COURSE STRUCTURE

AND

SYLLABUS FOR

B. DES. PROGRAMME

1st year (Semester II)

(APPLICABLE FROM AY 2024-2025 ONWARDS)

CENTRAL INSTITUTE OF TECHNOLOGY KOKRAJHAR

COURSE LAYOUT OF BACHELOR OF DESIGN

SEMESTER II

Sl. No.	Course Code	Course Name	L	T	P	C
01.	UHS201	Universal Human Values	2	1	0	3
02.	UHS202	NSS for Youth Development	2	0	4	0
03.	UCS201	Programming for Problem Solving	2	1	0	3
04.	UMD201	Introduction to Multimedia Communications	2	0	0	2
05.	UMD202	Fundamentals of Animation Design	2	0	0	2
06.	UMD203	Introduction to Graphic Design	2	0	0	2
07.	UCS271	Programming for Problem Solving Lab	0	0	2	1
08.	UMD271	Introduction to Multimedia Communications Lab	0	0	4	2
09.	UMD272	Fundamentals of Animation Design Lab	0	0	2	1
10.	UMD273	Introduction to Graphic Design	0	0	4	2
11.	UMD294	Design Studio – II (Graphic Design)	0	0	4	2
	Contact Hours: 34		**12**	**2**	**20**	**20**

COURSE CONTENTS

SEMESTER – 2

Course Title: Universal Human Values **L-T-P-C: 2-1-0-3**

Course Code: UHS201

Module-1
Introduction to Value Education :- Right Understanding, Relationship and Physical Facility (Holistic Development and the Role of Education) Understanding Value Education, Self-exploration as the Process for Value Education, Continuous Happiness and Prosperity – the Basic Human Aspirations, Happiness and Prosperity – Current Scenario, Method to Fulfil the Basic Human Aspirations.
Module-2
Harmony in the Human Being :- Understanding Human being as the Co-existence of the Self and the Body, Distinguishing between the Needs of the Self and the Body, The Body as an Instrument of the Self, Understanding Harmony in the Self, Harmony of the Self with the Body, Programme to ensure self-regulation and Health : Epidemiology- Definition of health, Social and Preventive Medicine, Personal hygiene and handling stress, WHO Guidelines.
Module-3
Harmony in the Family and Society :- Harmony in the Family – the Basic Unit of Human Interaction, meaning of Justice (nine universal values in relationships), Justice in Human-to Human Relationship, Understanding Harmony in the Society, Vision for the Universal Human Order 'Trust' – the Foundational Value in Relationship, 'Respect' – as the Right Evaluation, Other Feelings.
Module-4
Harmony in the Nature/Existence :- Understanding Harmony in the Nature, Interconnectedness, self-regulation and Mutual Fulfilment among the Four Orders of Nature, Realizing Existence as Co-existence at All Levels, The Holistic Perception of Harmony in Existence- human being as cause of imbalance in nature, pollution, depletion of resources and role of technology etc.
Module-5
Implications of the Holistic Understanding – a Look at Professional Ethics:- Natural Acceptance of Human Values, Definitiveness of (Ethical) Human Conduct, A Basis for Humanistic Education, Humanistic Constitution and Universal Human Order, Competence in Professional Ethics Holistic Technologies, Production Systems and Management Models-Typical Case Studies, Strategies for Transition towards Value-based Life and Profession (a) At the level of individual: as socially and ecologically responsible engineers, technologists and managers (b) At the level of society: as mutually enriching institutions and organizations – Right understanding and dilemmas of professional ethics in present world.

