HINDUSTAN
INSTITUTE OF TECHNOLOGY & SCIENCE
(DEEMED TO BE UNIVERSITY)
CHENNAI

Masters Programme (M.Sc)USER EXPERIENCE DESIGN

(Duration: 2 Years)

REVISED CURRICULUM and SYLLABUS

(Applicable for Students admitted from Academic Year 2021-22)

SCHOOL OF PLANNING, ARCHITECTURE & DESIGN EXCELLENCE

HINDUSTAN INSTITUTE OF TECHNOLOGY AND SCIENCE

HINDUSTAN INSTITUTE OF TECHNOLOGY AND SCIENCE

Motto:

To Make Every Man *a* Success *and* No Man *a* Failure

Vision:

To be an International Institute of Excellence, providing a conducive environment for education with a strong emphasis on innovation, quality, research and strategic partnership blended with values and commitment to society.

Mission:

- *To create an ecosystem that promotes learning and world class research.*
- *To nurture creativity and innovation.*
- *To instil highest ethical standards and values.*
- *To pursue activities for the development of the Society.*
- *To develop national and international collaborations with institutes and industries of eminence.*
- *To enable graduates to become future leaders and innovators.*

Value Statement:

Integrity, Innovation, Internationalization.

SCHOOL OF PLANNING ARCHITECTURE AND DESIGN EXCELLENCE (SPADE)

Vision:

To facilitate the creation of built environment by adopting holistic approaches to promote sustainable development in Architecture & Planning.

Mission:

- *To qualify students to address concerns of the 21st century and making them globally competent.*
- *To empower students by imparting Architecture and Planning knowledge in diverse areas with social commitment.*
- *To enable them to handle the complexities of modern requirements and encouraging exploration, innovation and creative experimentation in shaping the living environment.*

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs):

The program is expected to enable the students to

PEO - 1	*Prepare graduates to design, development, and evaluate products and services that are useful, usable and desirable.*
PEO - 2	*Equip future designers with technical skills, new technology to be able to produce a complete approach to human interaction with products and services.*
PEO - 3	*Help students to demonstrate a good understanding of the various components of UX design by exposing them to a wide variety of projects, presentations, research papers and critique.*

PEO - 4	*Develop skills in the use and application of specific methods in user experience design.*
PEO - 5	*Familiarize students with computational techniques and software typically used in the profession of User Experience design.*
PEO - 6	*Provide a good grounding in the best practice of collating and disseminating information.*
PEO - 7	*Prepare students to undertake research.*
PEO - 8	*Improve individual and collaborative skills in design problem solving.*
PEO - 9	*Integrate the process of design by working on projects, initially working with designers in the industry and taking on professional task responsibilities.*
PEO - 10	*Interact and participate in projects with Industry experts and specialists and get hands on learning on live projects.*

PROGRAMME'S OUTCOMES (PO'S):

At the end of this program, graduates will be able to

- *Integrate knowledge, skill of user- centered design, user -centered methods in design, graphic design on screens, simulation and prototyping techniques, usability testing methods, and interface technologies*
- *Develop and integrate trends in user experience design.*
- *Understand the design, technology and techniques to design effectively for the user.*
- *Understand elements and principles of visual communication or visual design.*
- *Develop an understanding of various tools, techniques and software.*
- *Apply critical and contextual approaches across wide variety of subject matter.*
- *Develop logical thinking to comprehend key facts leading to formulation of the solution process.*
- *Engage a process of research and design for holistic contribution to the profession.*

PROGRAMME'S SPECIFIC OUTCOMES (PSO'S):

The graduates of M.Sc (User Experience Design) program will be able to

1. *PSO-1: Create an ability to conceptualize and coordinate design that follows a systematic process of analysing alternatives, ideas, theories by evaluating, and synthesizing ideas that include parameters on social, cultural, environmental and technological aspects of an UX design.*
2. *PSO-2: Utilize modern software tools & other appropriate and alterative innovative techniques in a wide range of documentation, presentation, analysis and applications for design development.*
3. *PSO-3: Create a sustainable and responsive built environment by streamlining user workflows, minimizing information overload, and removing potential distractions that keep users from accomplishing tasks they set out to do.*
4. *PSO- 4: Understand how history, art and culture have shaped the modern world, through many varied types of creative works, human experiences and to raise questions on value and meaning.*

M. Sc (USER EXPERIENCE DESIGN)

SEMESTER- I									
SL. NO	**COURSE CATEGORY**	**COURSE CODE**	**NAME OF THE COURSE**	**L**	**T**	**P**	**C**	**S**	**TCH**
1	BS	UXA0701	Human Factors in Interaction Design	3	0	0	3	0	3
2	PC	UXB0702	Introduction to Visual Design	3	0	0	3	0	3
THEORY CUM STUDIO									
3	PC	UXB0711	Introduction to UX Design	2	0	4	4	2	6
4	PC	UXB0712	Design Thinking and Application	2	0	4	4	0	6
5	PC	UXB0713	Applications of Visual Communication	2	0	4	4	1	6
6	PC	UXB0714	Basics of Prototyping	2	0	4	4	2	6
			Total	14	0	16	22	5	30
L – Lecture ; T – Tutorial ; P – Practical ; C – Credit; S- Self Study; TCH- Total Contact Hours									

SEMESTER- II									
SL. NO	**COURSE CATEGORY**	**COURSE CODE**	**NAME OF THE COURSE**	**L**	**T**	**P**	**C**	**S**	**TCH**
1	PC	UXB0716	Information, Science and Design	2	0	0	2	1	2
2	BS	UXA0717	Cognitive Psychology in UX design	3	0	0	3	0	3
3	PC	ELE	E I	2	0	0	2	0	2
4	PC	OE	Open Elective / Other than M. Sc User Experience Design	3	0	0	3	0	3
THEORY CUM STUDIO									
5	PC	UXB0726	Interaction Design	2	0	4	4	0	6
6	PC	UXB0727	Advanced Prototyping	2	0	4	4	2	6
STUDIO									
7	PC	UXB0741	Design Project I	0	0	8	4	2	8
			Total	14	0	16	22	5	30
L – Lecture ; T – Tutorial ; P – Practical ; C – Credit; S- Self Study; TCH- Total Contact Hours									

SEMESTER- III									
SL. NO	**COURSE CATEGORY**	**COURSE CODE**	**NAME OF THE COURSE**	**L**	**T**	**P**	**C**	**S**	**TCH**
1	PC	UXB0801	Design Research	3	0	0	3	0	3
2	PC	UXB0802	Interactive Data visualization	3	0	0	3	0	3
3	PC	ELE	E II	2	0	0	2	0	2
THEORY CUM STUDIO									
3	PC	UXB0811	Future Technology Tools	2	0	4	4	2	6
4	PC	UXB0812	Usability Testing Methods	2	0	4	4	1	6
STUDIO									
5	PC	UXB0851	Design Project II	0	0	10	5	2	10
			Total	12	0	18	21	5	30
L – Lecture ; T – Tutorial ; P – Practical ; C – Credit; S- Self Study; TCH- Total Contact Hours									

SEMESTER- IV									
SL. NO	**COURSE CATEGORY**	**COURSE CODE**	**NAME OF THE COURSE**	**L**	**T**	**P**	**C**	**S**	**TCH**
1	PC	UXB0816	Internship	30 days			2	0	0
STUDIO									
2	PC	UXB0861	Design Degree Project	0	0	16	8	0	16
			Total	0	0	16	10	0	16
L – Lecture ; T – Tutorial ; P – Practical ; C – Credit; S- Self Study; TCH- Total Contact Hours									

TOTAL NUMBER OF CREDITS: 75

Note:

- 2 hours of Studio (P) = 1 Credit
- 1 hour of Lecture (L) = 1 Credit
- TCH = Total contact hours.

LIST OF DEPARTMENTAL ELECTIVES WITH GROUPING - SEMESTER WISE

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Elective No	**SEMESTER**	**COURSE CODE**	**NAME OF THE COURSE**	**L**	**T**	**P**	**C**	**S**	**TCH**
ELECTIVE - I									
I	II	UXB0766	Digital Experience in e-commerce	2	0	0	2	0	2
	II	UXB0767	Human Computer Interface in Health care	2	0	0	2	0	2
	II	UXB0768	Web Design	2	0	0	2	0	2
	II	UXB0769	Digital Experience in Banking	2	0	0	2	0	2
	II	UXB0770	Digital Experience in citizen services	2	0	0	2	0	2
ELECTIVE - II									
II	III	UXB0851	Design principles for IOT	2	0	0	2	0	2
	III	UXB0852	Design principles for AR	2	0	0	2	0	2
	III	UXB0853	Design principles for wearable	2	0	0	2	0	2
	III	UXB0854	Design principles for Logistics	2	0	0	2	0	2

PROGRAMME STRUCTURE

PSO I	PSO II	PSO III	PSO IV
Create an ability to conceptualize and coordinate design that follows a systematic process of analyzing alternatives, ideas, theories by evaluating, and synthesizing ideas that include parameters on social, cultural, environmental and technological aspects of an UX design.	*Utilize modern software tools & other appropriate and alterative innovative techniques in a wide range of documentation, presentation, analysis and applications for design development.*	*Create a sustainable and responsive built environment by streamlining user workflows, minimizing information overload, and removing potential distractions that keep users from accomplishing tasks they set out to do.*	*Understand how history, art and culture have shaped the modern world, through many varied types of creative works, human experiences and to raise questions on value and meaning.*
• *Develop communication skills through drawn, visual, verbal and written representations of UX design to understand their cultural, professional, and technical implications.* • *To involve them in group work so that the team building becomes the nature*	• *Practical skills for modern software tools & other appropriate and alterative innovative techniques.* • *To learn documentation, presentation, analysis and applications for design development.*	• *Create awareness of sustainable and responsive built environment by streamlining user workflows, minimizing information overload, and removing potential distractions*	• *To study history and theory of UX design and their relevance with planning process and implementation in different environments.*

of their work for the comfortable outcomes in the field they choose. • *Integrating theory and studio contents and application of theoretical inputs in the user experience design studio.*			
Introduction To Visual Design	Design Thinking And Application	Design Project I	Human Factors In Interaction Design
Introduction To Ux Design	Applications Of Visual Communication	Design Project II	Future Technology Tools
Information Science And Design	Basics Of Prototyping	Internship	
Cognitive Psychology In Ux Design	Advanced Prototyping	Design Degree Project	
Interaction Design	Human Computer Interface In Health Care		
Design Research	Web Design		
Interactive Data Visualization	Digital Experience In Banking		

