Rajiv Gandhi Proudyogiki Vishwavidyalaya, Bhopal
New Scheme of Examination as per AICTE Flexible Curricula
V Semester B.Tech. 3 D Animation & Graphics
Syllabus

AG501-Operating Systems

Course Objectives-

Learn the functions of operating systems and the mechanisms of OS to handle processes

Unit I Introduction to Operating Systems, Evaluation of OS, Types of operating Systems, system protection, Operating system services, Operating System structure, System Calls and System Boots, Operating System design and implementation, Spooling and Buffering

Unit II Basic concepts of CPU scheduling, scheduling criteria, Scheduling algorithms, algorithm evaluation, multiple processor scheduling. Process concept, operations on processes, threads, inter process communication, precedence graphs, critical section problem, semaphores, classical problems of synchronization

Unit III Deadlock problem, deadlock characterization, deadlock prevention, deadlock avoidance, deadlock detection, recovery from deadlock, Methods for deadlock handling. Concepts of memory management, logical and physical address space, swapping, Fixed and Dynamic Partitions, Best-Fit, First-Fit and Worst Fit Allocation, paging, segmentation, and paging combined with segmentation

Unit IV Concepts of virtual memory, Cache Memory Organization, demand paging, page replacement algorithms, allocation of frames, thrashing, demand segmentation, Role of Operating System in Security, Security Breaches, System Protection, and Password Managment

Unit V Disk scheduling, file concepts, File manager, File organization, access methods, allocation methods, free space managements, directory systems, file protection, file organization & access mechanism, file sharing implement issue, File Management in Linux, introduction to distributed systems.

References-
1. Silberschatz ,"Operating system", Willey Pub
2. Tanenbaum " Modern Operating System" PHI Learning.
3. Dhamdhere, "System Programming and Operating System",TMH.
4. Stuart,"Operating System Principles, Design &Applications",Cengage Learning
5. Operating System : Principle and Design by Pabitra Pal Choudhury, PHI Learning

Suggested List of Experiments-
1. Program to implement FCFS CPU scheduling algorithm.
2. Program to implement SJF CPU scheduling algorithm.
3. Program to implement Priority CPU Scheduling algorithm.
4. Program to implement Round Robin CPU scheduling algorithm.
5. Program to implement classical inter process communication problem(producer consumer).
6. Program to implement classical inter process communication problem(Reader Writers).
7. Program to implement classical inter process communication problem(Dining Philosophers).

8. Program to implement FIFO page replacement algorithm.
9. Program to implement LRU page replacement algorithm

Course Outcomes -
Upon successful completion of this course the students will be able to:
1. Understand the services provided by the Operating System and gain knowledge of various types of Operating Systems
2. Implement and Compare various CPU Scheduling algorithms
3. Understand the conditions which can lead to a deadlock in computer system and learn the methods to avoid deadlocks
4. Acquire knowledge of security breaches and use security mechanisms for system
5. Create and manage files and directories

AG502-Animation

Course Objectives-

The main objective of this subject is to impart strong knowledge about the fundamental principles of animation which will enable the students to create animation projects

Unit I Introduction to Animation: Its definition, early examples of Animation, History of Animation: Stop Motion Photo Animation, Zoetrope, Thaumatrope, Cel and Paper Animation, early Disney's Cel Animation Processes.

Types of Animation: Cel Animation, Stop Motion Animation, Computer Animation, 2-D Animation, 3-D Animation, Skills for an Animation Artist, Computer animation production tasks, Digital editing, Digital video, Digital audio

Unit II Spaces and Transformations, Orientation representation, Types of motion capture, Applications of motion capture, Motion data types and formats

Animating Facial features- The human face, Facial models, animating the face, Lip-sync animation, animating solid spaces, Animating fluids and gases, Animation and film perception, The animator's workflow, The three stage workflow, Preproduction, Production, Post production, Keyframe animation