Reference Books

1. Jeevan Vidya: Ek Parichaya, A Nagaraj, Jeevan Vidya Prakashan, Amar kantak, 1999.
2. Human Values, A.N. Tripathi, New Age Intl. Publishers, New Delhi, 2004.
3. The Story of Stuff (Book).
4. The Story of My Experiments with Truth - by Mohandas Karamchand Gandhi
5. Small is Beautiful - E. F Schumacher.
6. Slow is Beautiful - Cecile Andrews
7. Economy of Permanence - J C Kumarappa
8. Bharat Mein Angreji Raj – Pandit Sunderlal
9. Rediscovering India - by Dharampal
10. Hind Swaraj or Indian Home Rule - by Mohandas K. Gandhi
11. India Wins Freedom - Maulana Abdul Kalam Azad
12. Vivekananda - Romain Rolland (English)
13. Gandhi - Romain Rolland (English)
14. How the Other Half Dies, Sussan George, 1976, Penguin Press. Reprinted 1986, 1991
15. Limits to Growth – Club of Rome's report, Donella H. Meadows, Dennis L. Meadows, Jorgen Randers, William W. Behrens III, 1972, Universe Books.
17. Science and Humanism, P L Dhar, RR Gaur, 1990, Commonwealth Publishers.
18. Human Values,A N Tripathy, 2003, New Age International Publishers.
19. How to practice Natural Farming,SubhasPalekar, 2000, Pracheen (Vaidik) KrishiTantraShodh, Amravati.
20. Fundamentals of Ethics for Scientists & Engineers , E G Seebauer & Robert L. Berry, 2000, Oxford University Press
21. Engineering Ethics (including Human Values), M Govindrajran, S Natrajan & V.S. Senthil Kumar, Eastern Economy Edition, Prentice Hall of India Ltd.
22. Foundations of Ethics and Management, B P Banerjee, 2005,Excel Books.
23. Indian Ethos and Modern Management, B L Bajpai, 2004, New Royal Book Co., Lucknow. Reprinted 2008.

OBJECTIVES:

The objective of the course is four fold:

1. To train the student for Development of a holistic perspective based on self-exploration about themselves (human being), family, society and nature/existence.
2. To understand (or develop clarity) the harmony in the human being, family, society and nature/existence
3. To strengthen self-reflection.
4. To infuse a sense of commitment and courage to act.

Course Title: NSS for Youth Development **L-T-P-C: 2-0-4-0**
Course Code: UHS202 / 272

Objectives:
Develop the idea of voluntarism: # Acquire leadership qualities and democratic attitude; # Develop capacity to meet emergencies and natural disasters # Identify the needs and problems of the community and involve them in problem Solving process;

Course Content:

Module	Topics	Lecture	Tutorials	Practical	Credit
I	Introduction to NSS • NSS as an organization (Aims & Objectives, Structure, Functioning & Funding) • Formation and functions of Advisory Committee of the NSS Unit • Needs and Preparation of Annual Activity Plan of NSS Unit • Activities under NSS: Regular Activities and Special Activities including Special Camping Programme • Village / Slum Adoption: Procedure and Guidelines, Maintaining records of the Village / Slum • Collaboration with other Govt. agencies, NGOs & Voluntary Organizations.	**2**	**0**	**0**	**0**
II	**NSS & Camps :-** Camping in NSS for Youth Leadership: National and Regional Level Camps, Pre RD and RD Camps, Youth Parliaments, International Youth Exchange Programmes, Youth Delegations • Awards in NSS: University Level, State Level and National Level – Procedure and Guidelines	**2**	**0**	**0**	**0**
III	**Health & Hygiene:-**Youth Health and Role of NSS •Concept and Importance of Health, Hygiene and Sanitation • Concept and Elements of Healthy Lifestyles – Role of Yoga •	**2**	**0**	**0**	**0**

	Concept of Effect of HIV/AIDS, Drugs and Substance Abuse, Role of NSS in their Eradication •Concept and Need of First Aid, Preparation for First Aid. • Role of NSS in Developing a Healthy Lifestyle				
IV	**Environment & Youth:-** Environment Issues and Role of NSS •Introduction to Environment Conservation • Importance of Sustainable Development – SDGs • Concept of Climate Change & Role of NSS Volunteers • Concept of Waste Management & Role of NSS Volunteers •Concept of Natural Resource Management & Role of NSS Volunteers	**2**	**0**	**0**	**0**
V	**Disaster & Hazard Management :-**Disaster Management and Role of NSS •Introduction to Hazard & Disaster Management . Classification of Disasters and their Effects •Concept of Disaster Management and Mitigation • Role of NSS in Disaster Management with emphasis on disasters specific to NE India • Importance of Civil Defense Training to NSS Volunteers	**2**	**0**	**0**	**0**