Usability Testing Methods	Digital Experience In Citizen Services		
Digital Experience In E-Commerce	Design Principles For IOT		
	Design Principles For AR		
	Design Principles For Wearable		
	Design Principles For Logistics		

SEMESTER I

COURSE TITLE	HUMAN FACTORS IN INTERACTION DESIGN		CREDITS		3
COURSE CODE	UXA0701	COURSE CATEGORY	BS	L-T-P-S	3-0-0-0
Version	1.0	Approval Details		LEARNING LEVEL	BTL - 3

ASSESSMENT SCHEME

First Periodical Assessment	Second Periodical Assessment	Seminar/ Assignments/ Project / Surprise Test / Quiz	ESE
15%	20%	15%	50%

Course Description	**In this course, students will learn about the principles of human factors involved in UX design and their applications. They will also learn about the error management in UX design.**
Course Objective	1.To discover the human factors in UX design. 2.To classify the principles of human factors involved in UX design 3.To discover the application of the principles in UX design. 4.To compute the process of efficient design for human factors involved in UX design. 5.To examine the steps taken to prevent errors by cognitive understanding.
Course Outcome	Upon completion of this course, the students will be able to 1. To apply the human factors in UX design. 2. To demonstrate the principles of human factors involved in UX design. 3. To apply the application of the principles in UX design. 4. To demonstrate the process of efficient design for human factors involved in UX design. 5. To modify the steps taken to prevent errors by cognitive understanding.

Prerequisites: NIL

CO, PO AND PSO MAPPING

CO	PO -1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO -8	PSO-1	PSO-2	PSO-3	PSO-4
CO-1	3	2	1	2	-	-	-	-	-	-	-	3
CO-2	2	2	1	2	-	-	-	-	-	-	-	3
CO-3	3	2	1	2	1	-	-	-	-	-	-	3

CO-4	**3**	**-**	**2**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**
CO-5	**2**	**2**	**1**	**3**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**3**

1: Weakly related, 2: Moderately related and 3: Strongly related

MODULE 1: INTRODUCTION TO HUMAN FACTORS IN UX DESIGN (10)	
Human factors that are scientific in nature for UX Design - Human interaction criteria with Equipment – Tools – Systems that determine the UX aspect – Understanding the context – XR (Extended reality) – Designing Touch, Gesture user interfaces – Human factors that create limitations to UX Design.	**CO-1** **BTL-3**
MODULE 2: PRINCIPLES OF HUMAN FACTORS INVOLVED IN UX DESIGN (8)	
Ergonomics – Operational features – Characteristics of Usage –HCI (Human Computers Intraction) – ISO9241 – Standards for ergonomics of human computer interaction –Physical Ergonomics like specific operation, physical characteristics and context of use.	**CO-2** **BTL-3**
MODULE 3: OTHER PRINCIPLES OF HUMAN FACTORS INVOLVED IN UX DESIGN (7)	
Familiarity – Consistency – Sense of Control like Control of Systems operations, personalization and feedback for improvisation of the UX Design.	**CO-3** **BTL-3**
MODULE 4: EFFICIENT DESIGN FOR HUMAN FACTORS INVOLVED IN UX DESIGN (12)	
Complex steps into Simpler steps – Reduce number of Operations – Guiding the User by Design – Gestalt Principles of Organizing information on screen – shortcuts – High lighting features.	**CO-4** **BTL-3**
MODULE 5: ERROR MANAGEMENT IN HUMAN FACTORS INVOLVED UX DESIGN (8)	
Wizard Testing - Preventing errors through preplanning – Preventing fatal errors – reversing possibilities made easy – intimating users on errors – user is always right – Cognitive Understanding – Moderated Testing.	**CO-5** **BTL-3**

REFERENCE BOOKS	
1	Human-Computer Interaction" by Dix
2	"Designing the User Interface: Strategies for Effective Human-Computer Interaction" by Shneiderman
3	"Interaction Design: Beyond Human Computer Interaction" by Rogers and Sharp

COURSE TITLE	INTRODUCTION TO VISUAL DESIGN		CREDITS		3
COURSE CODE	UXB0702	COURSE CATEGORY	PC	L-T-P-S	3-0-0-0
Version	1.0	Approval Details		LEARNING LEVEL	BTL - 3

ASSESSMENT SCHEME

First Periodical Assessment	Second Periodical Assessment	Seminar/ Assignments/ Project / Surprise Test / Quiz	ESE
15%	20%	15%	50%

Course Description	**In this course, students will learn about the principles and elements of visual design. They will also learn ways to incorporate the theories in visual design.**
Course Objective	1. To apply apt visual communication tool for any presentation. 2. To demonstrate the elements of visual design. 3. To add the theories incorporated in principles in visual design. 4. To understand design graphic details for presentation content digitally and manually. 5. To demonstrate good photographs and also present one's work by this medium.
Course Outcome	Upon completion of this course, the students will be able to 1. To explain the apt visual communication tool for any presentation. 2. To apply the elements of visual design. 3. To examine the theories incorporate principles in visual design. 4. To modify design graphic details for presentation content digitally and manually. 5. To examine good photographs.

Prerequisites: NIL

CO, PO AND PSO MAPPING

CO	PO -1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO -8	PSO-1	PSO-2	PSO-3	PSO-4
CO-1	3	2	1	3	-	-	2	-	3	-	-	-
CO-2	2	1	1	3	-	-	-	-	3	-	-	-
CO-3	1	2	3	3	1	-	-	-	3	-	-	-
CO-4	3	-	2	3	-	-	3	-	3	-	-	-

CO-5	**1**	**-**	**1**	**3**	**3**	**-**	**2**	**-**	**3**	**-**	**-**	**-**

1: Weakly related, 2: Moderately related and 3: Strongly related

MODULE 1: INTRODUCTION TO VISUAL DESIGN	**(10)**
Need for and the Importance of Human and Visual Communication. Communication an expression, skill and process. Role of visual design in UX.	**CO-1** **BTL-3**
MODULE 2: ELEMENTS OF VISUAL DESIGN	**(8)**
Fundamentals of Visual communication. Fonts, lines, shapes, colors, textures, volume, and negative space. Role of a designer.	**CO-2** **BTL-3**
MODULE 3: PRINCIPLES & THEORIES OF VISUAL DESIGN	**(7)**
General principles of visual design, visual perception, Gestalt theory of visual perception and other visual perception theories.	**CO-3** **BTL-3**
MODULE 4: GRAPHIC DESIGN	**(12)**
Basics of Graphic Design. Definition, Elements of GD, Design process-research, a source of concept, the process of developing ideas-verbal, visual, combination & thematic, visual thinking. Problem associated with editing and manipulation of image/pictures using PhotoShop/Corel Draw. Associative techniques, materials, tools (precision instruments etc.) design execution, and presentation.	**CO-4** **BTL-3**
MODULE 5: USABILITY vs VISUAL DESIGN	**(8)**
Layers in the pyramid of user needs, Aarron Walter's hierarchy of user needs, visual concepts, visual hierarchy, Visual Composition for Interactive Interfaces, Color in Visual Hierarchy, Size in Visual Hierarchy, alignment in Visual Hierarchy, Shapes in Visual Hierarchy, Motion in Visual Hierarchy and sound in Visual Hierarchy.	**CO-5** **BTL-3**

REFERENCE BOOKS	
1	Visual Thinking for Design by Ware Colin
2	Visual Thinking by Willemien Brand

COURSE TITLE	INTRODUCTION TO UX DESIGN		CREDITS		4
COURSE CODE	UXB0711	COURSE CATEGORY	PC	L-T-P-S	2-0-4-2
Version	1.0	Approval Details		LEARNING LEVEL	BTL - 3

ASSESSMENT SCHEME

First Periodical Assessment	Second Periodical Assessment	Seminar/ Assignments/ Project / Surprise Test / Quiz	ESE
15%	20%	15%	50%

Course Description	**In this course, students will learn about the relationship between the system and the user. They will also learn to identify the problems and find solutions for different environments.**
Course Objective	1. To calculate the importance of the user in any design. 2. To compute the relationship between the system and the user. 3. To apply the elements and principles of design. 4. To understand the research potentials and scope of UX design. 5. To understand problems and solutions for different environments.
Course Outcome	Upon completion of this course, the students will be able to 1. To examine the importance of user/users in any design. 2. To examine the relationship between the system and the user. 3. To apply the elements and principles of design. 4. To examine the research potentials and scope of UX design. 5. To examine problems and solutions for different environments.

