A.D.M.COLLEGE FOR WOMEN (AUTONOMOUS),

NAGAPATTINAM -611001

(NATIONALLY ACCREDITED WITH "A" GRADE BY NAAC – 3rd CYCLE)

Bachelor of Vocational Degree Programme (B.Voc)

SOFTWARE DEVLOPMENT IN MULTIMEDIA AND ANIMATION

(for the candidates admitted from the academic year 2019 - 2020 onwards)

SYLLABUS

PROGRAMME SPECIFIC OUTCOMES:

PSO1	The programme is a suitable option for students to develop higher levels of creativity, when it comes to image editing, video editing, animation, advanced modelling, and a lot more
PSO2	With the increasing variety and range of hardware and software used for Multimedia and Web-Site Design, the demand for the manpower in these fields has escalated. This training program has been envisaged with an objective to develop specialized manpower required for these activities.
PSO3	Student will develop multimedia skills understanding the principal players of individual players in multimedia teams in developing projects.
PSO4	Students will understand the hardware and software needed to create projects using creativity and organization to create them.
PSO5	Students will learn copyright laws associated with multimedia.
PSO6	To learn all aspects of film production from the perspective of a film producer and also the film director, To provide knowledge of all legal aspects of film production, to impart knowledge on budgeting, to help understand all business models for cinema and television for distribution and revenue generation.

A.D.M. COLLEGE FOR WOMEN, NAGAPATTINAM

Re - Accredited with "A" grade by NAAC (3rd cycle)

B.Voc Degree Programme

CHOICE BASED CREDIT SYSTEM SUBJECTS OF STUDY

AND SCHEME OF EXAMINATION FOR I – VI SEMESTERS - 2019-2020

Course Title-Software Development in Multimedia and Animation

Year I- Semester I				Marks		
	Title	**Hrs/Week**	**Credits**	**CIA**	**SE**	**Total Marks**
1	**Part-I:** Tamil - I	3	3	25	75	100
2	**Part-II:** English-I	3	3	25	75	100
3	**Core 1** – Basic Computer Skills	6	6	25	75	100
4	**Core 2** – Web Designing for Graphic Designer	6	6	25	75	100
5	**Core lab - 1** – Web Designing for Graphic Designer Lab	6	6	40	60	100
6	**Allied I** – E-Commerce	4	4	25	75	100
7	Value Education	2	2	25	75	100
		30	**30**			**700**
Year I- Semester II						
8	**Part-I:** Tamil – II	3	3	25	75	100
9	**Part-II:** English-II	3	3	25	75	100
10	**Core 3** – Web Development using Multimedia and Database	6	6	25	75	100
11	**Core 4** -Principles of Animation	6	6	25	75	100
12	**Core lab – 2** Web Development Lab	6	6	40	60	100
13	**Allied II** – Digital Electronics	4	4	25	75	100
14	Environmental Studies	2	2	25	100	100
		30	**30**			**700**
Year II - Semester III						
15	**Part-I:** Tamil	3	3	25	75	100
16	**Part-II:** English	3	3	25	75	100
17	**Core 5 -** Java Programming	4	4	25	75	100
18	**Core lab – 3** Java Programming	4	4	40	60	100
19	**Core 6 -** Production Process of 2D Animation	5	5	25	75	100
20	**Core Lab 4:** Animation and Interactivity Lab	5	5	40	60	100
21	**Allied III** – Educational Technology and Communication	4	4	25	75	100
22	Non-major Elective I	2	40	100	22	Non-major Elective I

Year II - Semester IV						
23	**Part-I:** Tamil – II	3	3	25	75	100
24	**Part-II:** English-II	3	3	25	75	100
25	**Core 7** – 3D Modeling and Animation	6	6	25	75	100
26	**Core lab 5** – Multimedia Audio & Video Technology Lab I	6	6	25	75	100
27	**Core lab 6** – Multimedia Audio & Video Technology Lab II	4	4	40	60	100
28	Non-major Elective II	2	2	40	60	100
29	Internship	6	4			100
	***Open source Learning – Spoken Tutorial		NC			
		30	**30**			**700**
Year III Semester V						
30	**Core 8** – Modeling & Texturing using MAYA	4	4	25	75	100
31	**Core 9** – Lighting & Rendering using MAYA	6	6	25	75	100
32	**Core 10**– Rigging & Animation using MAYA	6	6	25	75	100
33	**Core lab - 7** Animation lab using MAYA – I	6	6	40	60	100
34	**Core lab – 8** Animation lab using MAYA – II	4	4	25	75	100
35	**Core lab – 9** Animation lab using MAYA - III	4	4	25	75	100
	***Open source Learning – Spoken Tutorial		NC			
		30	**30**			**700**
Year III- Semester VI						
36	**Core 11**- 3D Games Scripting &Virtools	6	6	25	75	100
37	**Core 12**– Digital Composting	6	6	25	75	100
38	**Core lab 10** – Virtool lab	6	6	40	60	100
39	**Core lab 11**– Digital Compositing lab	6	6	25	75	100
40	Project Work and Viva Voce	6	6	40	60	100
	Total Credits	**30**	**30**			**500**
	Grand Total Credits for Three Years	**180**	**180**			**3800**

CORE 1 - BASIC COMPUTER SKILLS

Internal : 25	**Semester : I**
External : 75	**No. of Hours/Week : 6**
Exam Hrs : 3	**Credit : 6**

Course Objective:

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

UNIT I

Introduction of Computer: Basic introduction of computer, Classification of Computer, Characteristics, Components of Computer.

UNIT II

Computer Architecture: Introduction, First Electronic Computers, Low-Level Languages, High-Level Languages. **Memory Units**: RAM ROM, PROM, EPROM, EEPROM and Flash Memory. **Auxiliary Storage Devices**: Magnetic Tape, Hard Disk, Floppy Disk, Zip Disk, Jaz Disk, Super Disk, Optical Disk, CD-ROM,CD-R Drive, CD-RW Disk. Basic Input/Output Devices.

UNIT III

Introduction to Computer Software: Introduction-Compilers & Interpreters-DBMS. Operating System: Functions of an Operating System-Classification of Operating Systems-**Programming Languages**: Machine Languages-Assembly Languages-High-Level Languages-Compilers and Interpreters.

UNIT IV

Applications: Geographical Information System: Components of GIS-How GIS works. Computer in Business, Industry, Home, Education and Training.

