COURSE CURRICULUM

FOR

BACHELORS IN ANIMATION & MULTIMEDIA TECHNOLOGY

(BAMT)

FIRST SEMESTER

Sr. No.	Paper	Paper Code	L	T	P	Marks		Maximum Marks	Examination hours
						Int.	Ext.		
1	Basic Computer Skills	AMT-101	2	1	0	40	60	100	03
2	Principles of Animation	AMT-102	2	1	0	40	60	100	03
3	Design and Communication Process	AMT-103	2	0	0	40	60	100	03
4	Basic Computer Skills Lab	AMT-104	1	0	4	60	40	100	--
5	Principles of Animation Lab	AMT-105	1	0	4	60	40	100	--
6	Design and Communication Process Lab	AMT-106	1	0	4	60	40	100	--
7	Experimental Animation Lab	AMT-107	1	0	4	60	40	100	--
8	Basic Art Lab	AMT-108	0	0	4	60	40	100	--
	TOTAL		10	2	20	420	380	800	

SEMESTER – I

Internal: 40 Marks
External: 60 Marks

AMT-101   Basic Computer Skills   **L-3   T-2   P- 0**

OBJECTIVE -   The main objective of the subject is to impart the   knowledge about the basic computing concepts and ability to use common software applications .

1) **Introduction of Computers   (10%)**
- Basic introduction of computer,
- Types of computer,
- Characteristics , Applications, components of computer.

2) **Block diagram of Computer   (30%)**
- Diagram of computer and detailed significance of each part control unit, storage unit, main memory.

3) **Basic input/output devices   (30%)**
- Study of input/output devices: keyboard, hard disk, floppy disk, CD-ROM, DVD, mouse, printers: Daisy wheel, dot-matrix, impact and non-impact printers, scanners.

4) **Software and types of software   (20%)**
- Definition of software and types of software: application software, system software.

5) **Application of Computers   (10%)**
- Defence, Industry, Management, sports, commerce , internet.
- Role of Computers in Animation Industry.

Text Book:-

1) **Computers Fundamental by Pradeep k .Sinha   , BPB Publication(India)**

References books:-

1. **Introduction to computer by Alexis Leon, Mathew Leon ,** Vikas Publishing House Pvt Ltd(India)

2. **Windows XP Simplified by Ruth Maran**
   John Wiley & Sons Publication (India)

SEMESTER – I

AMT-102   Principles of Animation   L-3   T-2   P- 0

OBJECTIVE - The main objective of this subject is to s impart strong knowledge about the fundamental principles of animation in addition to an invaluable appreciation for observational techniques & the art of planning .

1. **What is Animation:-** **(05%)**

   Its definition, early examples of Animation.

2. **History of Animation:-** **(10%)**

   Stop Motion Photo Animation,Zoetrope,Thaumatrope,Cel and Paper Animation,early Disney's

   Cel Animation Processes.

3. **Types of Animation:-** **(10%)**

   Cel Animation, Stop Motion Animation, Computer Animation, 2-D Animation, 3-D Animation.

4. **Skills for an Animation Artist:-** **(20%)**

   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.

5. **Basic Principles of Animation:-** **(30%)**

   Illusion of Life, straight action and pose to poseTiming,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, Secondry Action.

6. **Various Terms:-** **(25%)**
   Animation Drawings/Cels, Rough Drawings , Clean ups, Color reference drawings, Layout, Model Sheet, Key Drawings and in Betweens, Master Background, Concept Piece, Character drawing , Story Board.

Text book:-

1. 1.The complete animation course by Chris Patmore Pub.-Baron's Educational Series.(New York)

Reference book:-

1. Animation Unleashed by Ellen Bessen, Michael Weise Productions,2008(U.S.A)
2. The Animator's Survival Kit by Richard Williams , Arrar Straus & Giroux Pub.(U.S.A)

SEMESTER – I

AMT-103   **Design & Communication Process**   **L-3**   **T-0**   **P- 0**

OBJECTIVE : To develop intellectual awareness and curiosity to acquire the knowledge necessary to sustain effective work in visual communication design.