Unit III

Timing for Animation- General Principles of timing, The storyboard, The basic unit of time in animation, Timing for traditional animation, Animation and properties of matter, Movement and caricature, cause and effect, Newton's Laws of motion, Objects thrown through the air, Rotating objects, spacing of drawings, Timing a slow and fast action, Follow through, overlapping action, Timing an oscillating movement, The effects of friction, air resistance and wind, Timing cycles, Effects in animation,

Timing a walk, Types of walk, spacing of drawings in perspective animation, Timing animal's movements, Bird flight, Dry brush and Motion blurr, Strobing, Fast run cycles, Characterization, the use of timing to suggest mood, synchronizing animation to speech, Lip-sync, Timing and music, Editing animation

Unit IV

3D Animation overview- Defining 3D animation, Exploring the 3D animation industry, Production pipeline, 3D animation preproduction, production and post production, understanding digital imaging and video, Exploring animation story and previsualization,

Unit V

Understanding modeling and texturing, Rigging and animation, understanding visual effects, lighting and rendering, Hardware and software tools

References-

1. The complete animation course by Chris Patmore Pub.-Baron's Educational Series.(New York)
2. The Animator's Survival Kit by Richard Williams , Arrar Straus & Giroux Pub.(U.S.A)
3. The Encyclopedia of Animation Techniques, Richard Taylor, 1996 (India)
4. Timing for Animation by Harold Whitaker and John Halas, Elsevier
5. Computer Animation Complete by Rick Parent, David S. et al. , Elsevier
6. 3D Animation Essentials by Andy Beane, Wiley publishers

Suggested List of Experiments-

1. Understanding the 2d software interface Drawing tools, pen tools and other necessary tools to create any drawing in the frames
2. Creating frame by frame animation for a short animation
3. Ball Animation

4. Character drawing and creating symbols- Drawing simple character with pen tool or shape tool Preparing the character for animation: dividing each body parts into symbol Creating symbols, types of symbols
5. Human walk cycle- Drawing the cycle sheet for a human walk cycle. Creating the key frames for the walk cycle.
6. Animal walk cycle- Drawing cycle sheet for an animal walk cycle Drawing an animal and dividing the body parts into symbols Creating the key frames for the walk cycle Creating four different types of walk cycle (jump, run, tip toe, crawl)
7. Lip Synchronization- Knowing the alphabets and its movements Creating the mouth shapes for each letters and movements of the lips. Creating expression and emotion in character. Synchronizing character mouth shape according to the dialogue.
8. Creating a short animation film

Course Outcomes -
Upon successful completion of this course the students will be able to:
1. Acquire skills and knowledge in animation
2. Understand how animation works
3. To apply Audio and Video Production Techniques to an Animation Project
4. Understand the concepts of 3D animation
5. Use different animation software to develop animation projects

AG503(A) -Artificial Intelligence

Course Objectives-

To present an overview of artificial intelligence (AI) principles and approaches and to develop a basic understanding of the building blocks of AI

Unit I

Meaning and definition of artificial intelligence, Production systems, Characteristics of production systems, Study and comparison of breadth first search and depth first search techniques, other Search Techniques like hill Climbing, Best first Search. A* algorithm, AO* algorithms etc, and various types of control strategies

Unit II

Knowledge Representation, Problems in representing knowledge, knowledge representation using propositional and predicate logic, comparison of propositional and predicate logic, Resolution, refutation, deduction, theorem proving, inferencing, monotonic and non-monotonic reasoning

Unit III

Probabilistic reasoning, Baye's theorem, semantic networks, scripts, schemas, frames, conceptual dependency, fuzzy logic, forward and backward reasoning.

Unit IV

Game playing techniques like minimax procedure, alpha-beta cut-offs etc, planning, Study of the block world problem in robotics, Introduction to understanding, natural language processing.

Unit V

Introduction to learning, Various techniques used in learning, Introduction to neural networks, applications of neural networks, common sense, reasoning, some example of expert systems.