Prerequisites: NIL

CO, PO AND PSO MAPPING

CO	PO -1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PSO-1	PSO-2	PSO-3	PSO-4
CO-1	3	2	1	1	-	-	-	-	3	-	-	-
CO-2	2	1	1	1	-	-	-	-	3	-	-	-
CO-3	1	2	3	3	1	-	-	-	3	-	-	-
CO-4	3	-	2	1	-	-	-	-	3	-	-	-
CO-5	1	-	1	1	3	-	2	-	3	-	-	-

1: Weakly related, 2: Moderately related and 3: Strongly related	
MODULE 1: INTRODUCTION	**(18)**
Understanding User – Context – Content; Information Architecture in terms of User Research to Expert Design Practice to usability to User Research; Case example study of Web Application UX design – Systemic Design to Labeling Criteria to Navigation convenience to advanced research facility.	**CO-1** **BTL-3**
MODULE 2: USABILITY FACTORS &- INTERACTION FRAMEWORK IN UX DESIGN (18)	
Interaction characteristics that represents Usability; Criteria like Understandability to Consistency to Predictability to perception of users to Feedback for improvisation. Means of Interaction between system and users – Words, Visual Presentation, Touch or Tactile locations, Reaction of users , Response of users designed.	**CO-2** **BTL-3**
MODULE 3: VISUAL CHARACTERISTICS OF UX DESIGN	**(18)**
Ideation or Innovation – Research to find further information to way forward – sanoke creation – Trial run – Feedback or evaluation system to further refine and restart from the beginning or as and is; Principles of Design – Elements of Design understanding.	**CO-3** **BTL-3**
MODULE 4: RESEARCH POTENTIAL AND SCOPE OF UX DESIGN	**(18)**
Research types – Descriptive – Relational – Experimentative – Qualitative finding and Quantitative finding; Launch of Design from Prototype; Areas of high scope for UX DESIGN with examples in Web applications, standalone software applications to mobile applications.	**CO-4** **BTL-3**
MODULE 5: USER INTERFACE FOR DIFFERENT ENVIRONMENTS	**(18)**
User Interface For Different Environments – educational, commercial, banking etc - problems – solutions with case studies.	**CO-5** **BTL-3**

REFERENCE BOOKS	
1	Understanding Industrial Design: Principles for UX and Interactionby Simon King (Author), Kuen Chang (Author)
2	Designing Interfaces: Patterns for Effective Interaction Design by Jenifer Tidwell (Author), Charles Brewer (Author), Aynne Valencia (Author)
3	Interaction Design BY Sharp Helen, Jennifer Preece , Yvonne Rogers

COURSE TITLE	DESIGN THINKING AND APPLICATION		CREDITS		4
COURSE CODE	UXB0712	COURSE CATEGORY	PC	L-T-P-S	2-0-4-0
Version	1.0	Approval Details		LEARNING LEVEL	BTL - 4

ASSESSMENT SCHEME

First Periodical Assessment	Second Periodical Assessment	Seminar/ Assignments/ Project / Surprise Test / Quiz	ESE
15%	20%	15%	50%

Course Description	**In this course, students will learn about the principles of design thinking, usage of technology in design and the methods of thinking.**
Course Objective	1. To infer principles of design thinking. 2. To analyze the bridge between culture and design. 3. To outline the use of technology in design. 4. To analyze the methods of thinking. 5. To point out the effect of design thinking.
Course Outcome	Upon completion of this course, the students will be able to 1. To analyze the principles of design thinking. 2. To combine culture and design. 3. To relate the usage of technology in design. 4. To analyze the methods of thinking. 5. To analyze the effect of design thinking.

Prerequisites: NIL

CO, PO AND PSO MAPPING

CO	PO -1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PSO-1	PSO-2	PSO-3	PSO-4
CO-1	-	3	3	-	3	2	3	-	-	3	-	1
CO-2	-	-	3	-	3	2	3	3	-	3	-	1
CO-3	-	3	3	-	3	2	3	-	-	3	-	1
CO-4	3	-	2	-	-	-	-	-	-	3	-	1
CO-5	1	-	1	-	3	-	-	-	-	3	-	1

1: Weakly related, 2: Moderately related and 3: Strongly related	
MODULE 1: INTRODUCTION TO DESIGN THINKING	**(18)**
Understanding User – Context – Content; Information Architecture in terms of User Research to Expert Design Practice to usability to User Research; Case example study of Web Application UX design – Systemic Design to Labeling Criteria to Navigation convenience to advanced research facility.	**CO-1** **BTL-4**
MODULE 2: UNDERSTAND CULTURE AND DESIGN	**(18)**
Culture as a manifestation of Design Experience – Aspects of Culture and its inbuilt methods of design thinking – Examples and / or Discussions from various local cultural aspects that reflect an inherent design manifestation.	**CO-2** **BTL-4**
MODULE 3: UNDERSTANDING TECHNOLOGY AND DESIGN	**(18)**
Change in Technological aspect over the past 2 centuries – Technology transforming design thinking – Taking an example of Photography from its invention to the current day usage within a handheld mobile device – the advancement and the manifestation of design thinking that propelled the advancement – or any other example in any art, architecture, product design, or media field to be taken for discussion.	**CO-3** **BTL-4**
MODULE 4: CREATIVITY AND ANALYTICAL THINKING SKILLS	**(18)**
Six hats thinking by Edward de bono – KISS (Keep it simple stupid) method of Designing – Lateral Thinking – Critical Thinking – Analytical Thinking methods - with examples.	**CO-4** **BTL-4**
MODULE 5: REPRESENTATION AND EFFECT OF DESIGN THINKING	**(18)**
Every area of Human endeavor is a reflection of Design thinking – Creativity for everyone – Various fields discussions with examples on how Design thinking is used in the respective field and how society progressed with design thinking resolutions from each of the fields.	**CO-5** **BTL-4**

REFERENCE BOOKS	
1	Serious Creativity by Edward De Bono
2	The Thames and Hudson Encyclopedia of 20th Century Design and Designers by Guy Julier
3	Critical Thinking: Your Guide to Effective Argument, Successful Analysis and Independent Study

COURSE TITLE	APPLICATIONS OF VISUAL COMMUNICATION		CREDITS		4
COURSE CODE	UXB0713	COURSE CATEGORY	PC	L-T-P-S	2-0-4-1
Version	1.0	Approval Details		LEARNING LEVEL	BTL - 4

ASSESSMENT SCHEME

First Periodical Assessment	Second Periodical Assessment	Seminar/ Assignments/ Project / Surprise Test / Quiz	ESE
15%	20%	15%	50%

Course Description	**In this course, students will learn about the visual communication tool for any presentation. They will also learn about the graphic details for presentation content digitally and manually and take good photography.**
Course Objective	1. To analyze the apt visual communication tool for any presentation. 2. To infer various graphics elements for multiple platform design. 3. To analyze various techniques in navigation of digital fabric. 4. To understand the scope for art installations. 5. To develop to take good photographs and also present one's work by this medium.
Course Outcome	Upon completion of this course, the students will be able to 1. To explain the apt visual communication tool for any presentation. 2. To develop various graphics elements for multiple platform design. 3. To design various techniques in navigation of digital fabric. 4. To design and create graphics scope for art installations. 5. To develop to take good photographs and also present one's work by this medium.

Prerequisites: NIL

CO, PO AND PSO MAPPING

CO	PO -1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PSO-1	PSO-2	PSO-3	PSO-4
CO-1	3	2	3	-	3	-	-	-	-	3	-	-
CO-2	2	-	1	-	3	-	-	-	-	3	-	-
CO-3	1	-	3	-	3	-	-	-	-	3	-	-
CO-4	3	2	2	-	3	-	-	-	-	3	-	-
CO-5	1	2	3	-	3	-	-	-	-	3	-	-

1: Weakly related, 2: Moderately related and 3: Strongly related	
MODULE 1: INTRODUCTION TO VISUAL COMMUNICATION	**(18)**
Need for and the Importance of Human and Visual Communication. Communication an expression, skill and process. Relation between visual communication and architecture. Theories and Philosophies of Visual Communication. Icons, logos, symbols indexed and their meaning with relation to cultures.	**CO-1** **BTL-4**
MODULE 2: GRAPHIC DESIGN	**(18)**
Basics of Graphic Design. Definition, Elements of GD, Usage of elements like maps, calendars, and other dynamic components in websites or applications., visual thinking., critical thinking and analysis. Basic file formats for graphics. Problem associated with editing of static and dynamic images using PhotoShop/Corel Draw. Associative techniques, materials, development of mood boards.	**CO-2** **BTL-4**
MODULE 3: NAVIGATION AND SITE MAPS	**(18)**
Basics of site maps and navigating process and various techniques used by designers. Multitasking and relation between graphical elements. Study of semiotic theory. Study of signs and signage and their application in digital environment.	**CO-3** **BTL-4**
MODULE 4: INSTALLATION ART	**(18)**
Introduction to art installations and digital installations. Integration and importance of of graphic design in installations. Study of work of dynamic and static installations. Study of basic technology to create scope in installation. Introduction to illusions.	**CO-4** **BTL-4**
MODULE 5: PHOTOGRAPHY	**(18)**
Human Eye and Camera. Basics of Camera and its operations. Types of Camera. Visual Perception. Perception of Colour, depth, lighting, foreground, mid ground, and background in architectural photography. Visual Documentation of Architectural projects. Image processing, and format conversions.	**CO-5** **BTL-4**

REFERENCE BOOKS	
1	Serious Creativity by Edward De Bono
2	The Thames and Hudson Encyclopedia of 20th Century Design and Designers by Guy Julier
3	Critical Thinking: Your Guide to Effective Argument, Successful Analysis and Independent Study

COURSE TITLE	BASICS OF PROTOTYPING		CREDITS		4
COURSE CODE	UXB0713	COURSE CATEGORY	PC	L-T-P-S	2-0-4-1
Version	1.0	Approval Details		LEARNING LEVEL	BTL - 4

ASSESSMENT SCHEME

First Periodical Assessment	Second Periodical Assessment	Seminar/ Assignments/ Project / Surprise Test / Quiz	ESE
15%	20%	15%	50%

Course Description	**In this course, students will learn about the types of prototyping and their process. They will also learn about basic software tools.**
Course Objective	1. To point out the qualities of prototyping. 2. To detect the types of prototyping. 3. To point out the need of story board. 4. To infer the process of prototyping. 5. To infer basic software tools.
Course Outcome	Upon completion of this course, the students will be able to 1. To analyze the qualities of prototyping. 2. To analyze the types of prototyping. 3. To design a story board. 4. To infer the process of prototyping. 5. To utilize basic software tools.