UNIT V

Microsoft Word: Introduction - Word Environment - Opening and Creating a New Document - Saving Documents - Proofing Features - Printing a Document - Formatting Text - Working with Shapes and Lists - Line and Paragraph Spacing- Working with Tables - Working with Pictures- Working with Headers and Footers - Using Mail Merge. **Microsoft Excel:** Introduction - Basic data entry, fill handle - Insert columns – Arithmetic Calculations & Formulas - Excel Formulas- Calculate with Functions - Function Library - Graphs and Charts - Printing the Document. **Microsoft Powerpoint:** Starting PowerPoint - Working with Slides – Applying Theme - Animation- Transitions – Views.

Text Book :

Alexis Leon-Mathews Leon, Fundamentals of Information Technology, Leon Tech World.

Reference Books:

1. Henry C.Lucas, Jr. Information Technology for Management-McGraw Hill(Part-III)
2. Williams, Sawyer, Hutchinsion, Using Information Technology-Mc Graw Hill.
3. Alexis Leon and Mathew Leon, "Introduction to computers with Ms Office 2000", Tata McGraw Hill Publishing Co. Ltd., New Delhi, 2005.

Course Outcome:

- Demonstrate a basic understanding of computer hardware and software.
- Demonstrate problem-solving skills.
- Apply logical skills to programming in a variety of languages.
- Utilize web technologies.
- Present conclusions effectively, orally, and in writing.

CORE 2 - WEB DESIGNING FOR GRAPHIC DESIGNER

Internal : 25	**Semester : I**
External : 75	**No. of Hours/Week : 6**
Exam Hrs : 3	**Credit : 6**

Course Objective:

The main objective of the subject is to impart the knowledge about principles of creating an effective web page, including an in-depth consideration of information architecture.

UNIT I

Introduction to Internet and World Wide Web: Evolution and History of World Wide Web; Basic features; Web Browsers; Web Servers; Hypertext Transfer Protocol, Search Engines and Search Tools; Web Publishing: Hosting your Site; Internet Service Provider; Domain Names.

UNIT II

Web Development: Introduction to HTML; Hypertext and HTML; HTML Document Features; HTML command Tags; Creating Links; Headers; Text styles; Text colors and Background; Formatting text; Page layouts; Images; Ordered list, Unordered lists and Nested List; Table Creation; Frame Creation; Working with Forms.

UNIT III

Introduction to HTML 5.0 DHTML and Style Sheets: Defining styles, Elements of styles, linking a style sheet to an HTML Documents, In-Line Styles, External style sheets, Internal style sheets, Multiple Styles. Cascading style sheets.

UNIT IV

Introduction: What Is Photoshop? Image-Editing Theory ,Inside Photoshop ,A First Look at Photoshop 6,The Photoshop Desktop, Navigating in Photoshop, Customizing the Interface,. Image Fundamentals: How Images Work, The Resolution of Screen Images, How to Open, Duplicate, and Save Images, File Format Roundup, Resampling and Cropping.

UNIT V

Painting: Defining Colors- Retouching- Selections, Masks, and Filters- Layers, Objects, and Text Working with Layers, Working with Layers.

Text Book:

1. C.Xavier, "World Wide Web design with HTML", Tata McGraw-Hill, New Delhi.
2. Raj Kamal, "Internet and Web Technologies", Tata McGraw-Hill.
3. Ramesh Bangia, "Multimedia and Web Technology", Firewall Media.
4. Deke McClelland, "Photoshop 6 for Windows Bible" , IDG Books Worldwide, Inc.

Course Outcome:

- Learn the language of the web: HTML and CSS.
- Learn techniques of responsive web design, including media queries.
- Learn CSS grid layout and flexbox.
- Develop skills in digital imaging (Adobe Photoshop.)

- Be able to embed social media content into web pages.

CORE LAB 1 – WEB DESIGNING FOR GRAPHIC DESIGNER LAB

Internal : 25	**Semester : I**
External : 75	**No. of Hours/Week : 6**
Exam Hrs : 3	**Credit : 6**

Course Objective:

The main objective of the subject is to give a strong overview in the basics of design and digital production for internet-based media technologies.

HTML – Version 5

1. Basic HTML tags and designing a sample page
2. Text formatting, List and handling Links
3. Basic Tables and Forms

CSS – Version 3

1. Working with Text and Drop Shadows
2. Linear Gradient and Radial Gradient
3. Transitions and 2D Animations

Adobe Photoshop

1. Illustrate the use of Blur tool using an Image.
2. Create a new layer and load an image on to it. Add a text object using Horizontal type mask tool and vertical mask tool.
3. Illustrate the use of Crop tool using an image.

Course Outcome:

- Demonstrate the ability to utilize digital typography and layout in order to convey meaning in a networked environment.
- Demonstrate a working knowledge of grid systems in web design.
- Demonstrate a mastery of technical skills such as generating code in HTML and CSS as well as using a WYSIWYG editor.
- Communicate using the language of design in response to formal design-related critiques.

ALLIED I - E-COMMERCE

Internal : 25 | **Semester : I**
External : 75 | **No. of Hours/Week : 4**
Exam Hrs : 3 | **Credit : 4**

Course Objective:

This course is aimed at providing the student with an in-depth understanding of the still emerging field of E-Commerce.

UNIT I

History of E-commerce: E-Commerce –Emergence of the Internet –Advantages of E-Commerce –Transition to ECommerce in India – The Internet and India – E-transition Challenges for Indian Corporates. **Business Models for E-commerce:**E-business Models Based on the Relationship of Transaction Parties - E-business Models Based on the Relationship of Transaction Types.

UNIT II

Enabling Technologies of the WWW: Internet Client-Server Applications– Networks and Internets –Software Agents –Internet Standards and Specifications –ISP. e-Marketing : Traditional Marketing – Identifying Web Presence Goals – Online Marketing – E-advertising – E-branding.

UNIT III

E-Security: Information system Security – Security on the Internet – E-business Risk Management Issues – Information Security Environment in India. **Legal and Ethical Issues :** Cyber stalking – Privacy is at Risk in the Internet Age – Publishing – Application Fraud – Skimming – Copyright – Internet Gambling – Threats to Children.