References-

1. Rich E and Knight K, "Artificial Intelligence", TMH, New Delhi.
2. Nelsson N.J., "Principles of Artificial Intelligence", Springer Verlag, Berlin.

Course Outcomes -

Upon successful completion of this course the students will be able to:

1. Be familiar with terminology used in this area and explain what constitutes "Artificial" Intelligence and how to identify systems with Artificial Intelligence.
2. Know how to build simple knowledge-based systems
3. Have ability to apply knowledge representation and reasoning to real world problems
4. Understand game playing techniques and natural language processing
5. Apply knowledge of neural networks to real world problems

AG503(B) -Software Engineering

Course Objectives-

To introduce software development life cycle and all its associated activities

Unit I

Introduction, Software- problem and prospects Software development process: System Development Life Cycle, Waterfall Model, Spiral Model and other models, Unified process Agile Development-Agile Process-Extreme Programming- Other Agile Process models.

Unit II

Measures, Metrics and Indicators, Metrics in the Process and Project Domains, Software Measurement, Metrics of Software Quality, S/W reliability, Software estimation techniques, LOC and FP estimation. Empirical models like COCOMO, project tracking and scheduling, reverse engineering.

Unit III

Software requirements and specification: feasibility study, Informal/formal specifications, pre/post conditions, algebraic specification and requirement analysis models, Specification design tools. Software design and implementation: Software design objectives and techniques, User interface design, Modularity, Functional decomposition, DFD, Data Dictionary, Object oriented design, Design patterns implementation strategies like top- down, bottom-up.

Unit IV

Coding standard and guidelines, programming style, code sharing, code review, rapid prototyping, specialization, construction, class extensions, intelligent software agents, reuse performance improvement, debugging. Software Testing Strategies: Verification and Validation, Strategic Issues, test plan, white box, black-box testing, unit and integration testing, system testing test case design and acceptance testing, maintenance activities.

Unit V

Software Maintenance: Software Supportability, Reengineering, Business Process Reengineering, Reverse Engineering, Restructuring, Forward Engineering, Economics of Reengineering, project scheduling and tracking plan, project management plan, SQA and quality planning, SCM activities and plan, CMM, Software project management standards, Introduction to component based software engineering.

References-

1 P.S. Pressman, Software Engineering. A Practitioner's Approach, TMH.
2 Rajib Mall, Fundamental of Software Engineering, PHI.
3 Hans Van Vliet, Software Engineering, Wiley India Edition.
4 James S. Peters, Software Engineering, Wiley India Edition.
 5 Pankaj Jalote, Software Engineering: A Precise Approach, Wiley India.
6 Kelkar, Software Project Management, PHI Learning

Course Outcomes -

Upon successful completion of this course the students will be able to:

1. Define various software application domains and remember different process model used in software development.
2. Understand various measures of software and Generate project schedule.
3. Describe functional and non-functional requirements of software and develop design models of software.
4. Investigate the reason for bugs and apply the software testing techniques in commercial environment.
5. Understand various activities to be performed for improving software quality and software maintenance.

AG503(C) -Microprocessor and Interfacing

Course Objectives-

To introduce basic concepts of microprocessor
- To introduce serial and parallel bus standards.
- To introduce programming in assembly language.
- To introduce basic concepts of interfacing memory and peripheral devices to a microprocessor.

Unit I

Evolution of microprocessor, single chip micro computers, Micro processor Application, Microprocessor and its architecture, addressing modes, instruction, Instruction sets, Arithmetic and Logic Instruction, Program control instruction, Introduction –8086 family, procedure and macros, connection , Timing and Troubleshooting interrupt, 80286, 80836 and 80486 micro processor system concept.

Unit II

Microprocessor Cycle, AIU, Timing and control Unit, Register data, Address bus, Pin Configuration, Intel 8086 instruction, Opcode and operands, limitation word size. Programming the microprocessor Assembly language, The Pentium and Pentium Pro Micro Processorwith features, Pentium II, Pentium III and Pentium –IV Microprocessor with software changes. Instruction set for Intel 8086, Introduction Intimation and data formats, Addressing modes, Status flags, Symbols and abbreviations, programming of microprocessors, Assembly language, high level language, areas of application of various languages, Stacks, Sub routines system, software, commands in assembly language, software Development, Debugging program, Modular programming, Structured programming, Top-down, Bottom-up design , MACRO microprogramming.