Prerequisites: NIL

CO, PO AND PSO MAPPING

CO	PO -1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PSO-1	PSO-2	PSO-3	PSO-4
CO-1	3	2	1	-	3	-	-	-	-	3	-	-
CO-2	2	1	1	-	3	-	-	-	-	3	-	-
CO-3	3	2	3	-	3	-	-	-	-	3	-	-
CO-4	3	-	2	-	3	-	-	-	-	3	-	-
CO-5	1	-	1	-	3	-	-	-	-	3	-	-

1: Weakly related, 2: Moderately related and 3: Strongly related	
MODULE 1: INTRODUCTION TO PROTOTYPING	**(18)**
Introduction to Prototyping. Qualities of prototyping – Representation, Precision, Interactivity and evolution. need for prototyping , Advantages and disadvantages of prototyping.	**CO-1** **BTL-4**
MODULE 2: TYPES OF PROTOTYPES	**(18)**
Different types of prototypes – paper prototypes, Low-fidelity prototypes, high fidelity prototypes. Prototyping methodology into three general categories: paper, digital, and HTML.PROTOTYPING METHODOLOGY - Advantages and disadvantages of each category.	**CO-2** **BTL-4**
MODULE 3: STORY BOARD	**(18)**
Narration, transition. Basic prototyping – pencil sketching, Paper models.	**CO-3** **BTL-4**
MODULE 4: THE PROTOTYPING PROCESS	**(18)**
Effective prototyping processes and their advantages and disadvantages. Tasks before starting a prototype.	**CO-4** **BTL-4**
MODULE 5: BASIC SOFTWARES	**(18)**
Photoshop, Corel Draw and other basic softwares.	**CO-5** **BTL-4**

REFERENCE BOOKS	
1	CorelDRAW 2020 - Training Book with Many Exercises by Peter Schiessl
2	Adobe Photoshop Classroom in a Book (2021 Release) by Andrew Faulkner and Conrad Chavez

SEMESTER II

COURSE TITLE	INFORMATION, SCIENCE AND DESIGN		CREDITS		2
COURSE CODE	UXB0716	COURSE CATEGORY	PC	L-T-P-S	2-0-0-0
Version	1.0	Approval Details		LEARNING LEVEL	BTL - 2

ASSESSMENT SCHEME

First Periodical Assessment	Second Periodical Assessment	Seminar/ Assignments/ Project / Surprise Test / Quiz	ESE
15%	20%	15%	50%

Course Description	**In this course, students will learn about the basics of information, science and design and characteristics of iteration design process.**
Course Objective	1. To discuss the basics of information, science and design. 2. To discuss human computer interaction. 3. To infer the characteristics of Iteration design process. 4. To infer the basics of semantic web. 5. To discuss the types of investigations.
Course Outcome	Upon completion of this course, the students will be able to 1. To explain the basics of information, science and design. 2. To infer the human computer interaction. 3. To explain the characteristics of Iteration design process. 4. To explain the basics of semantic web. 5. To explain the types of investigations.

Prerequisites: NIL

CO, PO AND PSO MAPPING

CO	PO -1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PSO-1	PSO-2	PSO-3	PSO-4
CO-1	3	2	1	-	-	-	-	2	3	-	-	-
CO-2	2	1	1	-	-	-	-	-	3	-	-	-
CO-3	1	2	3	-	1	-	-	1	3	-	-	-
CO-4	3	-	2	-	-	-	-	-	3	-	-	-

CO-5	**1**	**-**	**1**	**-**	**3**	**-**	**-**	**-**	**3**	**-**	**-**	**-**

1: Weakly related, 2: Moderately related and 3: Strongly related

MODULE 1: INTRODUCTION TO INFORMATION, SCIENCE AND DESIGN	**(18)**
Information Science– processing information from its origination, collection, organization, storage, retrieval, interpretation, transmission, transformation and utilization of information – interdisciplinary science – information scientist or analyst – information research – ontology.	**CO-1** **BTL-2**
MODULE 2: HUMAN COMPUTER INTERACTION IN IS&R	**(18)**
Human Computer Interaction – Visual based – Audio Based – Task environment – Machine Environment – areas of interface – input flow – output flow – feedback – Factors of Change in HCI- future Trends and usages.	**CO-2** **BTL-2**
MODULE 3: ITERATIVE DESIGN PROCESS FOR INFORMATION PROCESSING	**(18)**
Iterative design process as a method and its characteristics – Benefits – Challenges – marshmallow challenge – examples like Wiki, Common Law, Evolution – Proto typing as part of iterative design research – Top down and Bottom up Design research through information science.	**CO-3** **BTL-2**
MODULE 4: SEMANTIC WEB – TECHNICAL KNOW, HOW FOR ISR	**(18)**
W3C – Web 3.0 – RDF (Resources Description Framework) – limitations of HTML – Challenges – standards – SKOS (Simple knowledge Organization System) - OWL (Web Ontology Language) – RIF (Rule Interchange Format)	**CO-4** **BTL-2**
MODULE 5: VALUE SENSITIVE DESIGN FOR NEW GENERATION IS&R	**(18)**
Various processes of Value Sensitive Design – Types of Investigations like Conceptual, Empirical, and Technical methods – Aspects like Stake Holders Analysis, Value oriented semi structured interview, Model of informed consent online, Value sensitive action-Reflection Model- Co Evaluation of Technology and Social Structure – Any other appropriate latest methods of VSD.	**CO-5** **BTL-2**

REFERENCE BOOKS

1	Scientific Research in Information Systems A Beginners Guide by Jan Recker , Springer
2	An Introduction to Information Science - 1st Edition - By Roger Flynn
3	Information Science and Technology (English, Hardcover, Chandra Bhanu T. K.)
4	Information Science: From Theory to Applications by Reuban Hammon
5	Informatics and Computer Science Intelligent Systems Applications

COURSE TITLE	COGNITIVE PSYCHOLOGY IN UX DESIGN		CREDITS		3
COURSE CODE	UXA0717	COURSE CATEGORY	BS	L-T-P-S	3-0-0-0
Version	1.0	Approval Details		LEARNING LEVEL	BTL - 3

ASSESSMENT SCHEME

First Periodical Assessment	Second Periodical Assessment	Seminar/ Assignments/ Project / Surprise Test / Quiz	ESE
15%	20%	15%	50%

Course Description	**In this course, students will learn to analyze various theories used for cognitive thinking. They will also learn the application of cognitive psychology on interface design.**
Course Objective	1. To use the internal mental processes. 2. To examine ways to reduce cognitive load. 3. To enable the students to analyze various theories used for cognitive thinking. 4. To compute the impact of cognitive psychology. 5. To discover the application of cognitive psychology on interface design.
Course Outcome	Upon completion of this course, the students will be able to 1. To examine the internal mental processes. 2. To discover ways to reduce cognitive load. 3. To examine various theories used for cognitive thinking. 4. To demonstrate cognitive psychology and its impacts.. 5. To demonstrate the application of cognitive psychology on interface design.

Prerequisites: NIL

CO, PO AND PSO MAPPING

CO	PO -1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PSO-1	PSO-2	PSO-3	PSO-4
CO-1	3	2	1	-	-	2	-	-	3	-	-	-
CO-2	2	1	1	-	-	-	-	-	3	-	-	-
CO-3	1	2	3	-	1	2	-	-	3	-	-	-
CO-4	3	-	2	-	-	2	-	-	3	-	-	-
CO-5	1	-	1	-	3	2	-	-	3	-	-	-

1: Weakly related, 2: Moderately related and 3: Strongly related	
MODULE 1: COGNITIVE PSYCHOLOGY	**(18)**
Introduction to Cognitive psychology, study of internal mental processes, understanding of the design. Short time memory and long term memory. Benefits of cognitive psychology.	**CO-1** **BTL-3**
MODULE 2: COGNITIVE LOAD	**(18)**
Cognitive load, the User's Processing Power, types of cognitive load. Ways to reduce extraneous cognitive load.	**CO-2** **BTL-3**
MODULE 3: COGNITIVE THEORIES	**(18)**
Cognitive learning theory - Piaget's developmental theory, Lev Vygotsky's social cultural cognitive theory, and the information process theory.	**CO-3** **BTL-3**
MODULE 4: COGNITIVE PSYCHOLOGY AND HUMAN FACTORS	**(18)**
Six areas of cognitive psychology. Impact of Cognitive Psychology. "Human factors" in design, Examples of human factors psychology.	**CO-4** **BTL-3**
MODULE 5: APPLICATION OF COGNITIVE PSYCHOLOGY ON INTERFACE DESIGN	**(18)**
Practical applications with examples, Cognitive processes – attention, memory, working memory, long term memory, perception, language and Metacognition.	**CO-5** **BTL-3**

REFERENCE BOOKS	
1	Thinking, fast and slow by Daniel Kahneman
2	Predictably Irrational by Dan Ariely

COURSE TITLE	INTERACTION DESIGN		CREDITS		4
COURSE CODE	UXB0726	COURSE CATEGORY	PC	L-T-P-S	2-0-4-0
Version	1.0	Approval Details		LEARNING LEVEL	BTL - 4

ASSESSMENT SCHEME

First Periodical Assessment	Second Periodical Assessment	Seminar/ Assignments/ Project / Surprise Test / Quiz	ESE
15%	20%	15%	50%

Course Description	**In this course, students will learn about characteristics of human computer interaction and the error management in human factors involved UX design.**
Course Objective	1. To infer the methodology of design process. 2. To infer the characteristics of human computer interaction. 3. To enable the students to control of system operations. 4. To infer the efficient design for human factors involved UX design. 5. To understand the error management in human factors involved UX design.
Course Outcome	Upon completion of this course, the students will be able to 1. To analyze the methodology of design process. 2. To analyze the characteristics of human computer interaction. 3. To analyze with control of system operations. 4. To analyze efficient design for human factors involved UX design. 5. To analyze the error management in human factors involved UX design.