UNIT IV

E-Payment Systems: Main Concerns in Internet Banking – Digital Payment Requirements – Digital Token-based e-payment Systems – Classification of New Payment Systems – Properties of Electronic Cash – Cheque Payment Systems on the Internet – Risk and ePayment Systems – Designing e-payment Systems – Digital Signature – Online Financial Services in India - Online Stock Trading.

UNIT V

Information systems for Mobile Commerce: What is Mobile Commerce? – Wireless Applications – Cellular Network – Wireless Spectrum – Technologies for Mobile Commerce – Wireless Technologies – Different Generations in Wireless Communication – Security Issues Pertaining to Cellular Technology. **Portals for E-Business:** Portals – Human Resource Management – Various HRIS Modules.

Text Book

E-Commerce - An Indian Perspective, P.T.Joseph, S.J., Fourth Edition, PHI 2012.

Course Outcome:

- Understanding of the E-Commerce landscape, current and emerging business models, and the technology.
- Leverage the E-Commerce platforms to enhance current business or incubate new businesses.
- Gain an understanding on how innovative use of the E-Commerce can help developing competitive advantage.
- Develop an understanding on how internet can help business grow

CORE 3 - WEB DEVELOPMENT USING MULTIMEDIA AND DATABASE

Internal : 25	**Semester : II**
External : 75	**No. of Hours/Week : 6**
Exam Hrs : 3	**Credit : 6**

Course Objective:

Develops skills to create server-side scripts using PHP. Introduces server-side programming concepts and terminology.

UNIT I

Introduction to Dreamweaver-Tutorial-Dreamweaver basics- Building Dynamics sites-Working with Page Code – Designing Page Layout – Content Adding – Behaviour and Animations – Making Multiple pages – Making Dynamic pages- Rapid Application Development

UNIT II

Introduction to macromedia flash - Getting started overview - System requirements for Flash authoring - System requirements for the Flash Player - Installing Flash - What's new in Flash MX - Guide to instructional media - File - Edit - View - Insert - Modify - Text - Controls - Window - Align - Transform - Color Mixer - Color Swatches - Components - Properties Layers - timeline - Tools - Scene - Size – Frame rate – Background – Help

UNIT III

Introduction - What's New in SwiSHmax - Getting Started - Sample SWiSH Movies - Fundamentals –Movies Templates - Scenes - Timeline and Frames - Objects - Effects - Place Effects - Move - Basic -Effects - Fade In - Fade Out - Zoom In - Zoom Out - Slide In - Slide Out - Blur - Repeat Frames - Authored Effects - Core Effects - Transform - Alternate - Typewriter - Common Effect Settings - Camera - Cascade - Motion - Effects Authoring - Tools - Events - Actions - File - Edit - View – Insert - Modify - Control - Tools - Panels - Toolbars - Tools - Panels - Color Selector - Help

UNIT IV

PHP – Evaluation of Php - Basic Syntax - Defining variable and constant - Php Data type - Operator and Expression – Handling HTML with PHP -Capturing Form Data - Dealing with Multi-value filed - Generating File uploaded form - Redirecting a form after submission - Making Decisions - looping - looping with HTML - Basics of computer Graphics - Creating Image - Manipulating Image - Using text in Image

UNIT V

MYSQL- Introduction to RDBMS - Connection with MySql Database - Performing basic database operation(DML) (Insert, Delete, Update, Select) - Setting query parameter - Executing query – Displaying Queries in tables- Building forms from Queries

Text Books:

1. David Sawyer McFarland, “Dreamweaver CS3: The Missing Manual”, O'Reilly Media,2007
2. James English, “Macromedia Flash 8: Training from the Source”, Macromedia Press,2011
3. Donna L. Baker and Donna Baker,“Official SWiSHmax Bible”, Wiley, 2004
4. PHP 5 and MySQL Bible Wiley Dream teck India Pvt.ltd, 2006

Course Outcome:

- Write PHP code to produce outcomes and solve problems.
- Display and insert data using PHP and MySQL.
- Test, debug, and deploy web pages containing PHP and MySQL.

CORE 4 – PRINCIPLES OF ANIMATION

Internal : 25	**Semester : II**
External : 75	**No. of Hours/Week : 6**
Exam Hrs : 3	**Credit : 6**

Course Objective:

The main objective of this subject is to familiarize the students with various techniques of animation and make them squinted with the principles of animation which they have to follow during their course.

UNIT I

Basic principles in animation, Timing, Squash and Stretch, Anticipation, Straight ahead and pose to pose. Follow through and overlapping action. Slow in and slow out, Arcs, Secondary action.,

UNIT II

Exaggeration, Solid drawing, Staging, Appeal, Mass and weight, Character acting, Volume. Line of action, Path of action,

UNIT III

Key framing and in-betweening, cleanups. Straight forward and frame by frame animation, Walk cycles of animal and human, Cutout animation technique, Introduction to the equipment, the animators drawing tools, The animation table, Line testers, The Exposure sheet(X sheet)"

UNIT IV

Caricaturing the Action, Motion studies, drawing for motion. The body language, Re-defining the drawings. Acting for animation facial expressions Communication by body language and gesture. Communication by voice.

UNIT V

Clay animation, Flip Books. Stop motion techniques. White board stop animation, Cut out paper animation, Animation set designing (Table top).Clay-character modeling, Table top Model lighting, Clay Animation, Technique of working in team.

Text Books:

1.Survival kit for animators -Sir Willium Richards
2. The Animator's Workbook: Step-By-Step Techniques of Drawn Animation by Tony White.
3.Stop Motion: Craft Skills for Model Animation by Susannah Shaw (Focal Press)
4.The ADVANCED Art of Stop-Motion Animation by Ken A. Priebe (Course Technology)
5.From pencil to pixel by Tony White
6.Animation process by Persten Blair.

Course Outcome:

- Students will get a brief about basic principles in animation.
- Students will understand the application of basic principles in animation.
- Students will understand the various processes and technologies used in creation of Animations.
- Students will understand the various drawing techniques used in classical animation.

CORE LAB 2 – WEB DEVELOPMENT LAB

Internal : 40	**Semester : II**
External : 60	**No. of Hours/Week : 6**
Exam Hrs : 3	**Credit : 6**

Course Objective:

Understand the concept of design and implementation of HTML CSS to design a particular design of their creativity

Adobe Dreamweaver – Creative Cloud

1. Understanding Dreamweaver Interface
2. Using the Workspace
3. Toolbox and Exporting options

Adobe Flash – Creative Cloud

1. Understanding the tool sets of Flash
2. Motion Tweening and Shape Tweening

Saving and Exporting options.

