Central Institute of Technology Kokrajhar

Deemed to be University, MHRD, Govt. of India

Kokrajhar, BTR, Assam

SYLLABUS FOR BACHELOR OF DESIGN (B. Des.) IN MULTIMEDIA COMMUNICATION AND DSESIGN

(Updated in August 2021)

Department of Multimedia Communication and Design

COURSE LAYOUT OF BACHELOR OF DESIGN

SEMESTER I

SL. NO.	COURSE CODE	COURSE TITLE	L	T	P/S*	C
THEORY/TUTORIAL/STUDIO						
1.	UHSS 101	Communication Skills	2	0	0	4
2.	UMCD 101	Introduction to Design	1	0	0	2
3.	UMCD 102	Fundamentals and Principles of Art	1	0	0	2
4.	UMCD 103	Computer Fundamentals and Operation	2	0	0	4
5.	UHSS 171	Communication Skills (Lab)	0	0	2	2
6.	UMCD 171	Introduction to Design (Lab)	0	0	2	2
7.	UMCD 172	Fundamentals and Principles of Art (Lab)	0	0	3	3
8.	UMCD 173	Computer Fundamentals and Operation (Lab)	0	0	2	2
9.	UMCD 174	Drawing and Illustration Technique	0	0	5	5
10.	UMCD 191	Design Studio – I (Digital Drawing Technique)	0	0	5	10
TOTAL			**6**	**0**	**19**	**36**
Total Contact Hours: 25						
Total Credit: 36						

SEMESTER II

SL. NO.	COURSE CODE	COURSE TITLE	L	T	P/S*	C
THEORY/TUTORIAL/STUDIO						
1.	UHSS 201	Professional Ethics & Human Value	2	0	0	4
2.	UMCD 201	History of Art and Appreciation	2	0	0	4
3.	UMCD 202	Introduction to Multimedia Communications	2	0	0	4
3.	UMCD 203	Fundamentals of Animation Design	2	0	0	4
5.	UMCD 204	Introduction to Graphic Design	1	0	0	2
6.	UMCD 272	Introduction to Multimedia Communications (Lab)	0	0	2	2
7.	UMCD 273	Fundamentals of Animation Design (Lab)	0	0	2	2
8.	UMCD 274	Introduction to Graphic Design (Lab)	0	0	2	2
9.	UMCD 291	Design Studio – II (Graphic Design)	0	0	5	10
TOTAL			**9**	**0**	**11**	**34**
Total Contact Hours: 20						
Total Credit : 34						

SEMESTER III

SL. NO.	COURSE CODE	COURSE TITLE	L	T	P/S*	C
THEORY/TUTORIAL/STUDIO						
1.	UMCD 301	Multimedia Design Fundamentals	2	0	0	4
3.	UMCD 302	Concept of Storyboarding & Script Writing	1	0	0	2
5.	UMCD 303	2D Animation Techniques	1	0	0	2
2.	UMCD 304	Introduction to Photography and Videography	1	0	0	2
5.	UMCD 371	Multimedia Design Fundamentals (Lab)	0	0	2	2
6.	UMCD 372	Concept of Storyboarding & Script Writing (Lab)	0	0	4	4
7.	UMCD 373	2D Animation Techniques (Lab)	0	0	2	2
8.	UMCD 374	Introduction to Photography and Videography (Lab)	0	0	2	2
9.	UMCD 375	Clay Modeling	0	0	4	4
10.	UMCD 391	Design Studio – III (2D Animation)	0	0	5	10
TOTAL			**5**	**0**	**19**	**34**
Total Contact Hours: 24						
Total Credit: 34						

SEMESTER IV

SL. NO.	COURSE CODE	COURSE TITLE	L	T	P/S*	C
THEORY/TUTORIAL/STUDIO						
1.	UMCD 401	3D Modeling and Texturing	1	0	0	2
2.	UMCD 402	Rigging for 3D Animation	1	0	0	2
2.	UMCD 403	Web Design Technology	1	0	0	2
3.	UMCD 404	Concept of Film Making	1	0	0	2
4.	UMCD 471	3D Modeling and Texturing (Lab)	0	0	2	2
5.	UMCD 472	Rigging for 3D Animation (Lab)	0	0	4	4
6.	UMCD 473	Web Design Technology (Lab)	0	0	4	4
7.	UMCD 474	Concept of Film Making (Lab)	0	0	2	2
8.	UMCD 41*	Elective - I	0	0	4	8
9.	UMCD 491	Design Studio – IV (Modeling & Texturing)	0	0	5	10
TOTAL			**4**	**0**	**21**	**38**
Total Contact Hours: 25						
Total Credit: 38						

****Industrial Training Phase – I**
(During summer break tentatively in the month of JUNE – JULY)

* Elective – I : Subjects		
Sl. No.	**Subject code**	**Subjects**
1.	UMCD 411	Graphic Design for Communication
2.	UMCD 412	Effective Mass Communication
3.	UMCD 413	Art of Acting and Voiceover For Animation
3.	UMCD 41*	Any other subject offered from time to time with the approval of the university.

SEMESTER V

SL. NO.	COURSE CODE	COURSE TITLE	L	T	P/S*	C
THEORY/TUTORIAL/STUDIO						
1.	UHSS 501	Industrial Management and Entrepreneurship	3	0	0	6
2	UCSE 509	Introduction to Programming	2	0	0	4
2.	UMCD 501	3D Animation Technique	1	0	0	2
4.	UMCD 502	Audio Video Editing	1	0	0	2
6.	UCSE 579	Introduction to Programming (Lab)	0	0	4	4
5.	UMCD 571	3D Animation Technique (Lab)	0	0	2	2
7.	UMCD 572	Audio Video Editing (Lab)	0	0	4	4
8.	UMCD 591	Design Studio – V (3D Animation)	0	0	5	10
9.	UMCD 51*	Elective - II (project based)	0	0	4	8
TOTAL			**7**	**0**	**19**	**42**
Total Contact Hours: 26						
Total Credit: 42						

* Elective – II : Subjects		
Sl. No.	**Subject code**	**Subjects**
1.	UMCD 511	Instructional Design and Multimedia
2.	UMCD 512	Digital Sculpting
3.	UMCD 513	Advanced Texturing Techniques
3.	UMCD 51*	Any other subject offered from time to time with the approval of the university.

SEMESTER VI

SL. NO.	COURSE CODE	COURSE TITLE	L	T	P/S*	C
THEORY/TUTORIAL/STUDIO						
1.	UMCD 601	Creative Thinking Process and Methods	1	0	0	2
2.	UMCD 602	Computer Generated Lighting and Rendering	1	0	0	2
3.	UMCD 603	Visual Effects & Digital Compositing	1	0	0	2
4.	UMCD 604	Introduction to Game Design	1	0	0	2

5.	UMCD 672	Computer Generated Lighting and Rendering (Lab)	0	0	4	4
6.	UMCD 673	Visual Effects & Digital Compositing (Lab)	0	0	2	2
7.	UMCD 674	Introduction to Game Design (Lab)	0	0	4	4
8.	UMCD 691	Design Studio – VI (Visual Effects)	0	0	5	10
9.	UMCD 61*	Elective - III (project based)	0	0	4	8
TOTAL			**4**	**0**	**19**	**36**
Total Contact Hours: 23						
Total Credit: 36						

****Industrial Training Phase – II**
(During summer break tentatively in the month of JUNE – JULY)

*** Elective – III : Subjects**		
Sl. No.	**Subject code**	**Subjects**
1.	UMCD 611	New Media and Interaction
2.	UMCD 612	Video Production and Editing
3	UMCD 613	Digital Design and Animation
4.	UMCD 61*	Any other subject offered from time to time with the approval of the university.

SEMESTER VII

SL. NO.	COURSE CODE	COURSE TITLE	L	T	P/S*	C
THEORY/TUTORIAL/STUDIO						
1.	UMCD 701	Animation Production Design	1	0	0	2
2.	UMCD 771	Animation Production Design (Lab)	0	0	6	6
3.	UMCD 791	Minor Project	0	0	8	16
4.	UMCD 792	Design Management and Professional Practice (Industrial Presentation)	0	0	4	4
5.	UMCD 71*	Elective - IV (project based)	0	0	4	8
TOTAL			**1**	**0**	**22**	**36**
Total Contact Hours: 23						
Total Credit: 36						

*** Elective – IV : Subjects**		
Sl. No.	**Subject code**	**Subjects**
1.	UMCD 711	Game Design and Production Process
2.	UMCD 712	Lighting with Arnold/Mental Ray
3.	UMCD 713	Editing and Compositing Techniques
3.	UMCD 71*	Any other subject offered from time to time with the approval of the university.

SEMESTER VIII

SL. NO.	COURSE CODE	COURSE TITLE	L	T	P/S*	C
THEORY/TUTORIAL/STUDIO						
1.	UMCD 891	Major Project (Thesis Project)	0	0	8	16
2.	UMCD 892	Multimedia Design Research Seminar	0	0	4	4
3.	UMCD 81*	Elective - V	0	0	4	8
TOTAL			**0**	**0**	**16**	**28**
Total Contact Hours: 16						
Total Credit: 28						

*** Elective – V : Subjects**		
Sl. No.	**Subject code**	**Subjects**
1.	UMCD 811	Tangible User Interface
2.	UMCD 812	Communication Design
3.	UMCD 81*	Any other subject offered from time to time with the approval of the university.