Prerequisites: NIL

CO, PO AND PSO MAPPING

CO	PO -1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PSO-1	PSO-2	PSO-3	PSO-4
CO-1	3	3	1	-	-	2	-	-	3	-	-	-
CO-2	2	3	1	-	-	-	-	-	3	-	-	-
CO-3	1	3	3	-	1	2	-	-	3	-	-	-
CO-4	3	-	2	-	-	2	-	-	3	-	-	-
CO-5	1	-	1	-	3	2	-	-	3	-	-	-

1: Weakly related, 2: Moderately related and 3: Strongly related	
MODULE 1: DESIGN PROCESS AND METHODOLOGY	**(18)**
Design process and methodology for designing solutions for interactive products, services and events: Design of integrated systems, products for future use, products to be used in groups, devices used in public places, design of tangible, gestural and expressive interfaces, products that enrich user experience.	**CO-1** **BTL-4**
MODULE 2: PRINCIPLES OF HUMAN FACTORS INVOLVED IN UX DESIGN	**(18)**
Ergonomics – Operational features – Characteristics of Usage –HCI (Human Computers Interaction) – ISO9241 – Standards for ergonomics of human computer interaction –Physical Ergonomics like specific operation, physical characteristics and context of use.	**CO-2** **BTL-4**
MODULE 3: CONTROL OF SYSTEM OPERATIONS	**(18)**
Familiarity – Consistency – Sense of Control like Control of Systems operations, personalization and feedback for improvisation of the UX Design.	**CO-3** **BTL-4**
MODULE 4: EFFICIENT DESIGN FOR HUMAN FACTORS INVOLVED UX DESIGN	**(18)**
Complex steps into Simpler steps – Reduce number of Operations – Guiding the User by Design – Gestalt Principles of Organizing information on screen – shortcuts – High lighting features.	**CO-4** **BTL-4**
MODULE 5: ERROR MANAGEMENT IN HUMAN FACTORS INVOLVED UX DESIGN	**(18)**
Wizard Testing - Preventing errors through preplanning – Preventing fatal errors – reversing possibilities made easy – intimating users on errors – user is always right – Cognitive Understanding – Moderated Testing.	**CO-5** **BTL-4**

REFERENCE BOOKS	
1	Human-Computer Interaction" by Dix
2	"Designing the User Interface: Strategies for Effective Human-Computer Interaction" by Shneiderman
3	"Interaction Design: Beyond Human Computer Interaction" by Rogers and Sharp

COURSE TITLE	ADVANCED PROTOTYPING		CREDITS		4
COURSE CODE	UXB0727	COURSE CATEGORY	PC	L-T-P-S	2-0-4-2
Version	1.0	Approval Details		LEARNING LEVEL	BTL - 4

ASSESSMENT SCHEME

First Periodical Assessment	Second Periodical Assessment	Seminar/ Assignments/ Project / Surprise Test / Quiz	ESE
15%	20%	15%	50%

Course Description	**In this course, students will learn about the basic animation techniques and types of transitions. They will also learn about different tools and techniques.**
Course Objective	1. To infer the basic animation techniques. 2. To point out the types of transitions. 3. To infer the principles of sound design. 4. To detect the advantages of software. 5. To point out the usage of tools and techniques.
Course Outcome	Upon completion of this course, the students will be able to 1. To analyze the basic animation techniques. 2. To infer with the types of transitions. 3. To analyze the principles of sound design. 4. To point out the advantages of software. 5. To analyze the usage of tools and techniques.

Prerequisites: NIL

CO, PO AND PSO MAPPING

CO	PO -1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PSO-1	PSO-2	PSO-3	PSO-4
CO-1	3	2	1	-	3	-	-	-	-	3	-	-
CO-2	2	1	1	-	3	-	-	-	-	3	-	-
CO-3	3	2	3	-	3	-	-	-	-	3	-	-
CO-4	3	-	2	-	3	-	-	-	-	3	-	-
CO-5	1	-	1	-	3	-	-	-	-	3	-	-

1: Weakly related, 2: Moderately related and 3: Strongly related	
MODULE 1: ANIMATION	**(18)**
Introduction to animation UX design, 5 Forms of Animation-traditional animation, 2D animation, 3D animation, Motion Graphics and Stop motion. Basic Animation Techniques.	**CO-1** **BTL-4**
MODULE 2: TRANSITIONS	**(18)**
Introduction to transitions UX design, animated transitions, types of transitions, Animated Scrolling, Stateful Toggle, Collapsed Forms And Comments, Pull To Refresh, Sticky Labels, Affordance Transition, Context-Based Hiding and Focus Transition.	**CO-2** **BTL-4**
MODULE 3: SOUND RESPONSE	**(18)**
Sound design, sound response, user interface sounds, types of sound design, elements and principles of sound design. Importance of sound in UX design.	**CO-3** **BTL-4**
MODULE 4: SOFTWARES	**(18)**
Basics of Figma, Adobe XD, Sketch, InVision Studio. Advantages of each software with examples.	**CO-4** **BTL-4**
MODULE 5: TOOLS & TECHNIQUES	**(18)**
Understanding the usage of software in design, Basics of Framer X, Zeplin and other related software.	**CO-5** **BTL-4**

REFERENCE BOOKS	
1	Designing in Figma by Eugene Fedorenko
2	Adobe XD Classroom in a Book (2020 release) by Brian Wood

COURSE TITLE	DESIGN PROJECT I		CREDITS		4
COURSE CODE	UXB0741	COURSE CATEGORY	PC	L-T-P-S	0-0-8-2
Version	1.0	Approval Details		LEARNING LEVEL	BTL - 5

ASSESSMENT SCHEME

CIA	ESE
60 %	40%

Course Description	**In this course, students will work on any of the following projects :** **• Design related to Digital Experience in e-commerce** **• Web Design** **• Design related to Human Computer Interface in Health care** **• Design related to Digital Experience in e-banking / citizen services**
Course Objective	1. To generate the design options in a project.
Course Outcome	Upon completion of this course, the students will be able to 1. Create/propose design options in a project

Prerequisites: NIL

CO, PO AND PSO MAPPING

CO	PO -1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PSO-1	PSO-2	PSO-3	PSO-4
CO-1	3	2	3	-	2	-	3	-	2	2	3	2

1: Weakly related, 2: Moderately related and 3: Strongly related

Students will do design project based on any of the following topics DESIGN PROJECT 1 :Design related to Digital Experience in e-commerce DESIGN PROJECT 2 :Web Design DESIGN PROJECT 3 :Design related to Human Computer Interface in Health care DESIGN PROJECT 4 : Design related to Digital Experience in e-banking / citizen services	**CO-1** **BTL-5**

REFERENCE BOOKS

1	Designing in Figma by Eugene Fedorenko
2	Adobe XD Classroom in a Book (2020 release) by Brian Wood

SEMESTER III

COURSE TITLE	DESIGN RESEARCH		CREDITS		3
COURSE CODE	UXB0801	COURSE CATEGORY	PC	L-T-P-S	3-0-0-0
Version	1.0	Approval Details		LEARNING LEVEL	BTL - 2

ASSESSMENT SCHEME

First Periodical Assessment	Second Periodical Assessment	Seminar/ Assignments/ Project / Surprise Test / Quiz	ESE
15%	20%	15%	50%

Course Description	**In this course, students will learn about the types of research design and stages of research. They will also learn about qualitative and quantitative design research.**
Course Objective	1. To discuss the elements of design research. 2. To distinguish qualitative and quantitative design research. 3. To summarize the types of research design. 4. To estimate the stages of research. 5. To discuss the design research society.
Course Outcome	Upon completion of this course, the students will be able to 1. To explain the elements of design research. 2. To distinguish the qualitative and quantitative design research. 3. To summarize the types of research design. 4. To estimate the stages of research. 5. To explain the design research society.

Prerequisites: NIL

CO, PO AND PSO MAPPING

CO	PO -1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PSO-1	PSO-2	PSO-3	PSO-4
CO-1	-	2	1	-	-	3	2	3	3	-	-	-
CO-2	-	1	1	-	-	3	2	3	3	-	-	-
CO-3	-	2	3	-	1	3	2	3	3	-	-	-
CO-4	-	-	2	-	-	3	2	3	3	-	-	-
CO-5	-	-	1	-	3	3	2	3	3	-	-	-

1: Weakly related, 2: Moderately related and 3: Strongly related

MODULE 1: INTRODUCTION TO RESEARCH	(10)
Design Research necessity – Elements of Design Research – difference between design research and UX research – Foundation for product design briefs, services formulations and systems creation through design research –Investigation of human experience and behavior through design research.	**CO-1** **BTL-2**
MODULE 2: QUANTITATIVE AND QUALITATIVE DESIGN RESEARCH METHODS	**(8)**
Qualitative Design research methods - examples – user survey - sample exercise - quantitative design research methods – examples – data collection – analysis – inferences.	**CO-2** **BTL-2**
MODULE 3: RESEARCH DESIGN METHODS	**(6)**
Descriptive Research Design - Correlational Research Design - Experimental Research Design - Quasi-Experimental or Causal-Comparative Research Design – other types of research designs like, Diagnostic Research Design - Explanatory Research Design - Action Research Design - experimental design - research problem - descriptive case-study.	**CO-3** **BTL-2**
MODULE 4: STAGES OF RESEARCH AND ELEMENTS OF DESIGN RESEARCH	**(12)**
Processing the data into useful formats - Make sense of the data - Distill data into insights – Testing insights against existing knowledge – Translate insights into actionable formats - The method applied for analyzing collected details - Type of research methodology - Accurate purpose statement - Probable objections for research - Techniques to be implemented for collecting and analyzing research - Timeline - Measurement of analysis - Settings for the research study.	**CO-4** **BTL-2**
MODULE 5: DESIGN RESEARCH SOCIETY	**(9)**
History of Design Research society - Special Interest Group for Objects, Practices, Experiences, Networks (OPENSIG) - Inclusive Design Special Interest Group (Inclusive SIG) - Design Research Society's Design Innovation Management Special Interest Group (DIMSIG) - Design for Policy and Governance Special Interest Group (PoGoSIG).	**CO-5** **BTL-2**

REFERENCE BOOKS	
1	Research for Designers (English, Paperback, MuratovskiGjoko)
2	SDFS DESIGN AND ANALYSIS : A Researcher's HandbookBy Keppel, GeoffreyDesign Writing Research By Lupton, Ellen; Miller, J. Abbott
3	A Designer's Research Manual, 2nd edition, Updated and Expanded (English, Paperback, Visocky O'Grady Jenn)
4	Case Study Research by Robert K. Yin (Editor)

COURSE TITLE	INTERACTIVE DATA VISUALIZATION		CREDITS		3
COURSE CODE	UXB0802	COURSE CATEGORY	PC	L-T-P-S	3-0-0-0
Version	1.0	Approval Details		LEARNING LEVEL	BTL - 3

ASSESSMENT SCHEME

First Periodical Assessment	Second Periodical Assessment	Seminar/ Assignments/ Project / Surprise Test / Quiz	ESE
15%	20%	15%	50%

Course Description	**In this course, students will learn about interactive data visualization practices and various tools of interactive data visualization.**
Course Objective	1. To classify the benefits of interactive data visualization. 2. To classify the types of visualization methods. 3. To prepare various tools of interactive data visualization. 4. To examine the interactive data visualization practices. 5. To give examples for data visualization methods.
Course Outcome	Upon completion of this course, the students will be able to 1. To examine the benefits of interactive data visualization. 2. To discover the types of visualization methods. 3. To examine various tools of interactive data visualization. 4. To discover the interactive data visualization practices. 5. To examine the data visualization methods.