PHP

1. Getting started with PHP – Global, Conditional and Looping Statements
2. String manipulation and working with array and functions
3. Interlinking the DB actions to the form (add, del, edit).
4. PHP Cookies, Session management and file handling.

MySQL

1. Basics of SQL, DDL and DML
2. PHP and MySQL integrations – Searching the table
3. Interlinking the DB actions to the form (add, del, edit).
4. Usage of Join Operations

Course Outcome:

- Highlighting the theories and principles underlying website design
- Understanding on the latest trends used in the design industry.
- Demonstrate the knowledge and ability to apply the design principles, techniques and technologies to the development of creative websites.

ALLIED COURSE-II - DIGITAL ELECTRONICS

Internal : 25 | **Semester : II**
External : 75 | **No. of Hours/Week : 4**
Exam Hrs : 3 | **Credit : 4**

Course Objective:

To understand number representation and conversion between different representation in digital electronic circuits.

UNIT I

Number System and Codes: Binary, Octal and Hexadecimal number systems. Binary Codes: Binary Coded Decimal, Excess 3 Codes, Gray Code, Error Detection and Correction, Alphanumeric Codes. Logic Gates: AND, OR,NOT, Universal Gates, XOR, EXNOR gates.

UNIT II

Boolean Algebra: Logical Operations: AND, OR, NOT, XOR and EXNOR logical operations. Axioms and Laws of Boolean Algebra & Theorems.

UNIT III

Combinational Circuits: Half Adder, Full Adder, Half Subtractor , Full Subtractor, Encoder, Decoder, Multiplexer.

UNIT IV

Logic Families: Digital IC Specification Terminalogy-Transistor Transistor Logic(TTL)-Emitter Coupled Logic (ECL)-Metal Oxide Semiconductor Logic(MOS)-Complementary Metal Oxide Semiconductor Logic(CMOS).Interfacing.

UNIT V

Flip Flops: Memory Elements: D Flip Flop-T Flip Flop-SR Flip Flop-JK Flip Flop.

Text Book:

A. Anand Kumar, Fundamentals of Digital Circuits, Prentice Hall India Limited, 3rd Edition.

Reference Book:

1. R.P. Jain, Modern Digital Electronics, Tata MCGRAW Hill.
2. Malvino and Leach, Digital Principles and Applications, MCGRAW Hill.

Course Outcome:

- Develop a digital logic and apply it to solve real life problems.
- Analyze, design and implement combinational logic circuits.
- Classify different semiconductor memories.
- Analyze, design and implement sequential logic circuits.
- Analyze digital system design using PLD.

CORE 5 - JAVA PROGRAMMING

Internal : 25 | **Semester : III**
External : 75 | **No. of Hours/Week : 4**
Exam Hrs : 3 | **Credit : 4**

Course Objective:

To inculcate knowledge on Java Programming concepts and to create wide range of Applications and Applets using Java.

UNIT I

Fundamentals of Object-Oriented Programming: Object-Oriented Paradigm – Basic Concepts of Object-Oriented Programming – Benefits of Object-Oriented Programming – Application of Object Oriented Programming. Java Evolution: History – Features – How Java differs from C and C++ – Java and Internet – Java and www –Web Browsers. Overview of Java: simple Java program – Structure – Java Tokens – Statements – Java Virtual Machine.

UNIT II

Constants, Variables, Data Types - Operators and Expressions – Decision Making and Branching: if, if ..else, nested if, switch, ?: operator - Decision Making and Looping: while, do, for – Jumps in Loops - Labeled Loops – Classes, Objects and Methods.

UNIT III

Arrays, Strings and Vectors – Interfaces: Multiple Inheritance – Packages: Putting Classes together – Multithreaded Programming.

UNIT IV

Managing Errors and Exceptions – Applet Programming – Graphics Programming.

UNIT V

Managing Input/Output Files in Java : Concepts of Streams- Stream Classes – Byte Stream classes – Character stream classes – Using streams – I/O Classes – File Class – I/O exceptions – Creation of files – Reading / Writing characters, Byte-Handling Primitive data Types – Random Access Files.

Text Book

1. Programming with java – a primer - E. Balagurusamy, 3 Rd Edition, TMH.

Reference Books

1. The complete reference java 2 - Patrick Naughton & Hebert Schildt, 3 Rd Ed,TMH
2. Programming with java – John R. Hubbard, 2 Nd Edition, TMH.
3. Java and Object-Oriented Programming Paradigm – Debasish Jana, 2005, PHI.

Course Outcome:

- To learn why Java is useful for the design of desktop and web applications.
- To learn how to implement object-oriented designs with Java.
- To identify Java language components and how they work together in applications.
- To design and program stand-alone Java applications.
- To learn how to design a graphical user interface (GUI) with Java Swing.

CORE 6 – PRODUCTION PROCESS OF 2D ANIMATION

Internal : 25 | **Semester : III**
External : 75 | **No. of Hours/Week : 5**
Exam Hrs : 3 | **Credit : 5**

Course Objective :

To guide the students about the complete process of 2D Animation production as per industry practices.

UNIT I

An introduction to 2D animation production pipe line, various phases of 2D production pipeline (pre production, production and post-production), Story writing:- Sources of story, story line, adaptation of story. Script Writing:- Role of script, why a script is needed, expanding story as script.

UNIT II

Character designing, characteristics of a character, props, kind of characters, assets of character, creating a model chart for a character, importance of model chart , background and layouts, break down a scene in to layers as per need.

UNIT III

Visual story boards, Introductions to cameras, camera angles, Kinds of shots, Camera angles, movement of the camera, vertical panning, horizontal panning, Tilts, Truck in and Truck outs, Audio for animation story, Voice Over and Back ground music, Animatic and its role.

UNIT IV

Production Process:- Techniques for 2D animations, cut-out animation, Frame by frame animation, straight forward animation, Key framing, in-between, clean ups, scanning, tracing and coloring (ink and paint), tweening animation, cut out characters and their animation, facial animation, lip sync and body movement. Scene and shot management.

UNIT V

Rendering in Adobe flash, video formats and video export, creating effects in flash, sound synchronization, compositing of shot and scenes in Adobe Premiere, adding title and credits, Final rendering and publishing on line and on CD.

