



# केन्द्रीय प्रौद्योगिकी संस्थान कोकराझार CENTRAL INSTITUTE OF TECHNOLOGY KOKRAJHAR

(Centrally Funded Institute under MHRD, Govt. of India & Approved by AICTE)

BODOLAND TERRITORIAL AREA DISTRICTS :: KOKRAJHAR :: ASSAM :: 783370

Website: [www.cit.ac.in](http://www.cit.ac.in)

## Description of Course Contents of B. Des. Syllabus (revised in 2017)

### SEMESTER - 1

#### **BMD – 171101: Communication Skills**

**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.

**Narration:** Essay – Descriptive – Comparative – Argumentative – Thesis statement- Structure of opening / concluding paragraphs – Body of the essay.

**Reading Comprehension:** Global – Contextual – Inferential – Select passages from recommended text.

**Business Correspondence:** Letter Writing – Formal. Drafting. Bio-data- Resume - Curriculum Vitae.

**Report Writing:** Structure, Types of report – Practice Writing.

**Communication and Public Speaking Skills:** Communication Process-meaning, principles of effective communication (barriers and solutions), Introduction to the sounds of English, Features of effective speech, verbal-nonverbal.

**Group Discussion:** Principle – practice.

#### **Texts/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



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### **BMD – 171102: Introduction to Design**

Introduction of Design. Arts and Social Sciences. Design as a creative professional career. Interrelationship of Design to Engineering. Inter-relationship of 2D & 3D forms. Brief history of developments in Design and Technology. Aesthetics, Ergonomic, Scientific and Engineering considerations in Design. Case studies in Product, Communication, and Environment Designs. Stages in the design processes. Design and indigenous technology. Role of Design in creating the future. Status of Design profession in India and worldwide.

#### **Texts / 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 20<sup>th</sup> Century*, Routledge, 1986.
4. J. Guy, *20<sup>th</sup> Century Design*, Thames and Hudson, 1993.
5. M.A. Muser and D. Maclean, *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.

### **BMD – 171103: Fundamentals and Principles of Art**

**Elements of Art**-Shape, Form, Texture, Space, **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). **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*. **Three-Dimensional Art**-*sculptures*, *statues*, installations, kinetic art and performance art. **Aesthetic theories**-*realism*, *emotionalism*, formalism, *feminism*, and *constructivism*).

#### **Texts / 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.



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### **BMD – 171104: Computer Fundamentals and MS Office Operation**

Definition of Electronic Computer, History, Generations, Characteristic and Application of Computers, Classification of Computers, Components of Computer system, Memory – different types, functions, concept of I/O devices. Types of software, Role of Operating System, Computer Languages, Generation of Languages, Algorithm, Flow charts. Number system -Decimal, binary, octal, hexadecimal number systems and conversion from one system to another, Coding System - ASCII, EBCDIC, Fundamentals of networking – network topology, concept of LAN, WAN, MAN, network devices – NIC, hub, bridge, switch, repeaters, gateway, modem, transmission media. 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, **Introduction to MS Office:** Basic feature of MS Office, Office Tools, MS Excel, MS PowerPoint.

#### **Texts/ 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

### **BMD – 171115: Drawing and Illustration Technique**

**Drawing Man-Made Objects** – Drawing from cubes, cones, cylindrical object, casts, drapery, and still life groups etc. **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. **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. **Introduction to Elements of Perspective** – Study of basic solids, plan and elevation main aspects of parallel and 2 angular perspective. 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. **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.



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## Texts / References:

- 1) Drawing By Daniel Marcus Mendelowitz
- 2) Dynamic Figure Drawing Watson-Guption 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

## **BMD – 171116: Design Studio – I (Digital Drawing Techniques)**

**The Design Studio – I, will be knowledge implementation projects based on subjects learnt in the 1<sup>st</sup> semester.**

## **SEMESTER – 2**

### **BMD – 171201: Professional Ethics & Human value**

**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

**Engineering as Social Experimentation:** Engineering as experimentation – engineers as responsible experimenters – codes of ethics – a balanced outlook on law – the challenger case study **Responsibility for Safety:** Safety and risk – assessment of safety and risk – risk benefit analysis – reducing risk.