Prerequisites: NIL

CO, PO AND PSO MAPPING

CO	PO -1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PSO-1	PSO-2	PSO-3	PSO-4
CO-1	3	2	1	-	-	-	-	-	3	-	-	-
CO-2	2	1	1	-	-	-	-	-	3	-	-	-
CO-3	1	2	3	-	1	-	-	-	3	-	-	-
CO-4	3	-	2	-	-	-	-	-	3	-	-	-
CO-5	1	-	1	-	3	-	-	-	3	-	-	-

1: Weakly related, 2: Moderately related and 3: Strongly related

MODULE 1: INTRODUCTION (10)

Understanding Interactive Data Visualization – current trends Data Visualization – Benefits of Data visualization – data visualization vs info graphics - Techniques of Data Visualization – creation methods – key benefits of interactive data visualization in present times.	**CO-1** **BTL-3**
MODULE 2: DATA VISUALIZATION METHODS	**(8)**
Static and Interactive Visualization methods – Examples of Interactive Visualization – Types of visualization methods - Scatter plots - Bar & stack-bar charts - Box plots - Histograms - Heat maps - Area charts – Correlograms.	**CO-2** **BTL-3**
MODULE 3: TOOLS FOR INTERACTIVE DATA VISUALIZATION	**(7)**
Introduction to various tools of interactive data visualization like Tableau, Looker, Zoho Analytics, Sisense, IBM Cognos Analytics, Qlik Sense, Domo etc.,-Use of Python for Data analytics – Python libraries for data visualization.	**CO-3** **BTL-3**
MODULE 4: INTERACTIVE DATA VISUALIZATION PRACTICES	**(12)**
Examples of Data Visualization methods – Map Data Visualization - Exercises to try interactive data visualization using freeware online tools – Discussions – presentations.	**CO-4** **BTL-3**
MODULE 5: INTERACTIVE DATA VISUALIZATION DESIGN	**(8)**
Importance of Data Visualization Design –Design methods – improvisation of data visualization design – design for comprehension – efficient visualization – features for improvisation.	**CO-5** **BTL-3**

REFERENCE BOOKS	
1	Interactive Data Visualization for the Web: An Introduction to Designing by Scott Murray
2	Think Stats: Exploratory Data Analysis, 2nd Edition by Allen B Downey
3	The Big Book of Dashboards - Visualizing Your Data Using RealWorld Business Scenarios – by Wiley
4	Interactive Data VisualizationFoundations, Techniques, and Applications, Second EditionBy Matthew O. Ward , Georges Grinstein, Daniel Keim

COURSE TITLE	FUTURE TECHNOLOGY TOOLS		CREDITS		4
COURSE CODE	UXB0811	COURSE CATEGORY	PC	L-T-P-S	2-0-4-2
Version	1.0	Approval Details		LEARNING LEVEL	BTL - 3

ASSESSMENT SCHEME

First Periodical Assessment	Second Periodical Assessment	Seminar/ Assignments/ Project / Surprise Test / Quiz	ESE
15%	20%	15%	50%

Course Description	**In this course, students will learn about the emerging technologies in UX.**
Course Objective	1. To discover the development of technology over time. 2. To discover interaction design in the context of India. 3. To prepare future needs to design. 4. To discover emerging technologies in UX. 5. To compute the data visualization methods.
Course Outcome	Upon completion of this course, the students will be able to 1. To apply the development of technology over time. 2. To examine interaction design in the context of India. 3. To apply future needs to design. 4. To examine emerging technologies in UX. 5. To examine the data visualization methods.

Prerequisites: NIL

CO, PO AND PSO MAPPING

CO	PO -1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PSO-1	PSO-2	PSO-3	PSO-4
CO-1	3	2	1	-	-	2	-	-	-	-	-	3
CO-2	2	1	1	-	3	-	-	-	-	-	-	3
CO-3	1	2	3	-	2	1	-	-	-	-	-	3
CO-4	3	3	2	-	3	-	-	-	-	-	-	3
CO-5	1	-	1	-	3	-	-	-	-	-	-	3

1: Weakly related, 2: Moderately related and 3: Strongly related

MODULE 1: HISTORY OF TECHNOLOGY DEVELOPMENT	(18)
History of technology development, influences on society and design, Information and communication technology, past, present and future.	**CO-1** **BTL-3**
MODULE 2: INFLUENCES FROM OTHER MEDIA	**(18)**
New trends in interaction design hardware and software, Interaction design in the context of India.	**CO-2** **BTL-3**
MODULE 3: DESIGN FOR FUTURE NEEDS	**(18)**
Ways to design for Future with respect to change in user needs, time and technology.	**CO-3** **BTL-3**
MODULE 4: EMERGING TECHNOLOGY IN UX	**(18)**
AR, VR, IOT, MR, AI, ML.	**CO-4** **BTL-3**
MODULE 5: FUTURE IN UX	**(18)**
• How UX will change in future – (Focus will change from screen interface to voice interface). • Examples of future technologies in UX • Various emerging platforms • Tools of UX design for emerging technology	**CO-5** **BTL-3**

REFERENCE BOOKS	
1	Moore, Geoffrey A.; Crossing the Chasm; HarperBusiness; Revised edition (2002)
2	Lewis, Michael; The New New Thing: A Silicon Valley Story; Penguin Books (2001)
3	Sculley, John; Byrne, John A.; Odyssey: Pepsi to Apple... a Journey of Adventure, Ideas and the Future; Harpercollins; Reprint edition (1988)

COURSE TITLE	USABILITY TESTING METHODS		CREDITS		4
COURSE CODE	UXB0812	COURSE CATEGORY	PC	L-T-P-S	2-0-4-1
Version	1.0	Approval Details		LEARNING LEVEL	BTL - 3

ASSESSMENT SCHEME

First Periodical Assessment	Second Periodical Assessment	Seminar/ Assignments/ Project / Surprise Test / Quiz	ESE
15%	20%	15%	50%

Course Description	**In this course, students will learn about usability testing and ways to conduct usability testing. They will also learn about the role of quantitative techniques.**
Course Objective	1. To discover the elements of user experience. 2. To discover the standards of human computer interaction. 3. To discover the usability evaluation method. 4. To discover the ways to conduct usability testing. 5. To discover the role of quantitative techniques.
Course Outcome	Upon completion of this course, the students will be able to 1. To examine the elements of user experience. 2. To examine the standards of human computer interaction 3. To examine the usability evaluation method. 4. To examine the ways to conduct usability testing. 5. To examine the role of quantitative techniques.

Prerequisites: NIL

CO, PO AND PSO MAPPING

CO	PO -1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PSO-1	PSO-2	PSO-3	PSO-4
CO-1	3	2	1	-	-	2	-	-	3	-	-	-
CO-2	2	1	1	-	-	2	-	-	3	-	-	-
CO-3	1	2	3	-	1	3	-	-	3	-	-	-
CO-4	3	3	2	-	-	-	-	-	3	-	-	-
CO-5	1	3	1	-	3	2	-	-	3	-	-	-

1: Weakly related, 2: Moderately related and 3: Strongly related

MODULE 1: ELEMENTS OF USER EXPERIENCE	(18)
User experience - psychological and behavioral aspects of users' interactions with products. Four elements of user experience – value, usability, adoptability and desirability.	**CO-1** **BTL-3**
MODULE 2: STANDARDS OF HUMAN-COMPUTER INTERACTION	**(18)**
Principles, Patterns, Guidelines, Heuristic evaluation, Setting user experience goals for a product.	**CO-2** **BTL-3**
MODULE 3: USABILITY EVALUATION	**(18)**
Usability evaluation, think aloud protocol, card sorts and user performance tests.	**CO-3** **BTL-3**
MODULE 4: RECRUITMENT AND DESIGN OF USABILITY TESTS	**(18)**
Need and purpose of usability test. Participants for usability test, Different Ways to Recruit Participants, ways to conduct usability testing.	**CO-4** **BTL-3**
MODULE 5: INTRODUCTION TO QUANTITATIVE EVALUATION TECHNIQUES	**(18)**
Introduction to quantitative research techniques, quantitative UX research methods, role of quantitative techniques, examples of quantitative techniques.	**CO-5** **BTL-3**

REFERENCE BOOKS	
1	Jesse James Garrett, The Elements of User Experience, New Riders (2010)
2	Dix, Alan J.; Finlay, Janet E.; Abowd, Gregory D.; Beale, Russell; Human-Computer Interaction, Pearson Education; 2008
3	Nielson, Jackob; Usability Engineering; Morgan Kaufmann (2015)

COURSE TITLE	DESIGN PROJECT II		CREDITS		5
COURSE CODE	UXB0855	COURSE CATEGORY	PC	L-T-P-S	0-0-10-2
Version	1.0	Approval Details		LEARNING LEVEL	BTL - 5

ASSESSMENT SCHEME

CIA	ESE
60 %	40%

Course Description	**In this course, students will work on the following projects :** **• IOT design project** **• Design using AR** **• Designing A User Experience For Wearable Devices** **• UX design in logistics processes**
Course Objective	1. To generate the design options in a project.
Course Outcome	Upon completion of this course, the students will be able to 1. Create/propose the design options in a project

Prerequisites: NIL

CO, PO AND PSO MAPPING

CO	PO -1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PSO-1	PSO-2	PSO-3	PSO-4
CO-1	3	2	3	-	2	-	3	-	3	2	3	2

1: Weakly related, 2: Moderately related and 3: Strongly related

Students will do design project based on the following topics DESIGN PROJECT 1 :IOT design project DESIGN PROJECT 2 :Design using AR DESIGN PROJECT 3 :Designing A User Experience For Wearable Devices DESIGN PROJECT 4 : UX design in logistics processes	**CO-1** **BTL-5**

REFERENCE BOOKS

1	Designing in Figma by Eugene Fedorenko
2	Adobe XD Classroom in a Book (2020 release) by Brian Wood

SEMESTER IV

COURSE TITLE	INTERNSHIP		CREDITS		2
COURSE CODE	UXB0816	COURSE CATEGORY	PC	L-T-P-S	30 DAYS
Version	1.0	Approval Details		LEARNING LEVEL	BTL - 5

ASSESSMENT SCHEME

CIA	ESE
100 %	-

Course Description	**In this course, students will work with Industry experts. They will observe and document the materials, tools, techniques and process used by them in the projects.**
Course Objective	1. To explain the tools, techniques and design process from practitioners
Course Outcome	Upon completion of this course, the students will be able to 1. To explain the tools, techniques and design process from practitioners.