Text Books:

1. Flash character animation: applied studio techniques By Lee Purcell (Sams publishing).
2. The Complete Book of Scriptwriting By-J. Michael Straszynski
3. From pencil to pixel by Tony White
4. Animation process by Persten Blair.

Course Outcome:

- Stories are the basic requirement for an Animation.
- This unit let the student to explore their writing skill. They are taught about various type of the stories, contents of the story, sources for story and structure of the story.
- Good characters are required to give proper shape to a story. This unit elaborate the designing of characters as per the need of story.

CORE LAB 3 - JAVA PROGRAMMING LAB

Internal : 25	**Semester : III**
External : 75	**No. of Hours/Week : 4**
Exam Hrs : 3	**Credit : 4**

Course Objective:

To build software development skills using java programming for real world applications and to implement frontend and backend of an application.

List of Practicals

1. Write a Java Program to find Fibonacci series
2. Write a Java Program to multiply two matrices
3. Write a Java Program to sort using bubble sort
4. Write a Java Program to find the factorial of a given number.
5. Write a Java Program to implement a stack.
6. Write a Java Program to implement complex numbers.
7. Write a Java Program to create applet.
8. Write a Java Program to create GUI.
9. Write a Java Program to use collection framework.
10. Write a Java Program to create thread.
11. Write a Java Program to synchronize methods.
12. Write a Java Program to create calendar of a given year.

Course Outcome:

- To learn why Java is useful for the design of desktop and web applications.
- To learn how to implement object-oriented designs with Java.
- To identify Java language components and how they work together in applications.
- To design and program stand-alone Java applications.

CORE LAB 4 – ANIMATION AND INTERACTIVITY LAB

Internal : 40	**Semester : III**
External : 60	**No. of Hours/Week : 5**
Exam Hrs : 3	**Credit : 5**

Course Objective:

The main objective of the subject is to identify best practices to incorporating animation in a presentation.

List of Practicals

Using drawing tools in Adobe Flash

- Line tool, Shape tool, pencil, brushes, fills, stokes, gradient.
- Symbols: - Movie Clip and graphic
- Trace the pencil drawings and reference drawing.
- Simple object animations in Flash.
- Animate text and apply filters and effects.
- Animated web banners.
- Frame by frame animations (Butter fly, Bird fly, biped walks, quadruped walks).
- Cut out animations (Character animations, lip-sync animation, walks, body movements with dialogues).
- Create a short animation of lip sync, body movement and character interaction.
- Experiments with interactivity create button symbols and explore your creativity with them.

Course Outcome:

This Lab allow students to practice all the contents they learn in classes, they practice various tools and techniques. They are given with assignments and after completing these assignments they feel confident as a skilled and creative artist.

ALLIED 3 – EDUCATIONAL TECHNOLOGY AND COMMUNICATION

Internal : 25	**Semester : III**
External : 75	**No. of Hours/Week : 4**
Exam Hrs : 3	**Credit : 4**

Course Objective:

The mission of the Take One Institute of Mass Communication is to encourage independent thinking and contribute to the society.

UNIT I Concept & Principles of Educational Technology

Educational Technology: Definition, Meaning, Scope and Relevance to Modern Education – Technology of Education & Technology in Education Foundations of Educational Technology: Psychology, Sociology, Communication and Management – Systems Approach as applied to Educational Technology

UNIT II Communication & Educational Technology

Communication: Definition, Meaning and Importance – Communication Process – Theories and Models of Communication: Shanon‟s Model, Westley and MacLean‟s Model, eagan‟s Model and Berlo‟s Model Education through Print, Radio, TV, Multimedia and Internet – Role of Audio-Visual Aids in Education: Projected & Non-projected Aids – Experiments and Projects in Utilization of Media in Education

UNIT III Mass Communication

Meaning, Principles and Process of Communication – Types of Communication: Interpersonal and Mass communication, Verbal and Non-verbal communication – Communication and Language – Communication and Culture – Creative Communication – Noise Factor and Communication – Media Society – Concept, Meaning and Characteristics of Mass communication – Types of Mass Communication Media: Traditional, Print, Electronic Media

UNIT IV Audio & Visual Communication

Sound as Mode of communication – Development and Importance – Types of Sound and Audio communication - Uses of Audio Communication Meaning, Forms, Development and Uses of Visual Communication – Visual Communication through Print, Slides, Films & Filmstrips, TV, Video and Computers – Role of Audio in Visual Communication.

UNIT V New Information Technology in Education

Concept and development of telecommunication - Types of telecommunications: Optical fiber and Satellite communication – Edusat – Low-tech and High-tech Telecommunications: Multimedia, Interactive TV, LAN, Videotext, Teletext, Telebridge, WWW and Internet – Virtual teaching and learning.

Reference Books:

1. The Process of Education, Bruner J.S, Vintage Books, 1963
2. Educational Technology, Dececo, John, Holt Rinebert Winston, 1964
3. The Technology of Teaching, Skinner B.T, Applenton Century Crofts, 1968
4. Handbook of Educational Technology, Freed P and Hency E, Kogam Page, 1984
5. Educational Technology in Curriculum Development, Rowntree D, Harper & Row, 1982
6. Introduction to Educational Technology, Kulkarni S.S, Oxford & IBH, 1986
7. Educational Technology, Kumar, K.L, New Age International (P) Ltd, 1997
8. Teaching Technology for College Teachers, Vedanayagam E.G, Sterling Publishers (P) Ltd, 1989
9. Essential of Educational Technology: Teaching Learning Innovations in Education, Aggarwal, J.C, Vikas Publishing House (P) Ltd, 1995

Course Outcome:

- Understanding of media and how technologies are shaping and redefining media practices.
- Familiarize and equip students with a wide range of communication skills required for news programme production.
- Interact with top media professionals and experts from various fields to widen students' vision, right guidance and good knowledge.
- Provide opportunities to participate in live program me production of various channels in India and abroad.

CORE 7 – 3D MODELLING AND ANIMATION

Internal : 25 | **Semester : IV**
External : 75 | **No. of Hours/Week : 4**
Exam Hrs : 3 | **Credit : 4**

Course Objective:

To gain knowledge to create 3d assets and product development and to apply modeling techniques to animation and game creation.