**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.

**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.

## Texts/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



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### **BMD – 171202: Introduction to Computer Programming**

**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.

**C Fundamentals:** The C character set, identifiers and keywords, data type & sizes, variable names, declaration, statements.

**Operators & 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.

**Flow of Control:** Statement and blocks, if-else, switch, loops – while, for, do while, break and continue, goto and labels.

**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.

**Arrays and Pointers:** One dimensional arrays, pointers and functions, multidimensional arrays.

**Structures, Unions and Files:** Basic of structure, structures and functions, arrays of structures, bit fields, formatted and unformatted files.

### **Recommended reference Books:**

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.
9. M.M. Oka. Computer Fundamentals, EPH
10. Leon. Introduction to Computers, Vikas
11. Leon. Fundamental of Information Technology, Vikas
12. Ram B. Computer Fundamentals, New Age International
13. Ravichandran D. Programming in C, New Age International





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## **BMD – 1711203: Introduction to Multimedia Communication**

Introduction to Multimedia; Definition, History and Applications of Multimedia; Characteristics of Multimedia; Components of Multimedia System; Static and Continuous Media; Analog and Digital Signals; Analog to Digital and Digital to Analog Conversion; Data Compression; Introduction to various Compression Techniques – Shannon Fano, Huffman Coding, LZW Coding; Understanding the Elements of Multimedia – Text, Still Images, Graphics, Audio, Video and Animation; 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, Introduction to Virtual Reality; VR-Systems; VR Tools.

### **Texts/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

## **BMD – 171204: Introduction to Photography and Videography**

**Basics of photography**-Introduction to Photography, History of camera, Types of camera, Principles of photography, Rule of Third, Golden Ratio, **Parts of still camera:** aperture, shutter speed, lens, filters and flash, Camera films. **Basics of Videography**-Basic components of video camera, Basic shots and shot composition, Camera angles and movements, Camera mountings, camera control unit, Focus & Defocus, **Lighting for Photography & Videography**-What is lighting? Importance of lighting in photography & Videography, Lighting equipment and control, Lighting techniques and problems. **Theory of colours**- Origin of Colour, Colour Temperature, White Balance: Process and Need.

### **Texts / References:**

1. Wells, Liz, *Photography*, ISBN 978-0-415-46087-3.
2. Kobre, Kenneth, *Photo journalism*, Focal Press, ISBN 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



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### **BMD – 171205: Introduction to Graphic Design**

Introduction to elements of graphic design - Text and image, grids and layout, composition, form and function, figure and ground phenomenon. Gestalt Laws, Typographic fonts and their characters. Typographic parameters: x-height, ascenders, descenders, kerning, tracking and leading. Variations of body text, headlines and display text. Grid in graphic design. Hands on practice in application of fundamentals of Graphic Design. Introduction to Printing Technology. Introduction to Digital Media Technology.

#### **Texts / Reference books:**

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 Digital Culture*, Routledge, 2000
4. M. A. Muser and D. Macleod, *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

### **BMD – 171216: Design Studio-II (Graphics Design Studio)**

The Design Studio – II, will be knowledge implementation projects based on subjects learnt in the 2<sup>nd</sup> semester.

## **SEMESTER - 3**

### **BMD – 171301: World of Images & Objects**

Understanding of images, Study of types of images, meaning/expression of images. Colour representation in images. Object types – 2D/3D figure study, form study etc. Understanding shape, form, colour in objects. Study of photograph, painting, sketch etc., Brief history on Art, Images and Objects. Experimenting with images and objects – photographic image, objects. Images and objects in digital and virtual world.