Consolidated statement of total credits in each semester

Semester	L	T	P/S	Credit
1	6	0	19	36
2	9	0	11	34
3	5	0	19	34
4	4	0	21	38
5	7	0	19	42
6	4	0	19	36
7	1	0	22	36
8	0	0	16	28
Total	36	0	146	284

As per CIT Academic Ordinance:

1 h Lecture (L) per week	2 credit
1 h Tutorial (T) per week	2 credit
1 h Studio Project	2 credit
1 h Practical (P) per week	1 credit
1 h Project Work	1 credit
1 h Seminar / Training / Industrial Training	1 credit

COURSE CONTENTS

SEMESTER – 1

Course Title: COMMUNICATION SKILLS **L-T-P-C:** 2-0-0-4

Course Code: UHSS 101 / 171

MODULE	TOPIC	COURSE CONTENT
1	**Grammar**	Correction of sentence, Vocabulary / word formation, Single word for a group of words, Fill in the blank, transformation of sentences, Structure of sentences – Active / Passive Voice – Direct / Indirect.
2	**Narration**	Essay – Descriptive – Comparative – Argumentative – Thesis statement- Structure of opening / concluding paragraphs – Body of the essay.
3	**Reading Comprehension**	Global – Contextual – Inferential – Select Passages from recommended text.
4	**Business Correspondence**	Letter Writing – Formal. Drafting. Bio-data-Resume - Curriculum Vitae.
5	**Report Writing**	Structure, Types of report – Practice Writing.
6	**Communication and Public Speaking Skill**	Communication Process-meaning, principles of effective communication (barriers and solutions), Introduction to the sounds of English, Features of effective speech, verbal-nonverbal.
7	**Group Discussion**	Principle – practice.

TEXTBOOKS / REFERENCES:

1. S R Inthira & V Saraswathi " *Enrich your English – a) Communication skills b) Academic skills* " Publisher CIEFL & OUP
2. R.C. Sharma and K.Mohan , "*Business Correspondence and Report Writing*", Tata McGraw Hill , New Delhi, 1994
3. L.Gartside , "*Model Business Letters*" , Pitman , London , 1992
4. Longman, "*Longman Dictionary of Contemporary English*" (or '*Oxford Advanced Learner's Dictionary of Current English*', OUP, 1998.
5. Maxwell Nurnberg and Rosenblum Morris , "*All About Words*" , General Book Depot, New Delhi , 1995
6. *Written Communication in English* by Sara-Freeman – Orient Longman

Course Title: INTODUCTION TO DESIGN **L-T-P-C:** 1-0-2-4

Course Code: UMCD 101 / 171

MODULE	TOPIC	COURSE CONTENT
1	**UNIT – 1 Introduction**	Introduction of Design. Arts and Social Sciences. Design as a creative professional career. Interrelationship of Design to Engineering. Inter-relationship of 2D & 3D forms.
2	**UNIT – 2 History**	Brief history of developments in Design and Technology. Aesthetics, Ergonomic, Scientific and Engineering considerations in Design.

3	**UNIT – 3** **Understanding Design**	Case studies in Product, Communication, and Environment Designs. Stages in the design processes. Design and indigenous technology.
4	**UNIT – 4** **Role of Design**	Role of Design in creating the future. Status of Design profession in India and worldwide.

TEXTBOOKS / REFERENCES:

1. D. Norman, *Design of Everyday Things*, Currency Books, New York, 1990.
2. R. Hollis, *Concise History of Graphic Design*, Thames and Hudson, 1994.
3. P. Sparke, *Introduction to Design and Culture in the 20th Century*, Routledge, 1986.
4. J. Guy, *20th Century Design*, Thames and Hudson, 1993.
5. M.A. Muser and D.Macleon, *Art and Visual Environment*, MIT Press, 1996.
6. Visual Intelligence, Donald D. Hoffman, 2000
7. M.N. Horenstein, *Design Concepts for Engineers*, Prentice Hall UK, 2002.
8. J.H. Earle, *Engineering Design Graphics*, Addition Wesley, 2003.

Course Title: Fundamentals & Principles of Art **L-T-P-C:** 1-0-3-5
Course Code: UMCD 102 / 172

MODULE	TOPIC	COURSE CONTENT
1	**Elements of Art**	Shape, Form, Texture, Space
2	**Principles of Art**	Balance, Movement, Emphasis, Variety, Unity, Pattern, Art Media and Techniques, Drawing and Painting-Sculpture, Architecture, Pottery, Weaving, body painting/printing and adornments *(clothing, tattoo and jewellery)*, Printmaking and Photography, Crafts, Graphic Design and Computer Art. The styles and forms of Art *(paintings, sculpture and applied art).*
3	**Two-Dimensional Art**	Influences of Western Art such as Impressionism, Expressionism, Cubism, Surrealism, Abstract Expressionism, Realism, Popular (Pop) Art, Optical (Op) Art, Minimalism, Photo-realism, Conceptual Art.
4	**Three-Dimensional Art**	Sculptures, statues, installations, kinetic art and performance art.
5	**Aesthetic theories**	Realism, emotionalism, formalism, feminism, and constructivism.

TEXTBOOKS / REFERENCES:

1. *Art Fundamentals: Theory and Practice* by Otto G. Ocvirk, Robert Stinson, Philip R. Wigg, Robert O. Bone, David L. Cayton
2. *The Elements of Art and Composition* by Brenda Ellis. Publisher: Artistic Pursuits Inc. Comb-binding, 92 pages, 68 lessons, 186 illustrations. ISBN: 978-1-939394-08-8, January 1, 2013, 3rd Edition
3. Fred, S. Kleiner, "*Gardener's Art through Ages*", Harcourt College Publishers, 2001.
4. Bernard S. Myers, *Understanding the Arts*, Holt, Rinehart and Winston Inc, 1964
5. Edith Thomory, "*A History of Fine Arts in India and the West"*, Orient Longman

Publisher's Pvt.Ltd, 1982
6. H.H. Arnason, "*History of Modern Art*", Thames and Hudson, 1977.

Course Title: Computer Fundamentals & Operation **L-T-P-C:** 2-0-2-6

Course Code: UMCD 103 / 173

MODULE	TOPIC	COURSE CONTENT
1	**Definition and History of computer**	Definition of Electronic Computer, History, Generations, Characteristic and Application of Computers, Classification of Computers, Computer Languages, Generation of Languages, Algorithm, Flow charts.
2	**Components of computer system**	Components of Computer system, Memory– different types, functions, concept of I/O devices. Types of software, Role of Operating System
3	**Number system**	Number system -Decimal, binary, octal, hexadecimal number systems and conversion from one system to another, Coding System -ASCII, EBCDIC
4	**Fundamentals of networking**	Fundamentals of networking – network topology, concept of LAN, WAN, MAN, network devices – NIC, hub, bridge, switch, repeaters, gateway, modem, transmission media
5	**Basics of Internet and Web technology**	Internet and World Wide Web: Hypertext Markup Language, DHTML,WWW, Gopher, FTP, Telnet, Web Browsers, Net Surfing, Search Engines, Email, Benefits and impact of e-commerce,
6	**Introduction to MS Office**	Basic feature of MS Office, Office Tools, MS Excel, MS PowerPoint.

TEXTBOOKS / REFERENCES:

1. *Computer Fundamentals*, Pradeep K Sinha, Priti Sinha
2. Rajaraman, *Introduction to Computers*, PHI
3. *Learning Word for Windows*: Rajib Mathur
4. *ABC of Office*: Han

Course Title: Drawing and Illustration Technique **L-T-P-C:** 0-0-5-5

Course Code: UMCD 174

MODULE	TOPIC	COURSE CONTENT
1	**Drawing Man-Made Objects**	Drawing from cubes, cones, cylindrical object, casts, drapery, and still life groups etc.
2	**Nature drawing**	Nature drawing to develop the sense of structure. Study from any kind of forms in nature-pods, shells, butterflies, flowers, plants, insects, minerals bones etc. To understand how these forms achieve their structural unity through adherence to principles with physical nature of the material being observed and studied through various rendering media and techniques in various light conditions.

3	**Nature drawing from human figures**	Nature drawing from human figures – mainly based on general form and gesture – Head study. Drawing from Memory – To develop the sense of observation and the capacity to retain and recall images and their co-ordinations**.**
4	**Introduction to Elements of Perspective**	Study of basic solids, plan and elevation main aspects of parallel and 2 angular perspective.
5	**Calligraphy**	Basic discipline of beautiful handwriting, sense of letter form – Simultaneous judgment of the composition of the letters – spacing – organization – intuitive and logical planning of writing – development of style. A Co-ordinate series of assignments of script writing with different types of traditional and modern tools. Students be exposed to Calligraphic examples of various traditional scripts.
6	**Outdoor sketching**	Rapid sketching from any objects from places like – streets, market, stations etc. and also from Museums and Zoo etc. Students should be exposed to such drawing made by master artists of different times.