UNIT I

Animation: Animation Basics- Working with Keys- Using the Track Bar- Using the Motion Panel- Animating Objects: Animating cameras, Animating lights, Animating materials- Animation Modifiers: Morpher modifier, Melt modifier, Linked XForm modifier, PatchDeform and SurfDeform modifiers, PathDeform modifier.

UNIT II

Character Animation: Understanding Your Character- Building Bodies- Defining a structure- Naming objects- Creating a character's structure- Modeling techniques- Starting with primitives- Modeling subobjects- Increasing resolution- Creating chest muscles- Smoothing body parts- Creating smooth joints- Using BlobMesh objects.

UNIT III

Modeling: Exploring the Modeling Types- Parametric objects versus editable objects- Converting to editable objects - Creating trumpet flowers with various modeling types - Working with Subobjects- Using Soft Selection- Soft selecting a heart shape from a plane- Applying modifiers to subobject selections- Building a Superman logo- Modeling Helpers.

UNIT IV

Lighting: Basic Lighting Techniques- Understanding the Basics of Lighting- Natural and artificial light- A standard lighting method- Shadows - Getting to Know the Light Types - Creating and Positioning Light Objects - Viewing a Scene from a Light - Altering Light Parameters- The Intensity/Color/Attenuation rollout - Working with Photometric Lights- Using the Sunlight and Daylight Systems- Using Volume Lights- Using projector maps and raytraced shadows

UNIT V

Rendering: Rendering Basics- Understanding the Max Renderers- Previewing with ActiveShade- Render Parameters- Common parameters- Assigning renderers - Scanline A-Buffer renderer- Rendering Preferences- Using the Rendered Frame Window- Using the RAM Player - Reviewing the Render Types- Using Command-Line Rendering- Creating Panoramic Images- Creating an Environment Defining the rendered environment- Setting exposure.

Text Books

1. 3ds Max 2016 Bible by Kelly Murdock (John Wiley & Sons).
2. 3ds max a step by step approach by Kurt Wendt.
3. 3ds Max 2016 Architectural Visualization - Intermediate to Advanced by Brian L .Smith.

Course Outcome:

- Create various 3d models and texture them appropriately.
- Create realistic and semi realistic models with appropriate details.

CORE LAB 5 - MULTIMEDIA AUDIO & VIDEO TECHNOLOGY LAB – I

Internal : 25	**Semester : IV**
External : 75	**No. of Hours/Week : 6**
Exam Hrs : 3	**Credit : 6**

Course Objective:

To give technical skills of audio and video editing to the students so that they may edit and compose sounds and videos as per their need.

1. Extreme slow motion.
2. Fast and Easy Visual Effect.
3. Sky Replacement Effect.
4. Fall through the ground.
5. Wall walking.
6. Camera rotation transition.
7. Text behind the moving object.
8. Character introduction Freeze effect.
9. Shadow cat effect.
10. Slow motion, speed ramp, and freeze frames.

Course Outcome:

- Create various 3d models and texture them appropriately.
- Create realistic and semi realistic models with appropriate details.
- Students learn to record, edit and publish audio for animation.
- They also learn the techniques of video editing with various tools.

CORE LAB 6 - MULTIMEDIA AUDIO & VIDEO TECHNOLOGY LAB – II

Internal : 25 | **Semester : IV**
External : 75 | **No. of Hours/Week : 6**
Exam Hrs : 3 | **Credit : 6**

Course Objective:

To give technical skills of audio and video editing to the students so that they may edit and compose sounds and videos as per their need.

1.Matrix effect using time remapping

2.Swinging text effect.

3.Pie chart infographic.

4.Lower thirds type animation.

5.Type animation.

6.Cinematic title animation.

7.Text animation.

8.Layer masks.

9.Particules logo trapcade.

10.Liquid shape animation.

11.Lens sparkle animation.

12.Audio spectrum circle.

13.Disintegration effect.

14.Puppet Tool.

15.Chat Animation.

Course Outcome:

- Students learn to record, edit and publish audio for animation.
- They also learn the techniques of video editing with various tools.

CORE 8 - MODELING & TEXTURING USING MAYA

Internal : 25 | **Semester : V**
External : 75 | **No. of Hours/Week : 6**
Exam Hrs : 3 | **Credit : 6**

Course Objective:

To introduce with 3D animation and give a professional skills to students as a 3D Modeler and Texture artist

UNIT I

Introduction to the interface of Maya, Menu bar, Tool bar, hot box, The channel box, Using the shelf, hot keys, Hot keys, manipulating a view. Creating objects: Simple primitives, Cameras. Selecting objects, types of selection, Single selection, adding and subtracting selection. Edit menu selection options, Marquee selection, Lasso selection, hyper shade, Relationship editor, hyper graph and outliner.

UNIT II

Duplicating objects, Pivot points, Introduction to snapping, Types of Snapping, Layer Editors, Introduction to Maya Shaders, Introduction to Polygon modeling, Poly modeling tools, NURBS modeling, Nurbs and surface Modeling tools, Modeling Props and sets (Locations), Creating backgrounds, interiors, exteriors etc.

UNIT III

Modeling a high poly model, Technical issues related to managing high poly model. Modeling different part of Human and Animal bodies, Modeling the character using templates & view port references, Optimizing the final model, refining the mesh, basic posture, testing the model, Difference between hi-poly & low-poly characters.

UNIT IV

Introduction to basic material types & Procedurals. Study of concepts: Opacity, Smoothness, Specularity and color, Working with Maya Surface Nodes, Working with Transparency, Reflection & Refraction, Bump & Displacement Maps.

UNIT V

Introduction to unwrapping, Unwrapping the maps for various 3d characters. Working With 2D and 3D Texture, Introduction to the mapping and advanced texturing techniques, Creating photo real environments and textures, Basics of Utilities, creating textures with Z Brush

Text Books:

1. Mastering Autodesk Maya 2017 by Eric Keller.
2. Introducing Maya 2017 by Dariush Derakhshani.

Course Outcome:

- Students learn to record, edit and publish audio for animation.
- They also learn the techniques of video editing with various tools.
- Students get familiar with workspace of Autodesk Maya. They learn to personalize the interface and come to know about various tools available in Maya.
- Students learn Modeling with Maya, They are guided to model characters and objects in 3D for animation and Graphics.