#### **Texts / Reference books:**

1. **The Designed World: Images, Objects, Environments-** By Richard Buchanan(Editor), Dennis Doordan(Editor), Victor Margolin(Editor), ISBN-13: 978-1847885852 , ISBN-10: 1847885853
2. **Images, Objects, and Ideas** - by Barry Nemett(Author), ISBN-13: 978-0697274595, ISBN-10: 0697274594



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## **BMD – 171302: History of Art and Appreciation**

Introduction to Art history: Importance of “Art History” as a discipline while studying Visual Arts, Pre & Proto Historic Period: Prehistoric Cave paintings from Bhopal, Harappa & Mohenjodaro Civilization (town planning, sculpture-Beard man, dancing girl, seals and script), Rock cut architecture, Architecture- Ajanta, Brahminical cave, Architecture - Ellora, Indian Artist & Works: Gagendranath Tagore, Jamini Roy, Rabindranath Tagore, Amrita Sher Gill, Ramkinker Vaij etc. Western artists & Works: Michelangelo, Leonardo da Vinci, Vincent van Gogh, Paul Gauguin, Georges Seurat, Salvador Dali, Pablo Picasso etc.

### **Texts / 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.

## **BMD – 171303: Fundamentals of Animation Design**

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. Introduction to Pre-Production, Scripting, Storyboarding, Layout, Character Designing, Props Designing, Background Designing, Camera Angles, Frame Length, Importance of visual culture in the study of animation. Applying visual technology for animation. Animation production: techniques for production and analyzing 2D and 3D animation

### **Texts/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

## **BMD – 171304: Concept of Storyboarding & Script Writing**

**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, **Story content for a screenplay** – High concept – Originality and familiarity – Subplots – Character growth – Theme – Identification & Motivation





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– Obstacle & Courage – Familiarity of setting – Film category & Cost, **Developing a screenplay**  
– Developing a Hero & other characters – Creating sympathy or hatred for the character – Make the character likeable, **Structure of screenplay** – Three act – Individual scene, **Terminology** – Fade in and Fade out – Cut to, **Introduction to Storyboard**- Parts of storyboard - Advantages of storyboarding - Interactive Storyboarding - Designing of Storyboard exercise.

## **Texts / References:**

1. Chawdhary, Nirmal Kumar, How to write film screenplay, Kanishka publishers, distributors, 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

## **BMD – 171305: Concept of Film Making**

**Introduction** and 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, **Pre-production:** Casting Locations, Shot list, Script, Tech scout, Film Production design, **Production:** Principle of photography / videography – setting up, Rehearsal Setting up shots, Single and multi-camera shooting, Checking the take. **Post-production:** Editing, Sound mixing, Music, Test screenings, Movie distribution.

## **Texts / References:**

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

## **BMD – 171316: Design Studio-III (Story boarding & Film Making)**

**The Design Studio – III, will be based on application of learnings outlined in Course BMD 171304 and 171305**



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## SEMESTER - 4

### **BMD – 171401: Multimedia Design Fundamentals**

Need for Multimedia; Present and Future Market Potential; Dimensions of Multimedia – Functionality, Aesthetics, Content and Usability; Multimedia Product Possibilities; Understanding Authoring Tools; Building an Efficient Team; Stages of creating a Multimedia Project; Designing and Producing; Design Aesthetics - Interface Design, Graphical User Interface; Target Audience; Social Media; Designing for the World Wide Web.

#### **Texts/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.

### **BMD – 171402: Graphics 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/Reference books:**

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.



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## **BMD – 171403: Web Design Technology**

History of Web and its background, Web design tools and techniques – Photoshop, Dreamweaver, Flash, FrontPage and other important tools and software, Web authoring. Web design technology – Introduction to HTML, CSS, Java, PHP. Word Press tools, SEO technology, Search engine technology.