TEXTBOOKS / REFERENCES:

1) *Drawing* By Daniel Marcus Mendelowitz
2) *Dynamic Figure Drawing* Watson-Guptill Publications, 1996
3) *Keys to drawing* By Bert Dodson
4) *Drawing: Space, Form, and Expression* Wayne Enstice, Melody Peters
5) *Drawing distinctions: the varieties of graphic expression* By Patrick Maynard
6) *Basic figure drawing techniques* By Greg Albert
7) *Secrets to Drawing Realistic Children* By Carrie Stuart Parks, Rick Parks

Course Title: Design Studio – I (Digital Drawing Technique) **L-T-P-C:** 0-0-5-10

Course Code: UMCD 191

MODULE	TOPIC	COURSE CONTENT
1	**Project 1**	**Project based on following contents:** Implementation of design or art elements & principle on drawing.
2	**Project 2**	**Project based on following contents:** Graphic Design and Computer Art. The styles and forms of Art *(paintings, sculpture and applied art).* Basic Typo design, Basic concept of Photography, Natural Study Perspective knowledge, Outdoor study, Calligraphy Life drawing etc.
3	**Project 3**	**Project based on following contents:** Basic type of Animation movie concept, Doodle Design, Handmade drawing or Sketches implement on digital print making techniques etc.
4	**Project 4**	**Final design based project report**

COURSE CONTENTS

SEMESTER – 2

Course Title: Professional Ethics & Human Value **L-T-P-C:** 2-0-0-4

Course Code: UHSS 201

MODULE	TOPIC	COURSE CONTENT
1	**Engineering Ethics**	Senses of 'engineering ethics' – variety of moral issues – types of inquiry – moral dilemmas – moral autonomy – Kohlberg's theory – Gilligan's theory – consensus and controversy –professions and professionalism – professional ideals and virtues – theories about right action – self- interest – customs and religion – uses of ethical theories
2	**Engineering as Social Experimentation**	Engineering as experimentation – engineers as responsible experimenters – codes of ethics – a balanced outlook on law – the challenger case study
3	**Responsibility for Safety**	Safety and risk – assessment of safety and risk – risk benefit analysis – reducing risk.
4	**Responsibilities and Rights**	Collegiality and loyalty – respect for authority – collective bargaining – confidentiality –conflicts of interest – occupational crime – professional rights – employee rights – intellectual property rights – discrimination
5	**Global Issues**	Multinational corporations – environmental ethics – computer ethics – weapons development –engineers as managers – consulting engineers – engineers as expert witnesses and advisors – moral leadership – sample code of conduct

TEXTBOOKS / REFERENCES:

1. Mike Martin and Roland Schinzinger, "*Ethics in Engineering*", McGraw Hill, New York, 1996.
2. Charles D Fleddermann, "*Engineering Ethics*", prentice Hall, New Mexico, 1999.
3. Laura Schlesinger, "*How Could You Do That: The Abdication of Character, Courage, and Conscience*", Harper Collins, New York, 1996.
4. Stephen Carter, "*Integrity*", Basic Books, New York, 1996.

Course Title: HISTORY OF ART AND APPRECIATION **L-T-P-C**: 2-0-0-4

Course Code: UMCD 201

MODULE	TOPIC	COURSE CONTENT
1	**Introduction to Art history**	Importance of "Art History" as a discipline while studying Visual Arts,

2	**Pre & Proto Historic Period**	Prehistoric Cave paintings from Bhopal, Harappa & Mohenjedaro Civilization (town planning, sculpture-Beard man, dancing girl, seals and script), Rock cut architecture, Architecture- Ajanta, Brahminical cave, Architecture - Ellora,
3	**Indian Artist & Works**	Gagendranath Tagore, Jamini Roy, Rabindranath Tagore, Amrita Sher Gill, Ramkinker Vaij etc.
4	**Western artists & Works:**	Michelangelo, Leonardo da Vinci, Vincent van Gogh, Paul Gauguin, Georges Seurat, Salvador Dali, Pablo Picasso etc.

TEXTBOOKS / REFERENCES:

1. *Typology* - G.M. Rege, Bombay..
2. *Kalatmak Lykhai*, published by D.A.V.P.
3. *Figure Painting in Water Colour*, Charles Reid Watson, Guptill Publication.

Course Title: Introduction to Multimedia Communications **L-T-P-C**: 2-0-2-6

Course Code: UMCD 202/272

MODULE	TOPIC	COURSE CONTENT
1	**Introduction**	Introduction to Multimedia; Definition, History and Applications of Multimedia; Characteristics of Multimedia; Components of Multimedia System; Static and Continuous Media
2	**Analog and Digital Signals**	Analog and Digital Signals; Analog to Digital and Digital to Analog Conversion.
3	**Data Compression**	Types of Data Compression; Introduction to Various Compression Techniques– Shannon Fano, Huffman Coding, LZW Coding, Run-Length Encoding, JPEG, MPEG.
4	**Elements of Multimedia**	Understanding the Elements of Multimedia– Text, Still Images, Graphics, Audio, Video and Animation.
5	**The WWW**	Overview of the Internet; Web Browsers, Internet Services- URL, Dial-ups, ISDN, E- mail, Chat, Cross-Platform Features, Audio & Video Streaming; Internet Applications – Audio & Video conferencing, Internet telephony, World Wide Web, Computer Networks.
6	**Virtual Reality**	Introduction to Virtual Reality; VR- Systems; VR Tools.

TEXTBOOKS / REFERENCES:

1. Tay Vaughan, *Multimedia: Making It Work*, Ninth Edition, Tata Mc-Graw Hill Education, 2014.
2. Jennifer Coleman Dowling, *Multimedia Demystified*, First Edition, Mc-Graw Hill, 2012.
3. Ze-Nian Li and Mark S. Drew, *Fundamentals of Multimedia*, First Edition, Eastern Economy Edition, PHI Learning Pvt. Ltd.
4. Patrick Buckley, Frederic Lardinois and DODOcase, *Virtual Reality Beginner's Guide + Google Cardboard Inspired VR Viewer*, Regan Arts, 2014, ISBN-10: 1941393101, ISBN-13: 978-1941393109.

Course Title: Fundamentals of Animation Design **L-T-P-C**: 2-0-2-6

Course Code: UMCD 203/273

MODULE	TOPIC	COURSE CONTENT
1	**Introduction**	Introduction to Animation, Animation History, Animation techniques: Traditional animation practices and their importance and relation to contemporary animation techniques. Introduction to specialized areas: Cel-animation, character animation, clay animation and puppet animation, Principles of Animation, Production Pipeline.
2	**Pre-Production**	Introduction to Pre-Production, Scripting, Storyboarding, Layout, Character Designing, Props Designing, Background Designing, Camera Angles, Frame Length.
3	**Visual Culture**	Importance of visual culture in the study of animation. Applying visual technology for animation.
4	**Production**	Animation production: techniques for production and analyzing 2D and 3D animation. 3D Modeling, Texturing, Rigging, 3D Animation, CG Lighting, Visual Effects
5	**Post-Production**	Post Production processes, Importance of post-production, Compositing, and Rendering.

TEXTBOOKS / REFERENCES:

1. K. Laybourne, *The animation book: a complete guide to animated filmmaking, from filp-books to sound cartoons*, Revised Edition, Three Rivers Press, 1998.
2. S. Roberts, *Character Animation in 3D: Use of traditional drawing techniques to produce stunning CGI animation*, Focal Press, 2004.
3. *Beginner's Guide to Animation* – by Mark Murphy; Watson-Guptill Publication.
4. O. Johnston, and F. Thomas, *The Illusion of Life: Disney Animation*, Walter Foster Publishing.
5. W. T. Foster, *Cartooning: Animation Basics*, Revised Edition, Walter Foster Publishing.
6. M. Nicholas, *Introduction to Visual Culture*, Routledge, London.

Course Title: Introduction to Graphic Design **L-T-P-C**: 1-0-2-4

Course Code: UMCD 204

MODULE	TOPIC	COURSE CONTENT
1	**UNIT - 1**	Introduction to elements of graphic design – Text and image, grids and layout, composition, form and function, figure and ground phenomenon. Typographic fonts and their characters.
2	**UNIT - 2**	Gestalt Laws
3	**UNIT - 3**	Typographic parameters: x-height, ascenders, descenders, kerning, tracking and leading. Variations of body text, headlines and display text. Grid in graphic design.
4	**UNIT - 4**	Hands on practice in applications of fundamentals of Graphic Design.
5	**UNIT - 5**	Introduction to Printing Technology. Introduction to Digital Media Technology. Case studies

TEXTBOOKS / REFERENCES:

1. Swan, *The new Graphic Design School*, VNR, 1997.
2. R. Carter and P. B. Meggs, *Typographic Design: Form and Communication*, John Wiley & Sons, 2000.

3. A. Darley, *Visual Degital Culture*, Routledge, 2000.
4. M. A. Muser and D. Macleon, *Art and Visual Environments*, MIT Press, 1996.
5. R. Hollis, *Concise History of Graphic Design*, Thames & Hudson, 1994.
6. P. B. Meggs, *Type and Image: the language of graphic Design*, VNR, 1992.
7. A. White, *Type of use: effective typography for electronic publishing*, New York Design Press, 1992.

Course Title: Design Studio – II (Graphic Design) **L-T-P-C**: 0-0-5-10

Course Code: UMCD 291

MODULE	TOPIC	COURSE CONTENT
1	**Project 1**	**Project based on following contents:** Application of Elements of graphic design - Text and image, grids and layout, composition, form and function, figure and ground phenomenon. Typographic fonts and their characters.
2	**Project 2**	**Project based on following contents:** Gestalt Laws and its practical application.
3	**Project 3**	**Project based on following contents:** Applications of Typography in hypothetical and real projects.
4	**Project 4**	**Project based on following contents:** Application of Printing Technology and Digital Media Technology.