Prerequisites: NIL

CO, PO AND PSO MAPPING

CO	PO -1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PSO-1	PSO-2	PSO-3	PSO-4
CO-1	3	2	3	-	2	-	3	-	3	2	2	3

1: Weakly related, 2: Moderately related and 3: Strongly related

Every student must work with Industry experts, identification of the experts to be done in discussion with the concerned faculty. The student should involve in the work of these people and observe and document the materials, tools, techniques and process used by them in the projects.	**CO-1** **BTL-5**

COURSE TITLE	DESIGN DEGREE PROJECT		CREDITS		8
COURSE CODE	UXB0861	COURSE CATEGORY	PC	L-T-P-S	0-0-16-0
Version	1.0	Approval Details		LEARNING LEVEL	BTL - 5

ASSESSMENT SCHEME

CIA	ESE
40 %	60%

Course Description	**In this course, students will work on a fulltime project (technically complex project).**
Course Objective	1. To generate the design options in a project.
Course Outcome	Upon completion of this course, the students will be able to 1. Create/propose the design options in a project

Prerequisites: NIL

CO, PO AND PSO MAPPING

CO	PO -1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PSO-1	PSO-2	PSO-3	PSO-4
CO-1	3	2	3	-	2	-	3	-	3	2	2	3

1: Weakly related, 2: Moderately related and 3: Strongly related

Students in this semester would take fulltime project (technically complex project). The students can do design degree project in house but it would be advisable for them to go to industry, design firm and do the project. Project may be Industry-sponsored Project or a continuation of the Minor Project to implement in a practical basis.	**CO-1** **BTL-5**

ELECTIVE - I

COURSE TITLE	DIGITAL EXPERIENCE IN E-COMMERCE		CREDITS		2
COURSE CODE	UXB0766	COURSE CATEGORY	ELE	L-T-P-S	2-0-0-0
Version	1.0	Approval Details		LEARNING LEVEL	BTL - 3

ASSESSMENT SCHEME

First Periodical Assessment	Second Periodical Assessment	Seminar/ Assignments/ Project / Surprise Test / Quiz	ESE
15%	20%	15%	50%

Course Description	**In this course, students will learn about the difference between e-commerce customer experience and user experience. They will also learn about the ways to improve e-commerce customer experience.**
Course Objective	1. To compute the importance of e-commerce experience. 2. To compute the need for digital e-commerce. 3. To compute the purchasing e-commerce experience. 4. To demonstrate the difference between e-commerce customer experience and user experience. 5. To demonstrate the ways to improve e-commerce customer experience.
Course Outcome	Upon completion of this course, the students will be able to 1. To examine the importance of e-commerce experience. 2. To examine the need for digital e-commerce. 3. To examine the purchasing e-commerce experience. 4. To demonstrate e-commerce customer experience and user experience. 5. To demonstrate with the ways to improve e-commerce customer experience.

Prerequisites: NIL

CO, PO AND PSO MAPPING

CO	PO -1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PSO-1	PSO-2	PSO-3	PSO-4
CO-1	3	2	1	-	-	3	-	-	3	-	-	-
CO-2	2	1	1	-	-	3	-	-	3	-	-	-
CO-3	1	2	3	-	1	3	-	-	3	-	-	-
CO-4	3	-	2	-	-	3	-	-	3	-	-	-
CO-5	1	-	1	-	3	3	-	-	3	-	-	-

1: Weakly related, 2: Moderately related and 3: Strongly related

MODULE 1: INTRODUCTION TO DIGITAL E-COMMERCE	(4)
Introduction to e-commerce, digital e-commerce, ecommerce customer experience, Importance of Ecommerce experience.	**CO-1** **BTL-3**
MODULE 2: DIGITAL E-COMMERCE EXPERIENCE	**(6)**
Good e-commerce experience, Need for digital e-commerce, advantages and disadvantages of digital e-commerce.	**CO-2** **BTL-3**
MODULE 3: STAPLES OF ECOMMERCE CUSTOMER EXPERIENCE	**(6)**
Pre-Purchase ECX, Shopping and purchasing ecommerce customer experience, Post-purchase ecommerce customer experience.	**CO-3** **BTL-3**
MODULE 4: ECOMMERCE CUSTOMER EXPERIENCE (ECX) vs. USER EXPERIENCE (6)	
Difference between Ecommerce customer experience and user experience. UX-customer's ability to perform the tasks – examples.	**CO-4** **BTL-3**
MODULE 5: WAYS TO IMPROVE ECOMMERCE CUSTOMER EXPERIENCE	**(6)**
Customer's perception, Impact of customer's perception, Importance of customer experience, ways to improve the ecommerce customer experience.	**CO-5** **BTL-3**

REFERENCE BOOKS	
1	E-Commerce User Experience by Jakob Nielsen
2	Customer Experience Design Book: Simplest Way to Understand the Fundamentals of Customer Experience in the Digital Age by Rajat Chawla

COURSE TITLE	HUMAN COMPUTER INTERFACE IN HEALTH CARE		CREDITS		2
COURSE CODE	UXB0767	COURSE CATEGORY	ELE	L-T-P-S	2-0-0-0
Version	1.0	Approval Details		LEARNING LEVEL	BTL - 3

ASSESSMENT SCHEME

First Periodical Assessment	Second Periodical Assessment	Seminar/ Assignments/ Project / Surprise Test / Quiz	ESE
15%	20%	15%	50%

Course Description	**In this course, students will learn about the importance of human factors in health care and UX challenges faced in healthcare.**
Course Objective	1. To understand the dynamics of digital healthcare. 2. To understand different streams in healthcare. 3. To classify the importance of human factors in health care. 4. To understand the UX challenges faced in healthcare. 5. To classify the types of interfaces.
Course Outcome	Upon completion of this course, the students will be able to 1. To examine the dynamics of digital healthcare. 2. To examine different streams in healthcare. 3. To classify the importance of human factors in health care. 4. To examine UX challenges faced in healthcare. 5. To classify the types of interfaces.

Prerequisites: NIL

CO, PO AND PSO MAPPING

CO	PO -1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PSO-1	PSO-2	PSO-3	PSO-4
CO-1	3	2	1	-	-	-	-	-	-	3	-	1
CO-2	2	1	1	-	-	-	-	-	-	3	-	1
CO-3	1	2	3	-	1	-	-	-	-	3	-	1
CO-4	3	-	2	-	-	-	-	-	-	3	-	1
CO-5	1	-	1	-	3	-	-	-	-	3	-	1

1: Weakly related, 2: Moderately related and 3: Strongly related

MODULE 1: DYNAMICS OF DIGITAL HEALTHCARE	(4)
Introduction to digital healthcare, dynamics of digital healthcare, advantages and disadvantages of digital healthcare. Importance of healthcare UX.	**CO-1** **BTL-3**
MODULE 2: DIFFERENT STREAMS IN HEALTHCARE	**(6)**
Different streams in healthcare with examples. Modern digital healthcare with relevant case studies.	**CO-2** **BTL-3**
MODULE 3: HUMAN FACTORS AND HEALTHCARE	**(6)**
Healthcare UX Challenges, human centered design, importance of human factors in healthcare, human factors considerations.	**CO-3** **BTL-3**
MODULE 4: HUMANS AT THE CENTRE OF HEALTHCARE	**(6)**
Healthcare UX challenges, UX design in the healthcare, humans-foci of healthcare.	**CO-4** **BTL-3**
MODULE 5: UX DESIGN FOR HEALTHCARE	**(6)**
Focus on the types of interfaces and then how to improve their UX - E.g. Medical room, emergency room devices, kiosks, mobile apps, web interfaces, training material to doctors through AR/ AI or via tablets.	**CO-5** **BTL-3**

REFERENCE BOOKS	
1	Advances in Human Factors and Ergonomics in Healthcare – Vincent
2	Cognitive Systems Engineering in Health Care – Ann M. Bisantz, Catherine M. Burns, and Rollin J. Fairbanks

COURSE TITLE	WEB DESIGN		CREDITS		2
COURSE CODE	UXB0768	COURSE CATEGORY	ELE	L-T-P-S	2-0-0-0
Version	1.0	Approval Details		LEARNING LEVEL	BTL - 3

ASSESSMENT SCHEME

First Periodical Assessment	Second Periodical Assessment	Seminar/ Assignments/ Project / Surprise Test / Quiz	ESE
15%	20%	15%	50%

Course Description	**In this course, students will learn about the performance of Client-side validation using scripting languages. They will also learn to design and publish a web page.**
Course Objective	1. To discover history of web design. 2. To classify the web tools and techniques. 3. To demonstrate the use of Open source JavaScript libraries. 4. To demonstrate PHP for web development. 5. To classify how to publish a web page.
Course Outcome	Upon completion of this course, the students will be able to 1. To discover the evolution of web design. 2. To discover the web tools and techniques. 3. To examine the use of Open source JavaScript libraries. 4. To examine PHP for web development. 5. To demonstrate and publish a web page.

Prerequisites: NIL

CO, PO AND PSO MAPPING

CO	PO -1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PSO-1	PSO-2	PSO-3	PSO-4
CO-1	3	2	1	-	3	2	2	-	-	3	-	-
CO-2	2	1	1	3	3	-	2	-	-	3	-	-
CO-3	1	2	3	-	3	2	2	-	-	3	-	-
CO-4	3	-	2	-	3	-	2	-	-	3	-	-
CO-5	1	-	1	-	3	-	-	-	-	3	-	-

1: Weakly related, 2: Moderately related and 3: Strongly related

MODULE 1: INTRODUCTION TO WEB DESIGN (4)

History of Web and its background	**CO-1** **BTL-3**
MODULE 2: WEB TOOLS	**(6)**
Web design tools and techniques – Photoshop, Dreamweaver, Flash, FrontPage and other important tools and software, Web authoring.	**CO-2** **BTL-3**
MODULE 3: WEB TECHNOLOGY	**(6)**
Web design technology – Introduction to HTML, CSS, Java, PHP	**CO-3** **BTL-3**
MODULE 4: SEARCH ENGINE	**(6)**
Word Press tools, SEO technology, Search engine technology.	**CO-4** **BTL-3**
MODULE 5: WEB DESIGN FOR SCREENS	**(6)**
Web design for mobile , Digital pad, Monitor	**CO-5** **BTL-3**

REFERENCE BOOKS	
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 PrestonGralla.
5	Adaptive Web Design, 2ndEdition By Aaron Gustafson, New Riders, December2015.