Unit III

Assembly language programming with Examples like Addition of 8/16-bit Binary number, subtraction of 8/16 bit binary number, Address partitioning, addressing mode, type of addressing mode, memory and I/o interfacing, Data transfer schemes, Interfacing device and I/o devices I/o ports, Basic I/o Interfacing MDS, Micro controllers, I/o processor and co-processors ,Microcomputer Development system, Single chip micro computers, intel 8748 intel 8051, inter 8096, intel 8049intel 2920/2921, I/o processor UPI-425,UPI-41,42, Coprocessor, math processor math co-processor –8087, 80287, 80387DX 803875x

Unit IV

Bus Interface I/o port Addressing, decoding 8279, Programmable key board/display interface, 8254 Internal Timer, 16550 programmable communication interface A/D, 8259A Programmable Interrupt Controller, 8237 DMA Controller, Shared bus operation, disk Memory system Video display. ISA Bus, Extended ISA (EISA) and VESA Local Buses, Peripheral Component Inter Connect (Pc I) Bus, Parallel Printer interface (LPT) Universal serial Bus (USB) Accelerated graphics port (AGP),Programmable Communication interfere 8251 VSART CRT Controller 8275, 6854, Floppy disk Controller 8272, I/o processor 8089.

Unit V

Memory Unit, RAM,SRAM, DRAM,ROM, PROM EPROM, EEPROM Nonvolatile RAM semiconductor Technology for memory, Shift register, Magnetic Memory, Tap, disc, main memory and secondary memory cache memory, program memory and Data Memory, Real and virtual memory Buses, memory Addressing capacity of CPU, processing speed of computer

References-
1. Douglas V Hall, "Microprocessors and interfacing –Programming & Hardware" TMH
2. Barry B. Brey, "The intel Microprocessor –8086", Pearson Education
3. Kenneth J.Ayala,"The 8086 Microproccessor: Programming & Interfacing The PC",CengageLearning
4. Krishna Kant,"Microprocessors and Microcontrollers", PHI Learning
5. A.K.Ray KM Bhurchandi, "Advanced Microprocessor and peripherals" McGraw Hill
6. R.S. Gaonkar ,"Microprocessors and interfacing", TMH

Course Outcomes -

Upon successful completion of this course the students will be able to:

1. Explain the microprocessor's and Microcontroller's internal architecture
2. Apply knowledge and demonstrate programming proficiency using the various addressing modes and data transfer instructions of the target microprocessor and microcontroller
3. Compare accepted standards and guidelines to select appropriate Microprocessor (8085&8086) and Microcontroller to meet specified performance requirements.
4. Analyze assembly language programs
5. Design electrical circuitry to the Microprocessor I/O ports in order to interface the processor to external devices

AG504(A) -Lighting and Rendering Techniques

Course Objectives-

To enable the students to understand how lighting and rendering are used in animation films.

Unit I

Fundamentals of lighting design, Lighting challenges, Lighting basics and good practices, Types of lights, Shadows and occlusion – Functions of shadows, Appearance of shadows, shadow algorithms, Faking shadows and occlusion

Unit II

Lighting environments and architecture- Practical lights, Distance and depth, , Lighting creatures, characters and animation- Modeling with light, Three point lighting, Functions of lights, Cameras and exposure- F stops and depth of field, Shutter speed and motion Blur, Film speed and film grain, photographic exposure, Composition and staging- Types of shots, Camera angles, Improving composition, Framing for film and video

Unit III

The art and science of color- Working in a linear workflow, Color mixing, Developing color schemes, Using color balance, Shaders and rendering algorithms- Shading surfaces, anti-aliasing, Ray tracing, Reyes algorithms, Global illumination, Caustics