1) **Basic Principles of composition:-** **(40%)**
   - **Introduction**
     a) What is composition
     b) Why learn these principles
     c) Fulfilling the purpose
   - **The Subject**
     a) Selection and study
     b) Drawing steps
   - **Three Principles**
     a) Unity
     b) Balance
     c) Center of interest
   - **Achieving Emphasis**
     a) Light and shade
     b) Details
     c) contrasts

2) **Six Visual elements:-** **(20%)**
   Color , Line , Shape, Value & Tone, Texture, Volume.

3) **Balance: -** **(10%)**
   Asymmetrical balance, informal balance, radial balance.

4) **Complementary relations between art & Design:-** **(20%)**
   a) Cognitive – Instrumental
   b) Abstraction of the concrete – concretization of the abstract
   c) Artist as notator – Designer as tool maker
   d) Inductive , classificatory –deductive

5) **Pictorial principles:-**   **(10%)**
   a) Contrast
   b) Harmony
   c) Emphasis
   d) Movement
   e) Proportion
   f) Pattern
   g) Variety
   h) Rhythm
   i) Repetition

Text books:-

1) **Design and Communication: A Foundation Course By Peter Gowers ,Blackie, 1988 pub.(UK)**

Reference book:-

1) **Design for communication: conceptual graphic design basics By Elizabeth Resnick ,John Wiley & Sons pub.(India)**

SEMESTER – I

AMT-104   <u>Lab on Basic Computer Skills</u>   **L-1   T-0   P- 6**

OBJECTIVE -   The main objective of the subject is to impart practical knowledge about the basic computing concepts and ability to perform the fundamental operating system functions.

1. **Practice on MS-Word**   **(30%)**
   a) Making and formatting Documents.
   b) Inserting Pictures.
   c) Using spell check.
   d) Mail merge.
   e) Formatting Text.
   f) Using additional features.

2. **Practice on Ms-Excel:-**   **(25%)**
   a) Manipulating cells, rows and columns.
   b) Create a new blank spreadsheet.
   c) Preview and print spreadsheet.
   d) Preparing Data Sheets.

3. **Practice on Ms-Power Point**   **(30%)**
   a) Making Slides.
   b) Display the presentations in different views: slide show, normal and outline.
   c) Set up the presentations with manual delivery.

4. **Practice on internet**   **(15%)**
   a) Mailing.
   b) Attaching file in mail.
   c) Searching and printing mail.

Text Book:-

1) **Computers Fundamental by Pradeep k .Sinha , BPB Publication(India)**

References books:-

3. **Introduction to computer by Alexis Leon, Mathew Leon ,** Vikas Publishing House Pvt Ltd(India)
4. **<u>Windows XP Simplified by Ruth Maran</u>**
   John Wiley & Sons Publication (India)

SEMESTER – I

AMT-105 **Principles of Animation Lab** **L-3 T-2 P- 0**

OBJECTIVE - **By studying this subject the students will discover the fundamental principles of animation & to exploit these fundamental principles to create convincing character motion.**

1. **Using Animator's Drawing Tools**:- **(05%)**

   - The Animation Table(light box), Field charts, Line Testing Camera, Peg bar, Punching Machine.
2. **Rapid Sketching and Drawing**:- **(25%)**
   - Drawing for Animation, Exercises and Warm ups on Pegging Sheet,
   - Quick studies from real life, sequential movement drawing,
   - caricaturing the action, thumbnails drawing for motion,
   - The body language, Redefining Drawings.
3. **Developing a Animation Character:-** **(30%)**

   - Incorporating various moods and shades of a character
   - various gestures and facial expressions of the character
4. **Anatomy and Body Language :-** **(40%)**
   - front, side and back view of the character,
   - Anatomy and Body Language of the character,
   - Caricaturing the character.