COURSE CONTENTS

SEMESTER – 3

Course Title: Multimedia Design Fundamentals **L-T-P-C**: 2-0-2-6

Course Code: UMCD 301/371

MODULE	TOPIC	COURSE CONTENT
1	**UNIT - 1**	Need for Multimedia, Present and Future Market Potential.
2	**UNIT - 2**	Dimensions of Multimedia – Functionality, Aesthetics, Content and Usability.
3	**UNIT - 3**	Multimedia Product Possibilities.
4	**UNIT - 4**	Understanding Authoring Tools – Types of Authoring Tools, Important Features.

5	**UNIT - 5**	Multimedia Skills, Building an Efficient Team, Role of Multimedia Producer, Writer, Interface Designers, Audio and Video Specialist, Multimedia Programmer.
6	**UNIT - 6**	Stages of creating a Multimedia Project – Planning and Costing, Designing and Producing, Design Aesthetics - Interface Design, Graphical User Interface, Target Audience, Social Media, Designing for the World Wide Web, Testing, Delivery.

TEXTBOOKS / REFERENCES:

1. Vic Costello with Susan A. Youngblood and Norman E. Youngblood, *Multimedia Foundations: Core Concepts for Digital Design*, Focal Press, 2013.
2. Tay Vaughan, *Multimedia: Making It Work*, Ninth Edition, Mc-Graw Hill Education, 2014.
3. Jennifer Coleman Dowling, *Multimedia Demystified*, First Edition, Mc-Graw Hill, 2012.
4. Gary Olsen, *Getting Started in Multimedia Design*, First Edition, North Light Books, 1997.

Course Title: Concept of Storyboarding & Script Writing **L-T-P-C**: 1-0-4-6

Course Code: UMCD 302/372

MODULE	TOPIC	COURSE CONTENT
1	**Layout of the story**	Character design, Situation, Background Building of the story, Insurmountable problems, Gradual or sudden crumbling, Types of screenplay- Proposal script, shooting script, post-production script,
2	**Story Content for a Screenplay**	High concept, Originality and familiarity, Subplots, Character growth, Theme, Identification & Motivation, Obstacle & Courage, Familiarity of setting, Film category & Cost,
3	**Developing a Screenplay**	Developing a Hero & other characters, Creating sympathy or hatred for the character, Make the character likeable.
4	**Structure of Screenplay**	Three act - Individual scene
5	**Terminology**	Fade in and Fade out, Cut to.
6	**Introduction to Storyboard**	Parts of storyboard - Advantages of storyboarding - Interactive Storyboarding - Designing of Storyboard exercise

TEXTBOOKS / REFERENCES:

1. Chawdhary, Nirmal Kumar, *How to write film screenplay*, Kanishka publishers, distributers, New Delhi- 110002, 2009, ISBN 978-81-8457-112-7.
2. Rubenstein, Paul Max, Martin Jo Maloney, *Writing For the Media, Film Television, Video And Radio*, Prentive Hall, Englewood Clifts, New Jersey 07632, 1988, ISBN: 0-13-971508-7-01.
3. Whitaker, Harold, John Halas, Updated by Tom Sito, *Timing for Animation*, Focal Press Elsevier, New York & Singapore, 2009 ISBN: 978-0-240-52160-2.

Course Title: 2D Animation Techniques **L-T-P-C**: 1-0-2-4

Course Code: UMCD 303/373

MODULE	TOPIC	COURSE CONTENT
1	**Introduction to Animation**	Origin and development of Animation, Early Animation-Victorian, Zoetrope, The magic lantern, Thaumatrope, Flip Book, Praxinoscope, Traditional Animation, Feature Length Film, Stop motion, Computer Animation.
2	**Future of Animation**	Animated Humans, Cell Shaded Animation, Principle of Animation.
3	**Process of Animation**	Synopsis writing, Budgeting, Developing a crew.
4	**Pre-production**	Story Writing, Script /dialogue Writing, Screenplay, Model sheet-Character designs, Storyboard.
5	**Production**	Sound mixing, Special Effects, Color Corrections, Rendering, Exercise on Story, Storyboard and Screenplay Writing.
6	**Group Discussion**	Principle – practice.

TEXTBOOKS / REFERENCES:

1. *History of Animation*- Wikipedia, the free encyclopaedia 6-2-2010 p 1-15.
2. Thomas, Frank and Ollie Johnston, *The Illusion of life Disney Animation*, Walt Disney production, New York, NY 10011, Revised Edition of Disney Animation, Popular Edition 1984 ISBN 0-7868-6070-70.
3. "*Principle of Traditional Animation applied to 3D computer Animation*" pixer son Rofael California In ACM Computer Graphics (21) 4th July 1987Rubenstein, Paul Max, Writing for Media, Prentice Hall, Englewood Cliffs, New Jersey 07632, 1988. ISBN 0- 13-971508-8.

Course Title: Introduction to Photography and Videography **L-T-P-C**: 1-0-2-4

Course Code: UMCD 304/374

MODULE	TOPIC	COURSE CONTENT
1	**Basics of Photography**	Introduction to Photography, History of camera, Types of camera, Principles of photography, Rule of Third, Golden Ratio.
2	**Parts of Still Camera**	Aperture, shutter speed, lens, filters and flash, Camera films.
3	**Basics of Videography**	Basic components of video camera, Basic shots and shot composition, Camera angles and movements, Camera mountings, camera control unit, Focus & Defocus.
4	**Lighting for Photography and Videography**	What is lighting? Importance of lighting in photography & Videography, Lighting equipment and control, Lighting techniques and problems.
5	**Theory of Colours**	Origin of Colour, Colour Temperature, White Balance: Process and Need.

TEXTBOOKS / REFERENCES:

1. Wells, Liz, *Photography*, ISBN 978-0-415-46087-3.
2. Kobre, Kenneth, *Photo journalism*, Focal Press, IBSN 978-0-7506-8593-1
3. Millerson Gerold, *Television Production*, Focal Press.

4. Zettl, Herbert, *Handbook of Television Production*, Cengage Learning India Private Limited, Alps Building Ist Floor, 56-Janpath, New Delhi-110001, Reprint 2008 ISBN: 13 : 978-81-315-0508-3.
5. Belavady Vasuky, *Video Production*, Oxford Publication.

Course Title: Clay Modeling **L-T-P-C**: 0-0-4-4

Course Code: UMCD 375

MODULE	TOPIC	COURSE CONTENT
1	**Study of two dimensional space**	Carved, Modelled, Perforated, Mobile.
2	**Dimensional organizational possibilities**	Various methods of joining such as interlocking, pasting etc.
3	**Knowledge of 3D**	Paper, Card board, Wood block.
4	**Clay Preparation with Various materials**	Wire, Clay, Plasticise, Plaster of Parries, Metal sheets, Plastic, Foam, Thermocol, String, Gums and adhesives, Wax, Found objects, etc.
5	**Design Prototype**	A Co-ordinated series and basic design problems with analytical approach
6	**Colour treatment**	Colour should be introduced at various stages of experiments.

TEXTBOOKS / REFERENCES:

1. *Clay: the history and evolution of humankind's relationship with Earth's most primal element*, Suzanne Staubach.
2. *Clay: a studio handbook*, Vince Pitelka.
3. *The Figure in Clay: Contemporary Sculpting Techniques by Master Artists,* By Suzanne J. E. Tourtillott.
4. *Clay Tobacco Pipes*, By Eric G. Ayto.

Course Title: Design Studio – III (2D ANIMATION) **L-T-P-C**: 0-0-5-10

Course Code: UMCD 391

MODULE	TOPIC	COURSE CONTENT
1	**Project 1**	**Project based on following contents:** Line of action, Poses making, Story contents develop, Acting & posing.
2	**Project 2**	**Project based on following contents:** Traditional Animation, Stop motion, Clay Animation, Paper cut animation.
3	**Project 3**	**Project based on following contents:** 2D Character and background design, 2D digital animation concept.
4	**Project 4**	**Final design based project report.**

COURSE CONTENTS

SEMESTER – 4

Course Title: 3D Modeling and Texturing **L-T-P-C**: 1-0-2-4

Course Code: UMCD 401/471

MODULE	TOPIC	COURSE CONTENT
1	**Introduction to the Maya Interface**	Basic 3D transforms (translation, rotation, scaling).
2	**Modeling a Simple Character with Subdivision Surfaces**	Concepts of Modeling with Subdivision Surfaces, Modeling and a Character with Polygon & NURBS: NURBS Topology, Tools & Methods, Modeling with Profile Curves, Designing and Modeling a Character with Polygon & NURBS.
3	**Modeling a Simple Character with Polygons**	Modeling with Polygon Tools, Using Image Planes, Block Modeling, Sculpting the Character, Groups and Hierarchies.
4	**Designing a Humanoid and Modeling the Head**	Human Anatomy for Modelers, Using Distortions for Artistic Purposes, Methods and Tools.
5	**Knowledge of Texturing**	Shading textures, Colour, texture and surface styles. Hyper shade, UV Knowledge, Create UVs, UVs layout tools, Projection UVs map, Utilizes the UV texture, adding texture mapping on any objecting and character.