### **Texts /Reference books:**

1. Using the internet (4<sup>th</sup> 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, By Aaron Gustafson

## **BMD – 171404: 2D Animation Techniques (Traditional & Modern)**

Introduction to Animation- Origin and development of Animation, Early Animation- Victorian, Zoetrope, The magic lantern, Thau Matrope, Flip Book, Praxinoscope, Traditional Animation, Feature Length Film, Stop motion, Computer Animation, The Future:- Animated Humans, Cell Shaded Animation, Principle of Animation, **Process of Animation**-Synopsis writing, Budgeting, Developing a crew, **Pre – Production**- Story Writing, Script /dialogue Writing, Screenplay, Model sheet-Character designs, Storyboard, **Production**- Frames, Key Frames, In-betweens, Clean-ups, Layout and backgrounds, X-Sheet, Animatic , **Post production** -Sound mixing, Special Effects, Color Corrections, Rendering, Exercise on Story, Storyboard and Screenplay Writing.

### **Texts / 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.

## **BMD – 171405: Audio Video Editing**

**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, **Basics of Audio Editing** -Creating time line - cut, fade and mix, Introduction to editing tools, Applying effects to sound, Working with audio editing Software, **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. **Advance**



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**Editing Techniques-** Audio mixing with visuals, Special audio-video effects, Video titling and graphics, Rendering and authoring, Editing montage and promos. **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.

**Texts/Reference:**

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

**BMD – 171416: Design Studio-IV**

**This Design Studio – IV will be based on application of subjects outlined in Course BMD 171404 and 171405.**

**SEMESTER - 5**

**BMD – 171501: Creative Thinking Process and Methods**

Cognitive issues in creative thinking; Neurobiological studies of human brain lateralization with respect to creative thinking phenomena; Introduction to knowledge engineering and management; Modelling of Design Thinking and Tacit knowledge representation; Fuzzy thinking, vertical thinking, lateral thinking; Management issues in creativity and innovation; group versus individual creativity; 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; Future casting; Case Studies; Issues in Intellectual Property Rights.



**Texts/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. S. D. Savransky, *Engineering of Creativity – introduction to TRIZ method of inventive problem solving*, CRC Press, 2000.
4. E. De Bono, *Serious Creativity*, INDUS Harper Collins Publishers India, 1992.
5. D. Morey, M. Maybury and B. Thuraisingham, *Knowledge Management*, Universities Press MIT, 2000.
6. T. Proctor, *The essence of Management Creativity*, PHI, New Delhi, 2002.
7. H. Petroski, *Invention by Design*, Universities Press (India) Ltd., 2000.
8. M. French, *Invention and Evolution – Design in Nature and Engineering*, Cambridge University Press, 1994.
9. N. Cross, *Engineering Design Methods – Strategies for Product Design*, John Wiley & Sons, England, 1995.
10. E. Kroll, S. Condoor and D. G. Janson, *Innovative Conceptual Design*, Cambridge University Press, 2001.

**BMD – 171502: 3D Modeling & Texturing**

**Introduction to the Maya Interface:** Basic 3D transforms (translation, rotation, scaling).

**Modeling a Simple Character with Polygons:** Modeling with Polygon Tools, Using Image Planes , Block Modeling, Sculpting the Character , Groups and Hierarchies, **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,

**Designing a Humanoid and Modeling the Head:** Human Anatomy for Modelers, Using Distortions for Artistic Purposes, Methods and Tools. Shading textures, Colour, texture and surface styles. Hypershade, UV Knowledge, Create UVs, UVs layout tools, Projection UVs map, Utilizes the UV texture, adding texture mapping on any objecting and character.

**Texts / 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.





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### **BMD – 171503: CG Lighting & Rendering**

Understanding natural lighting and shadow formations; Colour Theory; Properties of Light, Fundamentals of Lighting Design; Direct and Indirect Illumination; 3-point Lighting; Types of Lights and their attributes in a 3D software; Indoor and Outdoor Lighting Techniques; Depth Map and Raytrace Shadows; Basic Rendering Techniques; Rendering in Layers; Lighting Passes; Rendering in Passes; Virtual Cameras and Depth of Field; Pre-compositing; 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.