Text book:-

1. **1.The complete animation course by Chris Patmore Pub.-Baron's Educational Series(New York)**

Reference book:-

1. **Animation Unleashed by Ellen Bessen , Michael Weise Productions Pub.2008(U.S.A)**
2. **The Animator's Survival Kit by Richard Williams , Arrar Straus & Giroux Pub.(U.S.A)**

SEMESTER – I

AMT-106   **Lab on Design & Communication Process**   **L-1   T-0   P- 6**

OBJECTIVE : To acquire and apply skills relevant to visual communication practice through project based learning in individual and teamwork situations.

1. **Compositing a 2-D Design:- (10%)**

    Using Different Geometrical shapes

2. **Color Combination:-   (10%)**

- Making Color Wheel

- Making composition with Colors .

3. **Floral Designs:-   (10%)**

    Different patterns of design , making special occasion designs.

4. **Rule of third:-   (05%)**

    clicking frames using golden rule or rule of thirds.

5. **Package designing:-   (15%)**

- Designing packages for different objects/instruments (hand bags , pen, eatables, mobile phones)

6. **Introduction to Adobe Photoshop :-   (25%)**

    Graphics in Design and Communications.

    Tools :cutting tools , mixing pictures, making composition with pictures , making small compositions .

7. **Introduction to Corel Draw :-   (25%)**

    Tools :cutting tools , mixing pictures, making composition with pictures , making small compositions

Text books:-

1) **Design and Communication: A Foundation Course By Peter Gowers, Blackie, 1988 Pub.(UK)**

Reference book:-

1) **Design for communication: conceptual graphic design basics By Elizabeth Resnick ,John Wiley & Sons Pub(India).**

SEMESTER – I

AMT-107　　　　Experimental Animation Lab　　**L-1**　**T-0**　**P- 8**

OBJECTIVE :- **The objective of the subject is to create vibrant and enthusiastic environment wherein students are guided through a multitude of experimental animation techniques to develop more diverse animation skills.**

1. **Flip Books :-**　　　**(10%)**

   Capture a series of images using your camera's continuous mode**.** Design your Flipbook **,** Printing the

   flipbook ,Lay out the Flipbook pages, Arrange the pictures, Holding the end of the stack**.**

2. **Clay Animation:-**　　**(30%)**

   Designing Characters with Wax and Oil Based Clay

3. **Stop Motion Animation** :-　**(30%)**

   using characters in stop motion animation.

4. **Set Designing:-**　　**(10%)**

   Experimental Work with different mediums like sand,stones,grass, hard board, pen and Ink , water colors,

   poster colours,dry brush etc.

5. **Cut Out Animation**:　**(10%)**

   Making Cut Outs and capturing the images.

6. **Role of Puppets in Animation:-** **(10%)**

Text book:-

1.　　1.The complete animation course by Chris Patmore Pub.-Baron's Educational Series.(New York)

Reference:-

 1. The Encyclopedia of Animation Techniques, Richard Taylor, 1996 (India)

2. Experimental Animation : An Illustrated Anthology by Robert Russet and Cecile Starr Pub.- Van Nostrand Reinhold Compa Pub.1976 (U.S.A)

SEMESTER – I

AMT-108   **Lab on Basic Art**   **L-1   T-0   P- 6**

OBJECTIVE -   The main objective of the subject is to impart the knowledge about the basic elements of the Art , Drawing including line,volume,space, texture and colour .

1.**Visual and creative development of an Artist**-**(05%)** Demonstration and lectures on required skills for an artist, difference between seeing and observing **.**

2.**Drawing and Skecthing:-   (10%)**

Concept of drawing, free hand drawing exercises from object and nature to study proportion, volume and visual perspective, rapid sketching techniques, rapid sketching from live models, sketching from memory, live action.