TEXTBOOKS / REFERENCES:

1. Murdock, Kelly C., *3ds Max 7 Bible*, Wiley Dreamtech India Pvt. Ltd. New Delhi, 2005, ISBN: 81-265-0597-4.
2. Kulagin, Boris, Dmitry Morozou, *3Ds Max & Animation with Character Studio 4 and Plug-Ins*, Firewall Media, New Delhi, 2006, ISBN: 81-7008-820-8.
3. Kulagin, Boris, *3ds Max 8, From Modeling to Animation*, BPB Publications, B-14, Connaught Place, New Delhi-110001, 2007, ISBN: 81-8333-201-3.

Course Title: Rigging for 3D Animation **L-T-P-C**: 1-0-4-6

Course Code: UMCD 402/472

MODULE	TOPIC	COURSE CONTENT
1	**Rigging Basics**	Introduction to 3D animation basics, Key Frame Animation, Animation Techniques: Non –Linear and Character Animation, Path Animation, Exercises and warm ups.
2	**Character Rigging**	Character Rigging: Anatomy study, Understanding Skeletons and Joints, Use of Deformers, Creating bones for Character.
3	**Kinematics**	Kinematics: Inverse kinematics (IK) & forward kinematics (FK)
4	**Character set-up**	Character set-up for a wide range of complex body movement, with controls that are intuitive and flexible.

5	**Skinning methods**	Binding & Weight for character, direct and indirect skinning methods

TEXTBOOKS / REFERENCES:

1. *Inspired 3D Advanced Rigging and Deformations* by Brad Clark, John Hood & Joe Harkins; Course Technology PTR; 1 edition (March 25, 2005), ISBN-10: 1592001165.

Course Title: Web Design Technology **L-T-P-C**: 1-0-4-6

Course Code: UMCD 403/473

MODULE	TOPIC	COURSE CONTENT
1	**UNIT - 1**	History of Web and its background
2	**UNIT - 2**	Web design tools and techniques – Photoshop, Dreamweaver, Flash, FrontPage and other important tools and software, Web authoring.
3	**UNIT - 3**	Web design technology – Introduction to HTML, CSS, Java, PHP.
4	**UNIT - 4**	Word Press tools, SEO technology, Search engine technology.
5	**UNIT - 5**	Assignments and Discussions

TEXTBOOKS / REFERENCES:

1. *Using the internet* (4th Ed.), Prentice Hall, New Delhi, 2000.
2. *Building a website*, Tim Worsley, Orling Kindersely, New Delhi, 2000.
3. *Web Designing Fundamentals*, Daniel Gray, Dreamtech Press, New Delhi, 2000.
4. *How the Internet works*, Millennium Edition by Preston Gralla.
5. *Adaptive Web Design*, 2nd Edition By Aaron Gustafson, New Riders, December 2015.

Course Title: Concept of Film Making **L-T-P-C**: 1-0-2-4

Course Code: UMCD 404/474

MODULE	TOPIC	COURSE CONTENT
1	**Introduction**	Definition of Film, Concept and idea generation, Scope of Documentary/Film, Story development - treatment - scriptment -plot points – structure, Writing the screenplay, Re-writing the screenplay, Scenic design and props, Concept of virtual studio, Financing the movie.
2	**Pre-production**	Casting Locations, Shot list, Script, Tech scout, Film Production design.
3	**Production**	Principle of photography / videography – setting up, Rehearsal Setting up shots, Single and multi-camera shooting, Checking the take.
4	**Post-production**	Editing, Sound mixing, Music, Test screenings, Movie distribution.

TEXTBOOKS / REFERENCES:

1. Renee Dunlop, *Production Pipeline Fundamentals for Film and Games*, Focal Press.
2. Eve Light Honthaner, *The Complete Film Production Handbook*, Focal Press.

Course Title: Design Studio – IV (Modeling & Texturing) **L-T-P-C**: 0-0-5-10

Course Code: UMCD 491

MODULE	TOPIC	COURSE CONTENT
1	**Project 1**	**Project based on following contents:** Designing and Modeling a character with Polygons or NURBS/ Designing 3D environment set
2	**Project 2**	**Project based on following contents:** Sculpting the Character/ Environment set, Projection UVs map /Utilizes the UV texture etc.
3	**Project 3**	**Project based on following contents:** Adding texture mapping on objects/ character.
4	**Project 4**	**Final design based project report.**

Course Title: ELECTIVE – 1 **L-T-P-C**: 0-0-4-8

Course Code: UMCD 41*

Elective subject – 1 (Code: UMCD 411): Graphic Design for Communication

Communicating ideas and concepts using various means of drawing and illustration techniques, Creation of artworks for reproduction using tools of new media. Traditional vs. Digital printing, Lithography, Gravure, Letter press, Screen printing, Digital printing. Dot gain and choice of papers for different quality of printing. Desk Top Publication production, color separation, positives and plate making, exposure to pre-press activities in off-set printing. Paper sizes and their formats. Basic visual compositions using text and image for both page and screen. Assignments in design of stationary (visiting cards, letter heads, etc.), booklets or label designs for small products.

Texts/Referencebooks:

1. B. Gordon and M. Gordon, *Complete Guide to Digital Graphic Design*, Thames & Hudson, 2002
2. A. Pipes, *Production for Graphic Designers*, Laurence King Publication, 1997
3. T. Porter and S. Goodman, *Manual of Graphic Techniques, Vols. 1, 3, 4*, Architectural Press, 1999
4. A. Glossman, *Printing Fundamentals*, Tappi Press, 1985
5. T. Porter, *Design Drawing techniques for architects, graphic designers and artists*, Architectural Press, Oxford, 1991.

Elective subject – 2 (Code: UMCD 412): Effective Mass Communication

Communication; Nature and Scope of Communication – Sociological and Psychological aspects of Communication – Levels of Communication; Intra-personal, Inter-personal, Group and Mass Communication, Verbal and Non-verbal Communication. Diffusion process; One step; Two step, Multi step flow of Information; Mass Media and Society – Mass Culture. Communication models; Diffusion of Innovation Model. Communication Theories; Cognitive Dissonance, Normative Theories, Perception and Retention, Uses and Gratification Approach, Cultivation Approach, Marxist and Neo-Marxist Approaches. Characteristics and functions of mass communication. Importance of mass

communication. Mass media – press, radio, TV, web and traditional media. Communicating with the masses – Public speaking as communication – audience, structure and formality. Group dynamics- Motivation, Persuasion and leadership traits. Using forms of mass communication- Creative and technical presentations in various areas like graphite, photography, PowerPoint presentations, debates and street plays.

Text / Reference books:

1. Kumar, Kewal J Mass Communication in India, Jaico Books, New Delhi,
2. J.S. Yadava & Pradeep Mathur Issues in Mass Communication: The Basic Concepts, Kanishka Publishers, Delhi, 2008.
3. Shymali Bhattacharjee., Media and Mass Communication: An Introduction, Kanishka Publishers, Delhi, 2005.
4. Burgoon, Michael, Frank G Hansaker, Edwin J Dawson (1994), 'Human Communications' (3rd ed), Sage, New Delhi.
5. Denis McQuail and S. Ven Windall, Longman, Singapore Publications, 1981, 'Communication models for the study of Mass Communication'. 5
6. Melvin L Defluer and Sandra J Ball, Longman Publications, 'Theories of Mass Communication'.
7. De Fleur, Melvin and Dennis, Everette; 'Understanding Mass Communication'; (1988); 3rd edition; Houghton Mifflin Co.
8. Narula, Uma; 'Mass Communication theory and practice'; (1994).
9. Verderber, Rudolph F.(1997). 'The Challenge of Effective Speaking'. (10th ed) Wadsworth, Singapore.

Elective subject – 3 (Code: UMCD 413): Art of acting and voice over for animation

As this is a project based course, hence the contents of the course will be decided by the concerned course instructor as and when the course float.

COURSE CONTENTS

SEMESTER – 5

Course Title: Industrial Management and Entrepreneurship **L-T-P-C**: 2-0-0-4

Course Code: UHSS 501

MODULE	TOPIC	COURSE CONTENT
1	**UNIT - I**	Meaning and Concept of Management, Principles and function of Management, Concept of Organizational Behaviour, Function of a Manager—Planning, Organizing, Coordinating and Controlling. Motivation—implication of Managers and application
2	**UNIT - II**	Leadership and Decision Making: Qualities and Styles of Leadership, Decision making process. Individual Process in Organizations-Perception, attitude and personality, Factors that affect them, How they influence people.

3	**UNIT - III**	Group Process in Organizations, Group formation, Group effectiveness, Group Conflict.
4	**UNIT - IV**	Evolution, Role and Status of Human Resource Management in India. Recruitment and Selection Process in Organization, Job Analysis, Job Specification, Selection Process-Test and Interview.
5	**UNIT - V**	Trade Union and Collective Bargaining, Entrepreneurship - Meaning, Types of entrepreneur, Qualities of an entrepreneur, Role of Entrepreneur, Factors affecting entrepreneurial growth. Entrepreneurship Development Programme - Concept, Objective and Importance, Engineer Entrepreneurship Training Programme Scheme.
6	**UNIT - VI**	Small Scale Industry-Definition, Types of Small Scale Industry, How to Set up Small Scale Industry, Role and Problem of Small Scale Industry. Concept of Joint Stock Company, Private and Public Limited Company. Source of Finance for Entrepreneur-Bank, Government and Financial Institutions etc.