CORE 9 – LIGHTING & RENDERING USING MAYA

Internal : 25 | **Semester : V**
External : 75 | **No. of Hours/Week : 6**
Exam Hrs : 3 | **Credit : 6**

Course Objective:

To give overall knowledge of current technologies and skills used in Texturing, Lighting and Rendering in Autodesk Maya for 3D Animation.

UNIT I

Introduction to CG Lighting, Working with Maya Lights 1-Point, Direct, Spot, Working with Maya Lights 2- Ambient, Area and Volume, Direct Illumination-Creating and Illuminating a Stage Show, Three Point Lighting and Exterior Lighting,

UNIT II

Cast shadows, decay rate, Previewing lighting and shadows Creating depth map Shadow, creating ray traced shadows, Concept of lighting system and shadows, Creating area light shadows, setting area light visibility,

UNIT III

Creating soft shadows with spot lights, Indirect lighting: Setting illumination for interiors, Tuning global illumination, Global illumination & photons settings.

UNIT IV

Rendering a still, rendering an AVI, Render setup options, Rendering an image sequence. introduction to Render layers:, creating, splitting a scene into render layers, Applying render layer presets, setting overrides, creating render layer composites, Introduction **to** Render Passes, compare render passes and render layers,

UNIT V

Render quality: anti aliasing, setting color profiles, diagnosing ray tracing, adjust motion blur. Creating fogs **rendering fogs,** Maya paint effects, paint effect library, paint effect brush setup, animating paint effects, rendering paint effects.

Text Books:

1. Mastering Autodesk Maya 2017 by Eric Keller.
2. Introducing Maya 2017 by Dariush Derakhshani.

Course Outcome:

- Students learn to record, edit and publish audio for animation.
- They also learn the techniques of video editing with various tools.
- Students learns different kinds of lights and light setup in a Maya scene.
- Students learns to use lights and to set their attributes more precisely. Students learns to create shadows and Fog in Maya lighting system.
- Finally students are trained to get final output of their scene using various rendering techniques

CORE 10– RIGGING & ANIMATION USING MAYA

Internal : 25 | **Semester :V**
External : 75 | **No. of Hours/Week : 6**
Exam Hrs : 3 | **Credit : 6**

Course Objective:

To give overall knowledge of current technologies and skills used in Texturing, Lighting and Rendering in Autodesk Maya for 3D Animation.

UNIT I

Introduction to bone system/Joints and IK handles, Creating bone system and maintaining naming conventions, Skinning types, import and export of skin weights, IK and FK basics, IK and FK switch,

UNIT II

Introduction to Deformers, Introduction to constrains and implementation to rig. Maintaining proper hierarchy, grouping and creating controls, rigging the characters, Use of deformers in rigging process.

UNIT III

Brief about animation principles, Animation tools in 3D, "Applying classical 2D animation techniques i.e; Stretch squash for 3D character". Creating the illusion of weight, Overview of Maya's playback controls, Exploring maya's animation preferences. Details about graph editor, Bouncing Ball Exercise, Body language.

UNIT IV

Animating object along a motion path, Utilizing the trax-editor to blend animation clips. Controlling attributes with set driven keys, Animating with constraints, Previewing animations in real-time with play blasts, Introduction to scene animation and key framing, dope sheet.

UNIT V

Animal walk& run cycles, snakes and birds. Biped Character walk cycles, Biped Character run cycles, pushing and pulling objects. Facial animation and lip-sync. Nonlinear Animation with trax editor. Working with character sets and clips. character interactions.

Text Books:

1. Mastering Autodesk Maya 2017 by Eric Keller.
2. Introducing Maya 2017 by Dariush Derakhshani.

Course Outcome:

- Students learn about Rigging process in Maya, they are elaborated with creation of different kind of rigs for characters and objects.
- Students learn animation Maya, they practice to apply various animation principles and learn different tools for Animation in Maya.
- Student learn various techniques of Animation in Maya.

CORE LAB 7 – ANIMATION LAB USING MAYA I

Internal : 40
External : 60
Exam Hrs : 3

Semester : V
No. of Hours/Week : 6
Credit : 6

Course Objective:

- To provide a comprehensive introduction to different techniques related to art for animation
- To understand basic terminology, progress, issues, and trends.
- To study the various application of art in creating animation projects

List of Practicals

- Model some objects such as chairs, tables, fruits, utencils, intruments, tools, cars, bikes, aeroplane, etc.
- Model male and female characters.
- Model some animals, birds, fishes and worms.
- Create rigs for all models.
- Make an animation of a character walking in street he pick up some object and throw it.
- Make various expressions of models and use them for blend shapes.
- Make different kinds of biped walk(Happy, Sad, Attitude and Tiptop)
- Mechanical rig, Vehicle rig
- Rigging various props
- Create run, jump, skid animations. Stair up and stair down.
- Make animations of coin drop, ball bounce, path animation,

Course Outcome:

- Understand and apply various techniques of drawing for animation
- Analyse a given story or scenario and draw necessary artworks related to it 3. Process knowledge about art in animation field

CORE LAB 8 - ANIMATION LAB USING MAYA II

Internal : 25 | **Semester : V**
External : 75 | **No. of Hours/Week : 4**
Exam Hrs : 3 | **Credit : 4**

Course Objective:

- To provide a comprehensive introduction to different techniques related to art for animation
- To understand basic terminology, progress, issues, and trends.
- To study the various application of art in creating animation projects

List of Practicals

- Create a natural outdoor or indoor scene.
- Create Opacity, Smoothness, Secularity, and color maps, Transparency, Reflection &
- Refraction, and Bump & Displacement Maps
- Apply basic material and shader types & Procedurals textures.
- Set Lighting for the scene.
- Set light for Day, Night and Morning
- Create FOG nodes in your scene.
- Render a frame and video of indoor and outdoor scenes.
- Render a photorealistic output of an interior scene.
- Render a natural scene show different time by varying lighting.
- Advance lighting using mental ray render.
- Animate day and night scene of a street with the help of lighting.