Total Hours: 10 Hrs

Text/Reference Books:

1. NSS Manual published by the Ministry of Youth Affairs & Sports, Govt, of India
2. National Youth Policy Document
3. National Service Scheme - A Youth Volunteers Programme For Under Graduate Students as Per UGC Guidelines by J D S Panwar, A K Jain & B K Rathi (Astral)
4. Communication Skills by N Rao & R P Das (HPH)
5. Biodiversity, Environment and Disaster Management by Shamna Hussain (Unique Publishers)
6. Environmental Studies by P K Pandey (Mahaveer Publications)

Course Title: Programming For Problem Solving **L-T-P-C: 2-1-0-3**
Course Code: UCS201

Total contact hours: 44

Module 1: Introduction to Computer **Contact hours: 5**
Components of a computer, Basic Operating System, compilers, number systems, number system conversion.

Module 2: Introduction to Algorithm, and Flowcharts **Contact hours: 5**
Introduction to algorithms, flowchart/pseudocode, basic examples.

Module 3: Basics of Programming **Contact hours: 7**
Introduction of source code, Syntax, and logical errors, object and executable code, variables (with data types), operators and expressions, precedence, and associativity.

Module 4: Conditional Branching and Loops **Contact hours: 10**
Conditional and unconditional branching, concepts, and examples of loops.

Module 5: Arrays **Contact hours: 10**
Introduction to arrays, 1-D, 2-D arrays, sorting and searching, and strings.

Module 6: Functions **Contact hours: 7**
Basic concepts of functions, parameter passing, recursive functions,

Books / References:

1. Byron Gottfried, Schaum's Outline of Programming with C, McGraw-Hill.
2. E. Balaguruswamy, Programming in ANSI C, Tata McGraw-Hill.
3. Brian W. Kernighan and Dennis M. Ritchie, The C Programming Language, Prentice Hall of India.
4. Yashavant Kanetkar, Let Us C, BPB Publications

Course Title: Programming For Problem Solving Lab **L-T-P-C: 0-0-2-1**
Course Code: UCS271

Total Contact Hours: 30

The laboratory should be preceded or followed by a tutorial explaining the approach or algorithm for the problem given.

Lab 1: Familiarization with the programming environment and simple computational problems**.**

Lab 2 - 3: Problems using conditional statements**.**

Lab 4 - 5: Iterative problems**.**

Lab 6 -9: Array, and strings problems**.**

Lab 10-11: Functions, Recursive functions**.**

Books / References:

1. Byron Gottfried, Schaum's Outline of Programming with C, McGraw-Hill.

2. E. Balaguruswamy, Programming in ANSI C, Tata McGraw-Hill.

3. Brian W. Kernighan and Dennis M. Ritchie, The C Programming Language, Prentice Hall of India.

4. Yashavant Kanetkar, Let Us C, BPB Publications

Course Title: Introduction to Multimedia Communications **L-T-P-C: 2-0-4-4**
Course Code: UMD201 / 271

Class Hours/week	2	4
Expected weeks	12	12
Total hours of classes	24	48

Course Objective:

The objective of this course is to provide students with a comprehensive understanding of multimedia and multimedia communications. Students will learn the fundamentals of multimedia, the various components and technologies involved, and how multimedia is communicated and applied in different contexts.

Course Outcome:

By the end of this course, students will be able to:

1. Understand the basic concepts and components of multimedia.
2. Gain knowledge about various multimedia formats and technologies.
3. Explore the principles of multimedia communication and its applications.
4. Develop skills to create and manipulate multimedia content.
5. Evaluate the impact of multimedia on communication and society.