TEXTBOOKS / REFERENCES:

1. S.S. Khanka - *Organisational Behaviour*, S. Chand Publishing, 4th Revised Edition, 2010.
2. S.S. Sarkar, R. K. Sharma and S. K. Gupta – *Business Organisation and Entrepreneurship Development*, Kalyani Publishers, 2014
3. Cynthia L. Greene – *Entrepreneurship: Ideas in Action*, 6th Edition, South-Western Cengage Learning, 2017.

Course Title: Introduction to Programming **L-T-P-C**: 2-0-4-8

Course Code: UCSE 509/579

MODULE	TOPIC	COURSE CONTENT
1	**Fundamentals of Computer**	History of Computer, Generation of Computer, Classification of Computers, Basic Anatomy of Computer System, Primary & Secondary Memory, Processing Unit, Input & Output devices. Binary & Allied number systems representation of signed and unsigned numbers, BCD, ASCII, Binary. Arithmetic & logic gates. Assembly language, High level language, compiler and assembler (basic concepts) Basic concepts of operating systems like MS DOS, MS WINDOW, UNIX, Algorithm & flow chart.
2	**C Fundamentals**	The C character set, identifiers and keywords, data type & sizes, variable names, declaration, statements
3	**Operators and Expressions**	Arithmetic operators, relational and logical operators, type conversion, increment and decrement operators, bitwise operators, assignment operators and expressions, precedence and order of evaluation. Input and Output: Standard input and output, formatted output – printf, formatted input scanf.

4	**Flow of Control**	Statement and blocks, if-else, switch, loops – while, for, do while, break and continue, goto and labels.
5	**Fundamentals and Program Structures**	Basic of functions, function types, functions returning values, functions not returning values, auto, external, static and register variables, scope rules, recursion, function prototypes, C preprocessor, command line arguments
6	**Arrays and Pointers**	One dimensional arrays, pointers and functions, multidimensional arrays.
7	**Structures, Unions and Files**	Basic of structure, structures and functions, arrays of structures, bit fields, formatted and unformatted files.

TEXTBOOKS / REFERENCES:

1. Kerninghan, B.W. *The Elements of Programming Style*.
2. Yourdon, E. *Techniques of Program Structures and Design*.
3. Schied F.S. *Theory and Problems of Computers and Programming*.
4. Gottfried. *Programming with C.* Schaum.
5. Kerninghan B.W. & Ritchie D.M. *The C Programming Language*
6. Rajaraman V. *Fundamental of Computers*.
7. Balaguruswamy. *Programming in C.*
8. Kanetkar Y. *Let us C.*

Course Title: 3D Animation Technique **L-T-P-C**: 1-0-2-4

Course Code: UMCD 501/571

MODULE	TOPIC	COURSE CONTENT
1	**Animation Basics**	Introduction to 3D animation basics, Key Frame Animation, Animation Techniques: Non –Linear animation, Character Animation, Path Animation, Exercises and warm ups.
2	**Motion Studies**	Motion Studies: Laws of Physics, Quick Studies from real life: Path of action, Line of action, Posing 3D characters.
3	**3D Animation Process**	The Animation Process: Planning, creating thumbnails, Blocking Poses, Setting proper timing, refining the animation.
4	**Acting and Animation**	Drama and psychological effect- Laban movement theory, Study of Body language: posture, gesture.
5	**Lip sync Basics**	Facial expression and lip sync

TEXTBOOKS / REFERENCES:

1. *The Animator's Survival Kit* - by Richard Williams; Faber Publications; Main - Revised edition (5 November 2009), ISBN-10: 9780571238347.
2. *Mastering 3D Animation*, by Peter Ratner; Allworth Press (September 1, 2000), ISBN-10: 1581150687.
3. *Acting in Animation: A Look at 12 Films* by Ed Hooks; Heinemann Drama (February 9, 2005), ISBN-10: 0325007055.
4. *Digital Character Animation 3* - by George Maestri; New Riders Press (April 22, 2006), ISBN-10: 9780321376008.

5. *Timing for Animation* - by Harold Whitaker and John Halas; Focal Press; 2nd edition (September 3, 2009), ISBN-10: 9780240521602.

Course Title: Audio Video Editing **L-T-P-C**: 1-0-4-6
Course Code: UMCD 502/572

MODULE	TOPIC	COURSE CONTENT
1	**Basics of Audio - Visual production**	Basic shots and their composition, Various camera movements and angles, Planning and production of programs in studio, Single and multi-camera shooting, Shooting an interview.
2	**Basics of Audio Editing**	Creating time line - cut, fade and mix, Introduction to editing tools, Applying effects to sound, Working with audio editing software.
3	**Basics of Video Editing**	Making edit decisions, Creating a time line, Main tools of editing, Basics transitions: cut, dissolve, wipe and fade, Working on non-linear editing software.
4	**Advanced Editing Techniques**	Audio mixing with visuals, Special audio-video effects, Video titling and graphics, Rendering and authoring, Editing montage and promos.
5	**Introduction of Sound**	Properties of sound- Bass, Timber, Treble, Pitch, Tempo. Sound Aesthetics. Noise-Echo, Reverb and Distortion Sound Effect- Music & Special effects, Basics of Sound Recording Types of Sound- Mono, Stereo, Surround Concept of Dolby Surround Sound.

TEXTBOOKS / REFERENCES:

1. Talbot, Michael -Smith, Sound engineering explained, Focal Press, 2011.
2. Nisbett, Alec, The sound studio: audio techniques for radio, television, film and recording, Focal Press, 2003.
3. Mott, Robert L., Sound effects: radio, TV, and film, Focal Press, 1990.
4. Sonnenschein, David, Sound design: the expressive power of music, voice, and sound effects in cinema, Michael Wiese Productions, 2001.
5. Viers, Ric, The Sound Effects Bible: How to Create and Record Hollywood Style Sound Effects, Michael Wiese Productions, 2008.
6. Sergi, Gianluca, The Dolby era: film sound in contemporary Hollywood, Manchester University Press, 2004 - Altman, Rick, Sound theory, sound practice, Routledge, 1992.
7. Alburger, James, The Art of Voice Acting, Focal Press, 2010, ISBN: 9780240812113.
8. Rumsey, Francis and TIM MCCORMICK, Sound and Recording, Focal Press 2009, ISBN: 978024052163.

Course Title: Design Studio – V (3D Animation) **L-T-P-C**: 0-0-5-10

Course Code: UMCD 591

MODULE	TOPIC	COURSE CONTENT
1	**Project 1**	**Project based on following contents:** 3D Animatic / Stillomatic: Line of action, Character blocking with poses, Story contents development and background design.

2	**Project 2**	**Group Project based on following contents:** Animated short film on a select topic/story: Implementing the 12 principles of animation with an overview of the whole animation process, Character animation, Acting and lip-syncing & post-production.
4	**Project 3**	**Final design based project report.**

Course Title: ELECTIVE – 2 **L-T-P-C**: 0-0-4-8

Course Code: UMCD 51*

Elective subject – 1 (Code: UMCD 511): Instructional Design and Multimedia

Overview of interface and Instructional considerations in interactive design. Case studies presentations of good websites and multimedia. Concepts of information architecture and user study, identification of information paths and how to integrate features and content for effective information navigation. Storyboarding and identification of information hierarchies in information design systems. The use of metaphor in information design. Development of an interface depending on the domains of learning as well as levels of learning, Creating design strategy documents for small learning modules. Understanding interactivity in multimedia. Developing a CD for educational purposes or for a social cause.

References:

1. P. Mijksenaar and P. Wetendrop, *Open Here– The art of Instructional Design*, Thames and Hudson, 1999
2. J. Villamil and L. Molina, *Multimedia: production planning and delivery*, Prentice Hall, 1998
3. P. Mijksenaar, *Visual Information–Introduction to Information Design*, Princeton Architectural Press, 1998
4. M. Woolman, *Type in motion, Innovation in Digital Information Graphics*, Thames & Hudson, 2002

Elective subject – 2 (Code: UMCD 512): Digital Sculpting

As this is a project based course, hence the contents of the course will be decided by the concerned course instructor as and when the course float.

Elective subject – 3 (Code: UMCD 513): Advanced Texturing Technique

As this is a project based course, hence the contents of the course will be decided by the concerned course instructor as and when the course float.

COURSE CONTENTS

SEMESTER – 6

Course Title: Creative Thinking Process and Methods **L-T-P-C**: 1-0-0-2

Course Code: UMCD 601

MODULE	TOPIC	COURSE CONTENT
1	**UNIT - 1**	Cognitive issues in creative thinking; Neurobiological studies of human brain lateralization with respect to creative thinking phenomena.
2	**UNIT - 2**	Introduction to knowledge engineering and management.
3	**UNIT - 3**	Modelling of Design Thinking and Tacit knowledge representation; Fuzzy thinking, vertical thinking, lateral thinking.
4	**UNIT - 4**	Management issues in creativity and innovation; group versus individual creativity.
5	**UNIT - 5**	Creativity techniques and tools; Brain storming, Hypnologic imaginary, TRIZ method, Morphological analysis of ideas. Role of creativity in Innovation and Invention; Comparative studies of creativity in the Arts, Sciences, Engineering and Design.
6	**UNIT - 6**	Future casting; Case Studies; Issues in Intellectual Property Rights.