3. **Various Mediums :-   (05%)**

Pencil Colours, Charcoal, Pen and Ink, Water Colours, Poster Colours, Oil Pastel Colours, other waste material such as sand,stones,grass,hardboard,colour papers & clay etc**.**

4.**Still Life:-   (30%)**

Study from any kind of form(basket, artificial fruits books, containers, bottles, round objects, drapery etc), still life with line as well light and shade. Rhythmic relationship between line, mass, value and texture; emphasis on variety of visual experiences**.**

4. **Anatomy Study**:-   **(20%)**

Simple free-hand drawing from human figure to study proportion. Centre of gravity, inclination of main masses based on anatomical structure.

5.**Memory Drawing and Outdoor Sketching:-   (30%)**

Exercises in drawing from memory to develop the sense of observation and the capacity to retain and recall images and their co-ordination Introduction to various aspects and techniques of drawing and sketching both indoor and outdoors**.**

Text book:-

 1.   **Basic Drawing Techniques by** *Richard Box* **Pub***:* **Winsor & Newton, (U.S.A)**

Reference books:-

 1. Still Life by Sanjay Shelar, Jyotsana Prakashan(India).Pub.

2.Drawing and Anatomy by Victor Perard , Kingsport Press Pub(U.K).

Bachelor of Animation & Multimedia Technology (BAMT)
Scheme of Courses
Second Semester

Sr. No.	Paper	Paper Code	L	T	P	Marks		Maximum Marks	Examination Hours
						Int.	Ext.		
1	Communication Skills	AMT-201	3	1	0	40	60	100	03
2	Color Theory & Image Graphics Lab	AMT-202	1	0	4	60	40	100	……
3	2-D Animation Lab	AMT-203	1	0	4	60	40	100	……
4	3-D Animation Lab	AMT-204	1	0	4	60	40	100	……
5	Cell Animation -1 Lab	AMT-205	1	0	6	60	40	100	……
6	Computer Programming Lab	AMT-206	1	0	3	40	60	100	……
	TOTAL		8	1	21	320	280	600	

NOTE: After the 2nd Semester the students will undergo 4 weeks compulsory (in-house)Training.

SEMESTER – 2

AMT-201   **Communication Skills**   **L-3   T-1   P- 0**

OBJECTIVE -   The objective of this subject is to stimulate intellectual exercise and to develop communication skills (Written as well as Oral) and to improve student's communication skills both in social and professional contexts.

1) Introduction (10%)

    A)What is Communication?

    B)Component of communication .

    C)Barrier in communication.

2) Kinds of communication (10%)

    A) Communication at Work Place (Office)

    B) Importance and benefits of effective communication

    C) Components / Process of communication

3) Better Public Speaking & Presentation (10%)

    A) The 7 C's of Effective communication

4) Various Skills (20%)

    A) Writing Skills

    B) Reading Skills

    C) Speaking Skills

    D) Listening Skills

    E) Planning and Writing Documents

5) Written Communication (30%)

A) Business letters

B) Report writing. Kinds of Reports(Long & Short Reports)

C) Process of preparing effective business messages

D) Resume and Cover Letter to Resume

E) Grammar. Style. Punctuation

6) Oral Communication (20%)

A)Oral Speaking at Public Places

B) Strategies for Improving Oral Presentation

C) Job Application Process

D) Job Interviews

E) Practice in Actual Communication

Text book:-

1.Communication skills by Leena Sen Pub.- Prentice Hall of India

Reference book:-

2.The 7 Powers of Question:secrets to successful communication in life and at work by Dorothy leeds , Pub. Perigee Trade(New York)

SEMESTER – 2

AMT-202   <u>**Color Theory & Image Graphics Lab**</u>   **L-0   T-0   P-6**

<u>**OBJECTIVE**</u> -   This course aims to provide the practical knowledge about color relationships, composition, and color mixture. Students will study the effects of color on the development of design as well as the psychology of color and its power to deliver effective marketing messages.