Unit IV

Designing and assigning textures- Mapping surface attributes, Aligning maps with models, Creating texture maps, Using procedural textures, Rendering in Layers and passes for compositing, Production pipelines

Unit V

The Lighter's toolbox, The Lighter's workflow, Lighting Scenarios, Materials and Composting

References-
1. Digital Lighting and Rendering by Jeremy Birn, New Riders
2. Lighting for Animation by P. Jasmine katatikarn & Michael Tanzillo, CRC press

Course Outcomes -

Upon successful completion of this course the students will be able to:

1. Understand the fundamentals of Lighting
2. Learn how to use lighting for animation characters
3. Use rendering algorithms in animation
4. Understand the texturing techniques
5. Use appropriate lighting and texturing and rendering techniques in animation

AG504(B)- Media Ethics and IPR

Course Objectives-
To focus on various laws related to media in India and to educate the students on ethics to be possessed by media professionals

Unit I Media Ethics-Understanding Ethics – Difference between law and ethics – Ethical approaches, theories and professional morality – Ethical issues in mass media – Importance of media ethics to the society
Media role in information broadcasting – education – entertainment – commercial – religion & cultural integration – government & politics – health issues – economics – state security and reformation

Unit II Media and Society- Media industry - Social, Political and Cultural Influence - Information Society - Media Privatization - Media Audiences - Media and Social change
Media Reputation- Reputation and Dignity of persons – Defamation – Sedition – Privacy – Obscene, Indecent and harmful publications – plagiarism

Unit III Intellectual and Institutional – copyright – new media – protection of news sources – contempt of court. Media uses and effects - individual characteristics - expectations - perceptions of media - uses and gratification theory. Agenda setting: media agenda, public opinion - media opinion – media gatekeepers - sources of media control

Unit IV Freedom of media in India – Code of Ethics and guidelines for the media – Constitutional provisions for freedom of media in India – Reasonable restrictions as imposed by the constitution – major laws related to media in India
The McBride commission – NANAP and NWICO – The Press Council Act and the Press Council of India – TRAI – Broadcasting bill and the BRAI – Indian Broadcasting Federation – Lokpal Bill and Lokayukta

Unit V Intellectual Property Rights- Introduction and the economics behind development of IPR: Business Perspective, IPR in India – Genesis and Development, International Context, Concept of IP Management, Use in marketing, Role of IP in media, Types of Intellectual Property- Patent- Procedure, Licensing and Assignment, Infringement and Penalty, Trademark- Use in marketing, example of trademarks- Domain name, Geographical Indications- What is GI, Why protect them? Copyright- What is copyright, Industrial Designs-What is design? How to protect?

References-
1. ParanjoyGuhaThakurta, Dr.M.ManzoorAlam, R Mansukhani , R Mnaqlcolm, Mohd Z Haque "Media in our Globalizing World", Genuine Publications and Media Pvt Ltd; First Edition edition, 2015.
2. Jane Kirtley "Media Law Handbook", Bureau of International Information Programs United States Department of State, Published in 2010.

Course Outcomes -
Upon successful completion of this course the students will be able to:
1. Understand Ethical issues in mass media and the Importance of media ethics to the society
2. Identify various factors that lead to good and bad media reputation

3. Identify Copyright Acts pertaining to their productions
4. Understand the media laws of our Indian Constitution
5. Acquire the knowledge of Intellectual Property Rights to prevent the misuse of work

AG504(C) -Digital Image Processing

Course Objectives-

To explain how digital images are represented and manipulated in a computer

Unit I Introduction- Digital Image Processing, Fundamental Steps in Digital Image Processing. Components of an Image Processing System.Digital Image Fundamentals: Image Sensing and Acquisition. Image Sampling and Quantization. Some Basic Relationships between Pixels. Linear and Nonlinear Operations.