Course Outcome:

- Understand and apply various techniques of drawing for animation
- Analyse a given story or scenario and draw necessary artworks related to it 3. Process knowledge about art in animation field

CORE LAB 9 - ANIMATION LAB USING MAYA III

Internal : 25 | **Semester : V**
External : 75 | **No. of Hours/Week : 4**
Exam Hrs : 3 | **Credit : 4**

Course Objective:

- To provide a comprehensive introduction to different techniques related to art for animation
- To understand basic terminology, progress, issues, and trends.
- To study the various application of art in creating animation projects

List of Practicals

- Create rigs for a biped models.
- Create rigs for a four leg models.
- Create rigs for a birds or snakes
- Create rigs for a mechanical model or Car Bike, Tank, Aero plane etc.
- Make animations of coin drop, ball bounce, path animation
- Make an animation of a character walking in street he pick up some object and throw it.
- Make various expressions of models and use them for blend shapes.
- Make different kinds of biped walk(Happy, Sad, Attitude and Tiptop)
- Rigging of various props and animate them.
- Create following Animations
- Run,
- Walk
- Jump,
- Skid animations.
- Stair up and down.

Course Outcome:

- Understand and apply various techniques of drawing for animation
- Analyse a given story or scenario and draw necessary artworks related to it 3. Process knowledge about art in animation field

CORE – 11 - 3D GAME SCRIPTING & VIRTOOLS SDK BASICS

Internal : 25 | **Semester : VI**
External : 75 | **No. of Hours/Week : 6**
Exam Hrs : 3 | **Credit : 6**

Course Objective:

- To gain knowledge to create 3d assets and product development.
- To apply modeling techniques to animation and game creation

UNIT I

Creating an array-getting array, data-creating a data switch using an array, Event Control-Behavior and Scripting, Behavior Input, Behavior Output, Parameter Input, Parameter output. Messages

UNIT II

3D Interactive through XML , XML Loader, XML debugger, XML Child, XML find Iterator, XML Hierarchy parser, XML Attribute Object Loading, Dynamic Loading - Multi User, Online Multi User, Server Multi user.

UNIT III

Virtools scripting language-VSL overview-Run VSL basic-Action VSL basic

UNIT IV

Introduction to Shaders in virtools, using existing shaders, writing simple shader

UNIT V

Virtools SDK fundamentals, SDK overview, how to create custom building block. How to create custom manager

Text Book

Building Interactive Worlds in 3D: Virtual Sets and Pre-visualization for Games, Film & the Web - Jean-Marc Gauthier Game Coding Complete, Third Edition [Paperback] - Mike (Mike McShaffry)

Course Outcome:

- Create various 3d models and texture them appropriately.
- Create realistic and semi realistic models with appropriate details.

CORE 12 – DIGITAL COMPOSITING

Internal : 25 | **Semester : VI**
External : 75 | **No. of Hours/Week : 6**
Exam Hrs : 3 | **Credit : 6**

Course Objective:

The aim of this unit of study is to complement the knowledge of digital video and audio production from the prerequisite unit with knowledge of preproduction and postproduction of video and audio

UNIT I

Concepts for Broadcast animation for logos, channel IDs and montages, Multi-layer compositing, Special effects, Super imposition and titling, Importing media in different supported file formats.

UNIT II

Introduction to batch render & work group, Adding cameras & lights to a simple scene to make a complex compositing, Adding 2D back ground and elements into a 3D character layers, Creating object, material IDs for further adding special effects. Effects for digital video 2D layers and 3D layers for more effective outputs. Adding particle effects into a scene.

UNIT III

Introduction to color character and keying, "Editing the real time video with CG based scene and merging both of them to create a final output, Exporting various file format output as per the end user requirements.

UNIT IV

Introduction to the batch rendering and work groups, Introduction to the concepts of editing in terms of compositing, Adding special effects in built in compositing software. To make a simple shot into a perfect output.

UNIT V

Chroma keying, Luma key, Blue screen, Key frame text & layer animation & 3D particles, Effects etc. Color correction, Introduction to 3D compositing concepts, Layers and masking, Rotoscoping, Rig removal, Morphing.

Text Books:

1. Creating motion graphics with after effects by Trish and Chris Meyer (Focal press).
2. Adobe after Effects CS6 Classroom in a Book (Author: Adobe Creative Team) Adobe Press.
3. After Effects Apprentice, Second Edition [Paperback]
   Author: Chris and Trish Meyer (focal press.)

Reference Books:

1. After Effects Apprentice, Second Edition [Paperback] Author: Chris and Trish Meyer (focalpress.)
2. The After Effects Illusionist: All the Effects in One Complete Guide by Chad Perkins

Course Outcome:

- The students will gain the concept about how to broadcast their work on Television or Videos, set up Channel ID and Titles.
- Students will learn to add camera, light, particles and background in 3D Character layer to the simple scene to make a complex compositing.

CORE LAB 10- VIRTOOL LAB

Internal : 40
External : 60
Exam Hrs : 3

Semester : VI
No. of Hours/Week : 6
Credit : 6

Course Objective:

- To gain knowledge to create 3d assets and product development.
- To apply modeling techniques to animation and game creation

List of Practicals

1 - Introduction to Virtools , rotation, translation, timers

2 - Materials, textures, lights, interaction, shortcuts, parameter operations, hierarchies, cameras

3 - curves, arrays, frames, blending textures, video

4 - Behavior graphs, messages, text files, VSL

5 - Joysticks, sound, more VSL

6 - Animation, collision, interfaces

Course Outcome:

- Create various 3d models and texture them appropriately.
- Create realistic and semi realistic models with appropriate details.

CORE LAB 11- DIGITAL COMPOSITING LAB

Internal : 25	**Semester : VI**
External : 75	**No. of Hours/Week : 6**
Exam Hrs : 3	**Credit : 6**

Course Objective:

The aim of this unit of study is to complement the knowledge of digital video and audio production from the prerequisite unit with knowledge of preproduction and postproduction of video and audio.

List of Practicals

- Roto-scopy,
- Crowd duplication,
- Color correction,
- Keying. Green/blue screen shooting and compositing,
- Tracking and stabilizing with Adobe After Effect,
- Bringing about CG elements in real video,
- Camera match moving with Autodesk Match Mover,
- Title effects,
- Applying various effects,
- Wire and rig removals.

Course Outcome

- The students will gain the concept about how to broadcast their work on Television or Videos, set up Channel ID and Titles.
- Students will learn to add camera, light, particles and background in 3D Character layer to the simple scene to make a complex compositing.

PROJECT WORK AND VIVA-VOCE

Internal : 40
External : 60
Exam Hrs : 3

Semester : VI
No. of Hours/Week : 6
Credit : 6