#### **Texts/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.

### **BMD – 171514: Clay Modeling**

Study of two dimensional space and its organizational possibilities: Carved, Modelled, Perforated, Mobile, Various methods of joining such as interlocking, pasting etc, Paper, Card board, Wood block, Wire, Clay, Plasticise, Plaster of Parries, Metal sheets, Plastic, Foam, Thermocol, String, Gums and adhesives, Wax, Found objects, etc. A Co-ordinated series and basic design problems with analytical approach, Colour should be introduced at various stages of experiments.

#### **Texts / References:**

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

### **BMD – 171515: Design Studio-V**

**This Design Studio – V, will be based on application of subjects outlined in Course BMD 171502, 171503 and 171514**



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## SEMESTER - 6

### **BMD – 171601: Industrial Management & Entrepreneurship**

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. 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. Group Process in Organizations, Group formation, Group effectiveness, Group Conflict. 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. 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, 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.

#### **Texts/Reference Books:**

1. S.S. Khanka-Organizational Behavior.
2. S.S. Sarkar, R. K. Sharma and S. K. Gupta – Business Organisation and Entrepreneurship Development.
3. Cynthia L. Greene – Entrepreneurship.

### **BMD – 171602: Introduction to Game Design**

Understanding Video Games; History of Gaming; Evolution of Gaming; Game Genre; Game Types; Gaming Platforms; Types of Gaming – PC Gaming, Console Gaming, Mobile Gaming; Building a Gaming Rig; Gaming Peripherals; Gaming in Virtual Reality; The Gaming Industry; Pros and Cons of Gaming; End Users; Professional Gamers; Job Prospects.

#### **Texts/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.



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5. Chris Kohler, *Power Up: How Japanese Video Games Gave the World an Extra Life*, Second Edition, Dover Publications, 2015.

## **BMD – 171603: 3D Animation Techniques**

Introduction to 3D animation basics, Key Frame Animation, Animation Techniques: Non –Linear and Character Animation, Path Animation, Exercises and warm ups, Motion Studies, Line of action, Path of action, Quick Studies from real life: Drama and psychological effect, Study of Body language: posture, gesture, facial expression, Acting and animation, The Animation Process: Posing, Timing and Refining, Working with Poses.

Character Rigging: Anatomy study, Understanding Skeletons and Joints, Use of Deformers, Creating bones for Character, Kinematics: IK and FK, Binding & Weight for character, different Skinning methods, Character set-up for a wide range of complex body movement, with controls that are intuitive and flexible.

### **Texts/References:**

1. The Animator's Survival Kit - by Richard Williams.
2. Mastering 3D Animation, by Peter Ratner (Author)
3. Acting in Animation: A Look at 12 Films by Ed Hooks
4. Digital Character Animation 3 - by George Maestri
5. Timing for Animation - by Harold Whitaker and John Halas
6. Inspired 3D Advanced Rigging and Deformations by Brad Clark, John Hood & Joe Harkins

## **BMD – 171604: Visual Effects & Digital Compositing**

Understanding Visual Effects (VFX), Categories, Types of Visual Effects, Use of VFX, Importance of VFX, Feature of VFX, Stabilizing a shaky footage with one and two point, Keying matte - blue and green screen, color correction, wire removal, rotoscoping, lights and camera, Tracking (Motion tracking with one point and multiple point tracking of a live footage), Understanding Fluids, Building Simulation, Particle Simulation, Particle Emitters, Particle Rendering, Paint Effects, Special Effects, **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 Green/Blue Screen and Compositing.

### **Texts/References:**

1. The Green Screen Handbook. Author: Jeff Foster
2. Maya Studio Projects Dynamics. Author: Toddo Palamar
3. The Visual Effects Arsenal, Author: Bill Byrne



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## **BMD – 171615: Design Studio-VI (3D Animation Film Making)**

This Design Studio – VI, will be based on application of subjects outlined in Course BMD 171603 and 171604.