Unit II Image Enhancement- Image Enhancement in the Spatial Domain: Background. Some Basic Gray Level Transformations. Histogram Processing. Enhancement Using Arithmetic/Logic Operations. Basics of Spatial Filtering. Smoothing Spatial Filters. Sharpening Spatial Filters. Combining Spatial Enhancement Methods Image Enhancement in the Frequency Domain: Introduction to the Fourier Transform and the Frequency Domain. Smoothing Frequency-Domain Filters. Sharpening Frequency Domain Filters. Homomorphic Filtering.

Unit III Image Restoration- A Model of the Image Degradation/Restoration Process. Noise Models. Restoration in the Presence of Noise Only-Spatial Filtering. Periodic Noise Reduction by Frequency Domain Filtering. Linear, Position-Invariant Degradations. Estimating the Degradation Function. Inverse Filtering. Minimum Mean Square Error (Wiener) Filtering. Constrained Least Squares Filtering. Geometric Mean Filter. Geometric Transformations

Unit IV Color Image Processing- Color Fundamentals. Color Models, Pseudocolor Image Processing. Basics of Full-Color Image Processing. Color Transformations. Smoothing and Sharpening. Color Segmentation. Noise in Color Images. Color Image Compression.

Unit V

Wavelets and Multiresolution Processing- Multiresolution Expansions. Wavelet Transforms in One Dimension. The FastWavelet Transform. Wavelet Transforms in Two Dimensions. Wavelet Packets.Image Segmentation: Detection of Discontinuities. Edge Linking and Boundary Detection. Thresholding. Region-Based Segmentation. Segmentation by Morphological Watersheds. The Use of Motion in Segmentation

Representation and Description- Representation. Boundary Descriptors. Regional Descriptors. Use of Principal Components for Description. Relational Descriptors.Object Recognition: Patterns and Pattern Classes. Recognition Based on Decision-Theoretic Methods. Structural Methods.

References-

1. "Digital Image Processing"- R.C.Gonzalex and P.Wintex,Addisonweslay.

2. "Fundamentals of Digital Image Processing"- A.K.Jain, Prentice Hall,India.

3. Image Processing analysis and Machine Vision, Cengage.

Course Outcomes -

Upon successful completion of this course the students will be able to:
1. Review the fundamental concepts of a digital image processing system and explain how digital images are represented and manipulated in a computer
2. Perform image enhancement in the spatial domain and frequency domain
3. Evaluate the techniques for image restoration
4. Understand the role of alternative color spaces and the design requirements leading to choices of color space and categorize various compression techniques
5. Understand the process of Object Recognition in digital images

AG505 -Advanced Java Lab

Course Objectives-
• To learn Designing and developing Web applications
•Designing Enterprise based applications by encapsulating an application's business logic.
•Designing applications using pre-built frameworks.

Unit I Java Database Connectivity(JDBC): JDBC Product, Types of Drivers, Two-Tier Client/Server Model, ThreeTier Client/Server Model, Basic Steps of JDBC, Creating and Executing SQL Statement, The Result Set Object, Working with Database MetaData Interface

Unit II Java Servlets: Servlet Interaction & Advanced Servlets, Life cycle of Servlet, Java Servlet Development Kit, Javax.servletpackage, Reading Servlet Parameters, Reading Initialization Parameters, The javax.servlet.http Package, Handling HTTP.

Unit III JavaServer Pages(JSP): JSP Technologies, Understanding the Client-Server Model, Understanding Web server software, Configuring the JSP Server, Handling JSP Errors, JSP Translation Time Errors, JSP Request Time Errors, Creating a JSP Error Page

Unit IV Enterprise Java Beans (EJB): Types of EnterpriseJava beans, Session Bean & Entity Bean, Features of Session Bean, Life-cycle of Stateful Session Bean, Features of Entity Bean, Life-cycle of Entity Bean, Containermanaged Transactions & Bean-managed Transactions, Implementing a container-managed Entity Bean