1.Color Palettes(20%):

A) Mixing of primary, secondary and tertiary colors, tints, tones and shades
B) Color Wheel

2. Color Schemes(20%):

A) Complementary, split complementary, analogous, warm and cool
B) Working in series.
C) Paintings of the same scene.

3. Color in Practice(20%):

A) Color in advertising and graphic design
B) Colors used in Logos, Print Ads,Layous

4. Application of Color in Print Media(10%):

A) RGB COLORS and CMYK COLORS

A.   Hue
B.   Value
C.   Intensity / Chroma / Saturation
D.   Spectrum

5) Image Designing(30%):

A) Expression of Graphic Designing Skills through different suitable Software for producing Digital Design.

B) Manipulating Images by using Contrast,Brightness,Hue , Saturation,Channel mixer etc.

Text book:-

1.Color Theory(Watson-Guptil's Artist library) by Jose Parammon Pub.-Watson Guptil.(USA)

Reference book:-

2.Type and Image: The Language of Graphic Design by Philip B. Meggs(U.S.A)

SEMESTER – 2

AMT-203   **2-D Animation Lab**   **L-0   T-0   P- 6**

OBJECTIVE -   The main objective of the subject is to impart the practical knowledge about the Digital 2D-Animation and softwares like Macromedia Flash etc.

1. **Introduction(10%)**
   a)Logging onto server
   b)Basic Macintosh skills
   c)Working in Flash
   d)Drawing with Flash
2. **Basic Animation(10%)**
   a)Working in the timeline

   b) How to animate, frame by frame, or using tweens

3. **Working with symbols(10%)**
   a)Shape tween
   b)Staggering animation effect
4. **Animation Review(10%)**
   a)Break apart and distribute
   b)Intro to Motion Guide
5. **Motion Guide Paths(20%)**
   a)Mask layers
   b)Button Intro
   c)Intro to Scripting
6. **Setting up scenes for first project(20%)**
   a)Buttons and action scripting for project.

   b) How to effectively plan an animation project.

7. **Anticipation - Secondary Motion(20%)**
   a)   Walk Cycle
   b)   Run Cycle
   c)   Managing Layers

Text book:-

1.Foundation Flash Cartoon AnimationTim Jones Pub.-Friends of ED.(USA)

Reference book -

2.How to cheat in Adobe Flash CS4: The art of Design and Animation by Chris Georgenes,Focal press,PAP/Cdr edition(U.S.A)

SEMESTER – 2

AMT-204   <u>**Introduction to 3-D Lab**</u>   **L-0   T-0   P-6**

OBJECTIVE - The main objective of this subject is to study the importance of 3-Dimensional images in

Creation of Animation movies and its various aspects.

1. ## Introduction to 3D- Animation Process (10%)
   a) Understanding 3D-Images
   b) Process of 3D-Animation
   c) Uses in Animation

2. ## Introduction to Autodesk 3DS-MAX (25%)

   a) Interface of Autodesk 3DS-MAX.
   b) Understanding material editor & Render Globals
   c) Unwrapping polygon objects
   d) Working with edit poly & Edit Mesh
   e) Animation options – Timeline & Timeslider.
   f) Introduction to lights and shaders.
   g) Applications of materials on objects.

3. ## Introduction to Autodesk Maya (25%)

   a) Interface of Autodesk Maya
   b) Basic tools of Modeling
   c) Basic of UV Texture Editor
   d) Working With Outliner & Hypershade Window
   e) Basic Skills of Lighting
   f) Creating Props with Basic Shapes
   g) Understanding Polygon, NURBS, Subdiv. Modeling

4. Exercises of Autodesk 3DS-MAX & MAYA (40%)

   a) Creating wall by using box parameters
   b) Creating some architectural features like arcs & front elevation by cloning
   c) Modeling a interior using by default geometrical 3d objects
   d) Creating and editing material by using all concepts of mapping
   e) Making light basic light rigs for interior and exterior lighting
   f) Making basic shaders like wood, metal, plastic etc.