TEXTBOOKS / REFERENCES:

1. M. Runio and S. Pritzker (eds.), *Encyclopedia of Creativity,* Academic Press, 1999.
2. G. Schreiber, H. Akkermans, A. Anjewierden, R. de Hoog, N. Shadbolt, W. Van de Velde and B. Wielinga, *Knowledge Engineering and Management*, MIT Universities Press India Ltd, 2000.
3. E. De Bono, *Serious Creativity*, INDUS Harper Collins Publishers India, 1992.
4. D. Morey, M. Maybury and B. Thuraisingham, *Knowledge Management*, Universities Press MIT, 2000.
5. T. Proctor, *The essence of Management Creativity*, PHI, New Delhi, 2002.
6. H. Petroski, *Invention by Design*, Universities Press (India) Ltd., 2000.
7. M. French, *Invention and Evolution – Design in Nature and Engineering*, Cambridge University Press, 1994.
8. N. Cross, *Engineering Design Methods – Strategies for Product Design*, John Wiley & Sons, England, 1995.
9. E. Kroll, S. Condoor and D. G. Janson, *Innovative Conceptual Design*, Cambridge University Press, 2001.

Course Title: Computer Generated Lighting and Rendering **L-T-P-C**: 1-0-4-6

Course Code: UMCD 602/672

MODULE	TOPIC	COURSE CONTENT
1	**UNIT - 1**	Understanding natural lighting and shadow formations; Colour Theory; Properties of Light.
2	**UNIT - 2**	Fundamentals of Lighting Design; Direct and Indirect Illumination; 3-point Lighting; Types of Lights and their attributes in a 3D software.
3	**UNIT - 3**	Indoor and Outdoor Lighting Techniques; Depth Map and Raytrace Shadows.
4	**UNIT - 4**	Basic Rendering Techniques; Rendering in Layers; Lighting Passes; Rendering in Passes; Virtual Cameras and Depth of Field; Pre-compositing.
5	**UNIT - 5**	Recreating Light effects such as Caustics, Global Illumination and Final Gather using Mental Ray; Key inputs for lighting a 3D scene as per industrial standards.

TEXTBOOKS / REFERENCES:

1. Jeremy Birn, *Digital Lighting & Rendering*, Third Edition, New Riders, 2014.
2. Darren Brooker, *Essential CG Lighting Techniques with 3DS Max*, Third Edition, Focal Press, 2008.
3. Lee Lanier, *Advanced Maya Texturing and Lighting*, Third Edition, Autodesk Maya Press, Wiley Publishing Inc., 2015.
4. Chuck Gloman and Tom Letourneau, *Placing Shadows – Lighting Techniques for Video Production*, Third Edition, Focal Press, 2013.
5. Gerald Milerson, *Lighting for Television & Film*, Third Edition, Focal Press, 2013.

Course Title: Visual Effects & Digital Compositing **L-T-P-C**: 1-0-2-4

Course Code: UMCD 603/673

MODULE	TOPIC	COURSE CONTENT
1	**UNIT - 1**	Understanding Visual Effects (VFX), Categories, Types of Visual Effects, Use of VFX, Importance of VFX, Feature of VFX and Special Effects.
2	**UNIT - 2**	Stabilizing footage, Keying matte - blue and green screen, color correction, wire removal, rotoscopy, lights and camera, Tracking (Motion tracking with one point and multiple point tracking of a live footage).
3	**UNIT - 3**	Digital Compositing; Understanding Compositing, Passes Compiling, Mattes and compositing, Digital Matting Methods and tools, Compositing Techniques, Digitally Processing Image and Footages. Green and Blue Screens; Understanding Chroma Keying and Composting.

4	**UNIT - 4**	Understanding Fluids, Building Simulation, Particle Simulation, Particle Emitters, Particle Rendering, Paint Effects.

TEXTBOOKS / REFERENCES:

1. *The Green Screen Handbook: Real-World Production Techniques*. Author: Jeff Foster; Sybex; 1st edition (March 15, 2010), ISBN-10: 0470521074.
2. *Maya Studio Projects Dynamics*. Author: Todd Palamar; Sybex; 1st edition (November 2, 2009), ISBN-10: 0470487763.
3. *The Visual Effects Arsenal*, Author: Bill Byrne; Focal Press; 1st edition (April 17, 2009), ISBN-10: 9780240811352.

Course Title: Introduction to Game Design **L-T-P-C**: 1-0-4-6

Course Code: UMCD 604/674

MODULE	TOPIC	COURSE CONTENT
1	**UNIT - 1**	Understanding Video Games - Principles of Simple Games, Workability of simple games, Reason of playing games, Elements that define games and the gaming experience, Similarity and dissimilarity of games from each other; History of Gaming; Evolution of Gaming.
2	**UNIT - 2**	Classification of Games - Game Genre; Game Types; PvP and PvE, NPC; Player's Perspective; Designer's Perspective;
3	**UNIT - 3**	Gaming Platforms; Types of Gaming – PC Gaming, Console Gaming, Mobile Gaming; Gaming Hardware - Building a Gaming Rig; Gaming Peripherals; Gaming in Virtual Reality
4	**UNIT - 4**	The Gaming Industry; Pros and Cons of Gaming
5	**UNIT - 5**	End Users – Players learning the mechanics of your game, Rules that define gameplay, Rules communicated to your players, Rules bent and broken by player, Importance of a story in games (Narrative);
6	**UNIT - 6**	Types of Gamers; Professional Gamers; Identity; Job Prospects.

TEXTBOOKS / REFERENCES:

1. Steven Kent, *The Ultimate History of Video Games*, First Edition, Three Rivers Press, 2001.
2. Simon Egenfeldt-Nielsen, Jonas Heide Smith and Susana Pajares Tosca, *Understanding Video Games: The Essential Introduction*, Third Edition, Routledge, 2016.
3. Jane McGonigal, *Reality is Broken: Why Games Make Us Better and How They Can Change The World*, Penguin Press, 2011.
4. Chris Melissinos, Patrick O'Rourke, Mike Mika and Elizabeth Broun, *The Art of Video Games: From Pac-Man to Mass Effect*, First Edition, Welcome Books, 2012.
5. Chris Kohler, *Power Up: How Japanese Video Games Gave the World an Extra Life*, Second Edition, Dover Publications, 2015.

Course Title: Design Studio – VI (Visual Effects) **L-T-P-C**: 0-0-5-10

Course Code: UMCD 691

MODULE	TOPIC	COURSE CONTENT
1	**Project 1**	**Project based on following contents:** Color correction, Rotoscopy, Tracking (Motion tracking with one point and multiple point tracking of a live footage).
2	**Project 2**	**Group Project based on following contents:** Digitally Processing Image and Footages**;** Implementing the Green or Blue Screens in a composition/Chroma Keying and Composting.
4	**Project 3**	**Final design based project report.**

Course Title: ELECTIVE – 3 **L-T-P-C**: 0-0-4-8

Course Code: UMCD 61*

Elective subject – 1 (Code: UMCD 611): New Media and Interaction

Introduction to New Media : Evolution of New Media - History to modern era**;** Technology in New Media **;** New Media culture – conventions and technique of old media **; Principles of New Media :** Discrete representation **;** Numerical representation **;** Automation **;** Variability **; Concept of New Media :** Changing relationship of representation. **;** Database as genre of new media. **;** Logic of remediation**;** Concept of digital dialectic. **;** Digital Cinema and the history of moving Image. **;** The new language of cinema. **; Forms of New Media:** Installations - Sound art, Net art. **;** Free software movement and open source. **;** New media art installation and cross-media practice. **;** Interactivity and interface: Models of interactive systems.

Interaction: Basic concepts in Interaction Design. Interaction Models – issues in man- machine interface, ergonomic considerations, dialog. Paradigms for interaction – time sharing, video display units, Programming toolkits, Sensor based context aware interaction, Multi-modal displays etc. Interaction Design Process: User focus; Scenarios; Navigation Design; Screen Design and Layout; Iteration and Prototyping. Design: Principles; Standards; Guidelines; Rules and Heuristics Principles. Design Techniques: Scenario building; Personas, Brain Storming, Story Boarding, Wire framing etc. Evaluation Techniques: Expert Analysis; Heuristic Evaluation; Evaluation through User Participation. Case examples in Human computer interaction.

Texts/References:

Interaction design books -

1. B. Shneiderman, Designining the User Interface: Strategies for Effective Human-Computer Interaction, 3rd Ed., Addison Wesley, 2000.
2. J. Preece, Y. Rogers and H. Sharp, Interaction Design: Beyond Human –Computer Interaction, John Wiley & Sons, Delhi, 2003.
3. A. Dix, J. Finlay, G.D Abowd and R. Beale, Human Computer Interaction , 3rd Ed., Pearson Education Ltd., 2004.

4. W.O. Galitz, The Essential Guide to User Interface Design of Interaction Design, John Wiley & Sons, 2002.

New Media books -

5. R. Grusin and J. D. Bolter, Remediation: Understanding New Media, MIT Press, 2000.
6. L. Manovich, The Language of New Media, MIT Press, 2001.
7. P. Lunenfeld (ed.), The Digital Dialectic: New Essays on New Media, MIT Press, 1999.
8. N. Wardrip-Fruin and N. Montfort (eds.), The New Media Reader, MIT Press, 2003.
9. M. Hansen, New Philosophy for New Media, MIT Press, 2004.
10. J. Thackara, In the Bubble – Designing in a complex World, Prentice Hall India, 2005.