Unit V Struts: Introduction to the Apache Struts, MVC Architecture, Struts Architecture, How Struts Works? Introduction to the Struts Controller, Introduction to the Struts Action Class, Using Struts ActionFrom Class, Using Struts HTML Tags, Introduction to Struts Validator Framework, Client Side Address Validation in Struts, Custom Validators Example, Developing Application with Struts Tiles

References-
1.Java the Complete Reference, ninth edition by Herbert Schild, Publisher: McGraw Hills
2.Head First EJB 3.0 by Kathy Sierra, Bert Bates, Publisher: O'Reilly Media
3.Head First Servlets and JSP by Bryan Basham, Kathy Sierra & Bert Bates, Publisher: O'Reilly Media
4.Just Hibernate, A Lightweight Introduction to the Hibernate Framework by Madhusudhan Konda, Publisher: O'Reilly Media
5.Programming Jakarta Struts, 2nd Edition by Chuck Cavaness, Publisher: O'Reilly Med

Course Outcomes -
Upon successful completion of this course the students will be able to:
1. Access database through Java programs, using Java Data Base Connectivity (JDBC)
2. Create dynamic web pages, using Servlets and JSP
3. Configure the JSP Server and handle JSP Errors
4. Make a resusable software component using Java Bean and understand the multi-tier architecture of web-based enterprise applications using Enterprise JavaBeans (EJB)
5. Develop Stateful, Stateless and Entity Beans, use Struts frameworks, which gives the opportunity to reuse the codes for quick development

AG506 -Graphic Design Lab

Course Objectives-
Acquire the competency in technical skills applicable to graphic design and Understand the ability to use design thinking strategies in an iterative design process

Unit I
Logo Design and Visiting card Design- Creating a paper work of different logos on the genre. Tracing the layout of the approved designs in digital format. Applying suitable color for the digital designs. Designing approved different logos on the genre, Creating a paper work of different Visiting cards on the genre. Tracing and designing the approved layout of designs in digital format

Unit II
Brochures- Creating a paper work of brochures on the genre, Tracing the layout of the approved designs in digital format, Applying suitable color for the digital designs. Designing approved brochures of varied sizes
Print Advertisement - Black & White, Color- Creating a paper work of advertisement flyers on the genre. Tracing the layout designs in digital format and applying suitable colors, creating a paper work of poster advertisement on the genre, Tracing the layout designs in digital format and applying suitable colors
Letter Head- Creating paper work of letter head designs. Tracing the layout designs in digital format, designing and applying suitable colors

Unit III
Package Design- Creating a paper work of package designs on the genre. Tracing the layout of the approved designs in digital format. Designing approved package designs with suitable colors and text
Matte Painting- Create a different scenic view of a green pasture or a haunted village. Designing approved scenic view in digital format using the designing software

Unit IV
Montage- Create different montages on the topic Indian culture or eradication of poverty in the world. Compiling the approved pictures or materials using the designing software.
Black & White to Color- Converting a black & white picture into colored using the image editing software

Unit V
Newsletter- Creating a paper work of newsletter on the genre. Tracing and designing the approved layout of designs in digital format
Webpage Design- Creating a paper work of webpage designs on the genre. Designing the layout of the approved designs in digital format

References-
1. Ellen Lupton "Graphic Design: The New Basics: Second Edition, Revised and Expanded", Princeton Architectural Press; Revised and updated edition (14 July 2015)
2. David Dabner "Graphic Design School: A Foundation Course for Graphic Designers Working in Print, Moving Image and Digital Media", Thames & Hudson Ltd; 5th Revised edition (28 July 2014)
3. Cath Caldwell, "Graphic Design for Everyone", DK

Course Outcomes -
Upon successful completion of this course the students will be able to:
1. Seek design principles, design process, theory, history and contemporary design practice.
2. Gain proficiency in identified technical skills, understand the process of creating, analyzing, and evaluating graphic design solutions.
3. Justify the choice of appropriate tools according to the type of digital art work

4. Visualize and demonstrate an idea and express it through visual design
5. Demonstrate the knowledge of design & colors and apply them effectively to various assignments.