Text book:-

1.3D Graphics & Animation by Mark Giambruno New Riders Publishing USA.

Reference book:-

2.3DS Max Bible by Kelly L. Murdock *Publisher:* **Wiley U.K.**

SEMESTER – 2

AMT-205   **Cel Animation-1 Lab**   **L-0   T-0   P- 6**

OBJECTIVE -   The main objective of the subject is to impart the practical knowledge about the Classical/Cel Animation processes and techniques such Storyboarding, composing Layouts, Backgrounds and various principles of 2D- Animation.

1. **Using Cel Animation Equipment (05%)**

    a) Light Box, Peg Bar, Punching Sheets, Fixing sheets etc.
    b) Line Testing Camera.
    c) Various drawing pencils, sketch pens/inks etc.

2. **Cleaning –Up Exercises (05%)**

    a) Drawing/sketching of Animation Drawings from live actions.
    b) Cleaning –Up the Animation Drawings .
    c) Inking/colouring of Clean-Up Drawings.

3. **Making a Story Board , layout, Model Sheet and Master Background (30%)**

    a) What is Story Board.
    b) Use and Importance of Story Board in Film Making.
    c) Making Story Boards for Small Animation Sequences .
    d) Composing a Layout / Frame .
    e) Creating a Model Sheet and Master Backround.

4. **Principle of Stretch and Squash (30%)**

    a) Drawing Key Frames and Inbetweens for Stretch and Squash Action.
    b) Principle of Timing to be kept in mind.

5. Principle of Exaggeration (30%)

   a) Drawing Key Frames and Inbetweens for Exaggeration action of an Animated Character.
   b) Principle of Timing to be kept in mind.

Text book:-

1. 1.The complete animation course by Chris Patmore Pub.-Baron's Educational Series.(New York)

Reference book:-

1. Animation Unleashed by Ellen Bessen, Michael Weise Productions,2008(U.S.A)
2. The Animator's Survival Kit by Richard Williams , Arrar Straus & Giroux Pub.(U.S.A)
3. Animation : The Whole Story by Howard Beckerman, Allworth Press; Revised edition (September 1, 2003)(New York).

Internal: 40 Marks

External: 60 Marks

AMT -206   <u>COMPUTER PROGRAMMING</u>   L-3   T-1   P-0

- **Programming Paradigms and Programming Languages:** Background of Programming Languages, Programming Tools, Program Structure ,Syntax and Semantics . (10%)

- **Data Representation:** Number Systems, Conversion of number from one number system to another, data types(Life and Scope). (15%)

- **Control Statements:** Decision making statements(all varients of if and Switch),Conditional Control Statements(break,continue,goto) and Loop Statement(for,while,do-while). (20%)

- **Logic Building and Algorithms:** Need of Problem Solving by various Program design tools like Flowchart ,Algorithms and Pseudocodes. (5%)

- **Internet Operation:** www,Internet,Interanet, Domain Name System(DNS), URL, Client-Server Architecture,Protocols.(15%)

- **Data Structure**: Introduction to various Data Structures used in various Programming Languages like Arrays,Stack,Queues,Linked Lists. (20%)

- **Overview of Networking:** Various types of Network Topoligies,LAN,MAN,WAN,Broadcasting/Multicasting,IP Addresses.(15%)

Text Books:

1. R.S. Salaria "Computer Concepts and Programming in C",Salaria Publishing House,Jalandhar/New Delhi.

2.Seymour Lipschuts,"Data structures",Tata McGraw-Hill Publishing Company Limited,Delhi.

3. Behrouz A. Frouzan,"Data Communication and Networking",Tata McGraw-Hill Publishing Company Limited ,Delhi.

Refrence Books:

1. Sumita Arora,"Fundamentals of Computer programming",Dhanpat Rai Publications.

2. P.K. sinha,"Computer Fundamentals",BPB publications,Delhi.