Elective subject – 2 (Code: UMCD 612): Video Production and Editing

As this is a project based course, hence the contents of the course will be decided by the concerned course instructor as and when the course float.

Elective subject – 3 (Code: UMCD 611): Digital Design and Animation

As this is a project based course, hence the contents of the course will be decided by the concerned course instructor as and when the course float.

COURSE CONTENTS

SEMESTER – 7

Course Title: Animation Production Design **L-T-P-C**: 1-0-6-8

Course Code: UMCD 701/771

MODULE	TOPIC	COURSE CONTENT
1	**Definition of Computer-based Animation**	Basic Types of Animation: Real Time, Non-real-time, Definition of Modelling, Creation of 3D objects. Exploring the MAYA Interface, Controlling & Configuring the Viewports, Customizing the Max Interface & Setting Preferences, Working with Files, Duplicating Objects, Pivoting, Understanding 2D Splines & shape, Extrude & Bevel 2D object to 3D, Understanding Nurbs, Understanding Polygon, Boolean.
2	**Pre-production Knowledge of Pipeline**	Define Concept or Idea, Story & Script develop, Understanding Storyboard design, Making Animatic design, Concept of Layout Design.
3	**Production Knowledge of Pipeline**	Explain of Modelling Design, Concept of Texturing, Understanding of Rigging/Setup, Implement of Principle of Animation Techniques, Concept of Lighting and Camera, Understand of basic Rendering.

4	**Post Production Knowledge or Pipeline**	VFX and Compositing, Understanding of Motion graphics, Concept of colour correction, implement of Audio Video Editing, Final output.

TEXTBOOKS / REFERENCES:

1. Chawdhary, Nirmal Kumar, *How to write film screenplay*, Kanishka publishers, distributers, New Delhi- 110002, 2009,ISBN 978-81-8457-112-7.
2. Whitaker, Harold, John Halas, Updated by Tom Sito, *Timing for Animation*, Focal Press Elsevier, New York & Singapore, 2009 ISBN: 978-0-240-52160-2.
3. Eve Light Honthaner, *The Complete Film Production Handbook*, Focal Press.
4. Tay Vaughan, *Multimedia: Making It Work*, Ninth Edition, Mc-Graw Hill Education, 2014.
5. Vic Costello with Susan A. Youngblood and Norman E. Youngblood, *Multimedia Foundations: Core Concepts for Digital Design*, Focal Press, 2013.
6. "*Principle of Traditional Animation applied to 3D computer Animation*" pixer son Rofael California In ACM Computer Graphics (21) 4th July 1987Rubenstein, Paul Max, Writing for Media, Prentice Hall, Englewood Cliffs, New Jersey 07632, 1988. ISBN 0- 13-971508-8.
7. Viers, Ric, *The Sound Effects Bible: How to Create and Record Hollywood Style Sound Effects*, Michael Wiese Productions, 2008.
8. Rumsey, Francis and Tim McCormick, *Sound and Recording*, Focal Press 2009, ISBN: 978024052163.
9. Darren Brooker, *Essential CG Lighting Techniques with 3DS Max*, Third Edition, Focal Press, 2008.
10. Lee Lanier, *Advanced Maya Texturing and Lighting*, Third Edition, Autodesk Maya Press, Wiley.
11. *Timing for Animation* - by Harold Whitaker and John Halas.
12. *Inspired 3D Advanced Rigging and Deformations* by Brad Clark, John Hood & Joe Harkins.

Course Title: Minor Project **L-T-P-C**: 0-0-8-16

Course Code: UMCD 791

MODULE	TOPIC	COURSE CONTENT
1	**Project**	Project based on hypothetical concepts related to multimedia communication and animation design.
Minor Project will be done throughout the semester.		

***** A Project Report has to be submitted at the end of the Semester by the concerned students to the Department with approval from the Project Supervisor and Committee Members.***

Course Title: Design Management and Professional Practice (Industrial Presentation) **L-T-P-C**: 0-0-4-4

Course Code: UMCD 792

MODULE	TOPIC	COURSE CONTENT
1	**Project – 1**	Performing design projects considering creativity, innovation and management. IPR and Copyright issues and management

2	**Project – 2**	Managing design project, Workforce management, Team handling, Client consultation, Business development techniques.

(A management based design project and execution practice for future professional career.)

Course Title: ELECTIVE – 4 **L-T-P-C**: 0-0-4-8

Course Code: UMCD 71*

Elective subject – 1 (Code: UMCD 711): Game Design and Production Process

Game Design Origins – Understanding Games, Game Rules, Cheats, Cheat-Codes, Easter Eggs; Gameplay Styles and Strategies; Core Game Design Concepts; Introduction to Artificial Intelligence; Visual Design; Detailed Development of Visuals; Navigation and Interfaces; Designing Levels and the Game Design Document; Sound; Job Descriptions, Game Tracking and Legal Issues; Distribution and Marketing.

Texts/References:

1. Briar Lee Mitchell, *Game Design Essentials*, First Edition, John Wiley & Sons, Sybex, 2012.
2. Keith Burgun, *Game Design Theory: A New Philosophy for Understanding Games*, First Edition, CRC Press, 2013.
3. Richard Rouse III, Game Design: Theory and Practice, Second Revised Edition, Wordware Publishing, 2005.
4. Scott Rogers, *Level Up!: The Guide to Great Video Game Design*, Second Edition, John Wiley & Sons, 2014.

Elective subject – 2 (Code: UMCD 712): Lighting with Arnold / Mental Ray

As this is a project based course, hence the contents of the course will be decided by the concerned course instructor as and when the course float.

Elective subject – 3 (Code: UMCD 713): Editing and Compositing Techniques

As this is a project based course, hence the contents of the course will be decided by the concerned course instructor as and when the course float.

COURSE CONTENTS

SEMESTER – 8

Course Title: Major Project (Thesis Project) **L-T-P-C**: 0-0-8-16

Course Code: UMCD 891

MODULE	TOPIC	COURSE CONTENT
1	**Project**	This project would be based on design research and implementation.

Major Project will be done throughout the semester.

(Project may be Industry-sponsored Project or a continuation of the Major Project to implement in a practical basis.)

***** A Project Report has to be submitted at the end of the Semester by the concerned students to the Department with approval from the Project Supervisor and Committee Members.***

Course Title: Multimedia Design Research Seminar **L-T-P-C**: 0-0-4-4

Course Code: UMCD 892

MODULE	TOPIC	COURSE CONTENT
1	**Seminar**	A Seminar Presentation by students based on current Industry trend and future innovations.

(Student will have to do their research or design based study on latest industry trends and present their study as a seminar.)

Course Title: ELECTIVE – 5 **L-T-P-C**: 0-0-4-8

Course Code: UMCD 81*

Elective subject – 1 (Code: UMCD 811): Tangible User Interface

An overview of tangible user interface; comparative study of different interaction modalities including gestures, tangible products, screen based interface and embedded computing objects; Tangible interfaces and product affordance; Principles and guidelines in design of tangible user interfaces; introduction to tools and technologies necessary for designing and building tangible user interfaces.

Texts/References:

1. K. Ryokai, R. Aipperspach and D. Nguyen, *Theories and practices of tangible user interfaces,* School of Information, University of California, Barkeley, 2007.
2. T. Igoe, *Making things talk – practical methods for connecting physical objects,* O'Reilly Media, 2007.
3. O. Shear and E. Hornecker, *Tangible User Interface*, Now Publishers Inc., 2010
4. D. Saffer, *Designing gestural Interfaces: touch screens and interactive devices*, O'Reilly Media, 2007.

Elective subject – 2 (Code: UMCD 812): Communication Design

- Understanding design as applied to solving communication problems within the context of our society.
- Structuring information in terms of classifications, hierarchy, order, sequence, etc.
- Design of magazine, textbook, picture books, Children's books, exhibition, website, e-book, etc.

References:

1. Meggs, Phillip B.; Type and Image: the language of graphic Design, VNR, 1992
2. R. Carter, D. B. Meg Phillip, Typographic Design: Form and Communication, John Wiley & Sons, 2000

3. Kimberly Elam , Grid Systems: Principles of Organizing Type (Design Briefs), Prince ton Architectural Press, 2004
4. Erik Spiekermann, E.M Ginger; Stop Stealing Sheep & Find Out How Type Works, Second Edition, Adobe Press; 2 edition, 2002

Note:

1. **L**: Lecture period, **T:** Tutorial Period, **P/S*:** Practical period/Studio Session, **C:** Credits. **(P/S*-** In Design Curriculum, instead of Practical Classes, Studio Classes are conducted for better understanding of the subjects through hands-on experience, live projects and discussions).

2. ****Industrial Training**
   Industrial Training Phase – I (in IV Semester) and Phase – II (in VI Semester) are expected to be attended by the students during summer break either in the Industry sector of their choice or in the Department under the guidance of any of the faculty members. Students have to give a presentation on the training during the next semester session. There will be no credit given here.

Credits

1 h Lecture (L) per week	2 credit
1 h Studio Project	2 credit
1 h Practical (P) per week	1 credit
1 h Seminar / Training / Industrial Training	1 credit

Consolidated statement of Total Credits in each Semester

Semester	L	T	P/S	Credit
1	6	0	19	36
2	9	0	11	34
3	5	0	19	34
4	4	0	21	38
5	7	0	19	42
6	4	0	19	36
7	1	0	22	36
8	0	0	16	28
Total	36	0	146	284

END OF SYLLABUS