MODULE	TOPIC	COURSE CONTENT	HOURS
1	**Unit – 1** **Introduction**	Introduction to Multimedia: Definition, History and Applications of Multimedia; Characteristics of Multimedia; Components of Multimedia System; Static and Continuous Media	2 / 0
2	**Unit – 2** **Analog and Digital Signals**	Analog and Digital Signals; Analog to Digital and Digital to Analog Conversion.	2 / 0
3	**Unit – 3** **Data Compression**	Types of Data Compression; Introduction to Various Compression Techniques– Shannon Fano, Huffman Coding, LZW Coding, Run-Length Encoding, JPEG, MPEG.	4 / 0
4	**Unit – 4** **Elements of Multimedia**	Understanding the Elements of Multimedia– Text, Still Images, Graphics, Audio, Video and Animation.	12 / 48
5	**Unit – 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.	2 / 0
6	**Unit – 6** **Virtual Reality**	Introduction to Virtual Reality; VR-Systems; VR Tools.	2 / 0

REFERENCE BOOKS:

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: 2-0-2-3**
Course Code: UMD202 / 272

Class Hours/week	2	2
Expected weeks	12	12
Total hours of classes	24	24

Course Objective:

The objective of this course is to introduce students to the principles and practices of animation design, including both 2D and 3D animation, and to provide a comprehensive understanding of the animation production pipeline. By the end of this course, students will be equipped with the foundational skills necessary to create and analyze animation works.

Course Outcome:

1. Understand the basic principles and techniques of 2D and 3D animation.
2. Demonstrate the ability to create basic animations using industry-standard tools.
3. Analyze and apply the animation production pipeline from concept to final product.
4. Develop a critical eye for animation design, storytelling, and aesthetic quality.

MODULE	TOPIC	COURSE CONTENT	HOURS
1	**Unit – 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.	6 / 0
2	**Unit – 2** **Pre-Production**	Introduction to Pre-Production, Scripting, Storyboarding, Layout, Character Designing, Props Designing, Background Designing, Camera Angles, Frame Length.	6 / 12
3	**Unit – 3** **Visual Culture**	Importance of visual culture in the study of animation. Applying visual technology for animation.	2 / 0
4	**Unit – 4** **Production**	Animation production: techniques for production and analyzing 2D and 3D animation. 3D Modeling, Texturing, Rigging, 3D Animation, CG Lighting, Visual Effects	6 / 0
5	**Unit – 5** **Post-Production**	Post Production processes, Importance of post-production, Compositing, and Rendering.	4 / 12

REFERENCES BOOKS:

1. K. Laybourne, *The animation book: a complete guide to animated filmmaking, from flip-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: 2-0-4-4**
Course Code: UMD203 / 273

Class Hours/week	2	4
Expected weeks	12	12
Total hours of classes	24	48

Course Objective:

The objective of this course is to provide students with a comprehensive understanding of the fundamental principles of graphic design.

Course Outcomes:

1. Understand and apply the basic principles of graphic design.
2. Identify and utilize the elements of graphic design in projects.
3. Apply Gestalt laws to create cohesive and visually balanced designs.
4. Develop skills in typography and understand its impact on design.
5. Execute practical graphic design projects.
6. Gain basic knowledge of printing and digital media technologies.
7. Analyze and learn from case studies in graphic design.

MODULE	TOPIC	COURSE CONTENT	HOURS
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.	6 / 10
2	**Unit – 2**	Gestalt Laws	2 / 2
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.	6 / 12
4	**Unit – 4**	Hands on practice in applications of fundamentals of Graphic Design.	4 / 12
5	**Unit – 5**	Introduction to Printing Technology. Introduction to Digital Media Technology. Case studies	6 / 12

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 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: 0-0-4-2**
Course Code: UMD294

Class Hours/week	4
Expected weeks	12
Total hours of classes	48

MODULE	TOPIC	COURSE CONTENT	HOURS
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.	12
2	**Project – 2**	**Project based on following contents:** Gestalt Laws and its practical application.	12
3	**Project – 3**	**Project based on following contents:** Applications of Typography in hypothetical and real projects.	12
4	**Project – 4**	**Project based on following contents:** Application of Printing Technology and Digital Media Technology.	12