## **SEMESTER – 7**

### **BMD – 171701: Animation Production Design**

**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.

**Pre-production Knowledge or Pipeline:** Define Concept or Idea, Story & Script develop, Understanding Storyboard design, Making Animatic design, Concept of Layout Design.

**Production Knowledge or 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.

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

#### **Texts / References:**

1. Chawdhary, Nirmal Kumar, How to write film screenplay, Kanishka publishers, distributors, 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 Honthamer, 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 1987 Rubenstein, 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.

### **BMD – 171712: Design Management and Professional Practice**

A management based design project and execution practice for future professional carrier.

### **BMD – 171713: Minor Project (Bachelor Thesis Project – 1)**

Minor Project will be a Bachelor Thesis Project – 1, where students will be implementing their knowledge and understanding learnt from all the previous semester courses on a hypothetical project.

## **SEMESTER - 8**

### **BMD – 171811: Multimedia Design Research Seminar**

A seminar presentation by students based on Industry visit / Training / Research.

### **BMD – 171812: Major Project (Bachelor Thesis Project - 2)**

Major Project will be a Bachelor Thesis Project – 2, where students will be working on an actual professional project or may go for an industry sponsored projects.

## **ELECTIVE PAPERS**

### **SEMESTER – 5**

### **BMD – 1715E011: 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





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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.

## Texts:

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

## References:

1. P. Mijksenaar, *Visual Information–Introduction to Information Design*, Princeton Architectural Press, 1998
2. M. Woolman, *Type in motion, Innovation in Digital Information Graphics*, Thames & Hudson, 2002
3. N. V. Luppa, *Designing Interactive Digital Media*, Focal Press, 1998

## **BMD – 1715E012: Moving Image Design**

History of cinema, its development as art and as an industry, Film theory and analysis, Documentary, narrative and experimental films, Cinema as propaganda, World Cinema, Indian Cinema (main stream and parallel), Digital Cinema, new filmmakers and the influence of internet.

## Texts/References:

1. Rodriguez, Robert, *Rebel without a Crew: Or How a 23 Year Old Filmmaker With \$7,000 Became a Hollywood Player*, Publisher: Penguin Group; First Plume Printing, September 1996.
2. Murch, Walter, *In the Blink of an Eye Revised 2nd Edition*, Publisher: Silman James Pr; 1st edition (April 1995)
3. Dix, Andrew, *Beginning film studies*, Publisher: Manchester University Press, 15 Jul 2008
4. Ray, Satyajit, *Our Films Their Films*, Publisher: OrientLongman Pvt. Ltd., Third Edition, 1993

## **SEMESTER – 6**

## **BMD – 1716E021: 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.

**BMD – 1716E022: New Media & 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, *Designing the User Interface: Strategies for Effective Human-Computer Interaction*, 3<sup>rd</sup> 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* , 3<sup>rd</sup> 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.

## SEMESTER - 7

### **BMD – 1717E031: 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.



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## **BMD – 1717E032: Film – Video Design**

Pre-production: Concept development, Script writing, production planning

Production: Digital film cameras, Lens, Accessories

Digital Image: Technology, Formats, Digital Sound Recording, Formats and techniques.

Post production: Editing, audio, color correction, display and distribution.

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### Text / References:

Steven Ascher, Edward Pincus, *The Filmmaker's Handbook: A Comprehensive Guide for the Digital Age*, Publisher: Penguin Group; New edition, 2008

Katz, Steven D., *Film Directing Shot by Shot: Visualizing from Concept to Screen*, Publisher: Wiese Productions; 1991

## **SEMESTER – 8**

## **BMD – 1718E041: Tangible User Interface Design**

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, Berkeley, 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.

**\*\*\* END OF SYLLABUS CONTENTS \*\*\***