COURSE TITLE	DIGITAL EXPERIENCE IN BANKING		CREDITS		2
COURSE CODE	UXB0769	COURSE CATEGORY	ELE	L-T-P-S	2-0-0-0
Version	1.0	Approval Details		LEARNING LEVEL	BTL - 3

ASSESSMENT SCHEME

First Periodical Assessment	Second Periodical Assessment	Seminar/ Assignments/ Project / Surprise Test / Quiz	ESE
15%	20%	15%	50%

Course Description	**In this course, students will learn about the functions and types of digital banking.**
Course Objective	1. To apply how UX plays an important role in banking industry. 2. To demonstrate the touch points in banking. 3. To classify the functions of digital banking. 4. To classify the types of digital banking. 5. To demonstrate digital banking UX trends.
Course Outcome	Upon completion of this course, the students will be able to 1. To examine how UX plays an important role in banking industry. 2. To examine the touch points in banking. 3. To examine the functions of digital banking. 4. To examine the types of digital banking. 5. To examine digital banking UX trends.

Prerequisites: NIL

CO, PO AND PSO MAPPING

CO	PO -1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PSO-1	PSO-2	PSO-3	PSO-4
CO-1	3	2	1	-	1	3	-	-	-	3	-	-
CO-2	2	1	1	-	-	2	-	-	-	3	-	-
CO-3	1	2	3	-	2	-	-	-	-	3	-	-
CO-4	3	-	2	-	-	3	-	-	-	3	-	-
CO-5	1	-	1	-	3	-	-	-	-	3	-	-

1: Weakly related, 2: Moderately related and 3: Strongly related

MODULE 1: INTRODUCTION TO BANKING	(4)
• Introduction to banking? History and evolution. • How UX plays a important role in the banking Industry • User expectation from digital and physical banking • How blockchain and crypto currencies will affect the future of banking	**CO-1** **BTL-3**
MODULE 2: TOUCH POINTS IN BANKING	**(6)**
Banking Customer end to end journey – Digital and Physical components Life stage banking. Banking ecosystem	**CO-2** **BTL-3**
MODULE 3: FUNCTIONS OF DIGITAL BANKING	**(6)**
How digital banking has changed banking? Role of digital banking, features of digital banking, importance of digital banking.	**CO-3** **BTL-3**
MODULE 4: BANKING ECOSYSTEM AND DIGITAL BANKING	**(6)**
Introduction to banking ecosystem, difference between digital banking and e-banking, types of digital banking, examples of digital banking.	**CO-4** **BTL-3**
MODULE 5: DIGITAL BANKING UX TRENDS	**(6)**
Experience-empowered digital strategy, Digital Banking Ux Trends - expanding the digital perspective, Empowering an Experience-Based Culture, Overcoming the Experience Gap, Establishing Consistency Through Product Ecosystem, Providing a Contextual Experience.	**CO-5** **BTL-3**

REFERENCE BOOKS	
1	Open Banking Strategy Formation – Paul Rohan

COURSE TITLE	DIGITAL EXPERIENCE IN CITIZEN SERVICES		CREDITS		2
COURSE CODE	UXB0770	COURSE CATEGORY	ELE	L-T-P-S	2-0-0-0
Version	1.0	Approval Details		LEARNING LEVEL	BTL - 3

ASSESSMENT SCHEME

First Periodical Assessment	Second Periodical Assessment	Seminar/ Assignments/ Project / Surprise Test / Quiz	ESE
15%	20%	15%	50%

Course Description	**In this course, students will learn about the different kinds of citizen services , challenges and pain points in the services.**
Course Objective	1. To classify different kinds of citizen services. 2. To classify the principles of service design thinking. 3. To demonstrate the scope of UX in services. 4. To classify the methodologies of design potential system. 5. To classify the challenges and pain points in the services.
Course Outcome	Upon completion of this course, the students will be able to 1. To examine different kinds of citizen services. 2. To examine the principles of service design thinking. 3. To examine the scope of UX in services. 4. To examine the methodologies of design potential system. 5. To examine the challenges and pain points in the services.

Prerequisites: NIL

CO, PO AND PSO MAPPING

CO	PO -1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PSO-1	PSO-2	PSO-3	PSO-4
CO-1	3	2	1	-	1	3	-	-	-	3	-	-
CO-2	2	1	1	-	-	2	-	-	-	3	-	-
CO-3	1	2	3	-	2	-	-	-	-	3	-	-
CO-4	3	-	2	-	-	3	-	-	-	3	-	-
CO-5	1	-	1	-	3	-	-	-	-	3	-	-

1: Weakly related, 2: Moderately related and 3: Strongly related

MODULE 1: INTRODUCTION TO CITIZEN SERVICES	(4)
Introduction to citizen services, different kinds of citizen services, Dynamics of citizen services- decoding the ecosystems and various stakeholders involved in delivering related services complaint registrations etc..., identifying touch-points within the ecosystem.	**CO-1** **BTL-3**
MODULE 2: INTRODUCTION TO E-SERVICES	**(6)**
User-centered approach , Aspects of service design, principles of service design thinking, Registrations, certifications and identity, safety and security, report etc.	**CO-2** **BTL-3**
MODULE 3: SCOPE OF UX IN SERVICES	**(6)**
UX services, Project scope, Client-focused, creating user and customer experiences, The citizen experience and the civic design spectrum.	**CO-3** **BTL-3**
MODULE 4: UX FOR CITIZEN SERVICES	**(6)**
● Identifying user journeys and needs in different stages involved in availing citizen services- online and offline ● Using UX tools and methodologies to design potential system journeys in obtaining/providing effective citizen services	**CO-4** **BTL-3**
MODULE 5: CHALLENGES AND PAIN POINTS IN THE SERVICES	**(6)**
Identify challenges and pain points in the services chosen, pain points examples, key pain points faced by the customers, Role of pain points and solutions for client problems.	**CO-5** **BTL-3**

REFERENCE BOOKS	
1	Usability in Government Systems: User Experience Design for Citizens and Public Servants by Elizabeth Buie

ELECTIVE - II

COURSE TITLE	DESIGN PRINCIPLES FOR IOT		CREDITS		2
COURSE CODE	UXB0851	COURSE CATEGORY	ELE	L-T-P-S	2-0-0-0
Version	1.0	Approval Details		LEARNING LEVEL	BTL - 3

ASSESSMENT SCHEME

First Periodical Assessment	Second Periodical Assessment	Seminar/ Assignments/ Project / Surprise Test / Quiz	ESE
15%	20%	15%	50%

Course Description	**In this course, students will learn about the evolution and tools used to design an IOT interface.**
Course Objective	1. To classify the evolution and application of IOT. 2. To classify tools used to design an IOT interface. 3. To demonstrate about data and cloud computing. 4. To classify IOT devices and its function. 5. To demonstrate well defined problems and to arrive a solution.
Course Outcome	Upon completion of this course, the students will be able to 1. To examine the evolution and application of IOT. 2. To examine tools used to design an IOT interface. 3. To examine data and cloud computing. 4. To examine IOT devices and its function. 5. To demonstrate well defined problems and to arrive a solution.

Prerequisites: NIL

CO, PO AND PSO MAPPING

CO	PO -1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PSO-1	PSO-2	PSO-3	PSO-4
CO-1	3	2	1	-	1	3	-	-	-	3	-	-
CO-2	2	1	1	-	-	2	-	-	-	3	-	-
CO-3	1	2	3	-	2	-	-	-	-	3	-	-
CO-4	3	-	2	-	-	3	-	-	-	3	-	-
CO-5	1	-	1	-	3	-	-	-	-	3	-	-

1: Weakly related, 2: Moderately related and 3: Strongly related	
MODULE 1: INTRODUCTION TO INTERNET OF THINGS	**(4)**
Introduction to IOT. The 5 internet revolutions. Evolution and its application. Past present and future of IOT. IOT in various industries.	**CO-1** **BTL-3**
MODULE 2: TOOLS AND INNOVATION	**(6)**
Data and IOT and cloud computing	**CO-2** **BTL-3**
MODULE 3: CLOUD COMPUTING	**(6)**
Data and IOT and cloud computing	**CO-3** **BTL-3**
MODULE 4: PROBLEM SOLVING	**(6)**
• Design and code, interfaces and problem solving with IOT. • IOT devices and its functions, hardware, software, used cases (seebo.com), ergonomics	**CO-4** **BTL-3**
MODULE 5: RESEARCH ON INDUSTRIES	**(6)**
An extensive research including the past and present. Explain the mechanics of the same. Come up with a well-defined problem statement and give a futuristic solution for the same. This should include Physical or Digital full-fledged solution.	**CO-5** **BTL-3**

REFERENCE BOOKS	
1	The Amazon Way on IoT: 10 Principles for Every Leader from the World's Leading Internet of Things Strategies. Book by John Rossman
2	User Experience Design for the Internet of Things by Claire Rowland
3	Raizman, David; History of Modern Design, Publisher: Prentice Hall, 2004

COURSE TITLE	DESIGN PRINCIPLES FOR AR		CREDITS		2
COURSE CODE	UXB0852	COURSE CATEGORY	ELE	L-T-P-S	2-0-0-0
Version	1.0	Approval Details		LEARNING LEVEL	BTL - 3

ASSESSMENT SCHEME

First Periodical Assessment	Second Periodical Assessment	Seminar/ Assignments/ Project / Surprise Test / Quiz	ESE
15%	20%	15%	50%

Course Description	**In this course, students will learn about the tools and principles used in AR. They will also learn about multiplayer experience.**
Course Objective	1. To demonstrate the basics of AR. 2. To demonstrate the need and types of AR. 3. To classify the tools and principles used in AR. 4. To demonstrate the tools used in AR for commercial purposes. 5. To demonstrate multiplayer experience.
Course Outcome	Upon completion of this course, the students will be able to 1. To examine the basics of AR. 2. To examine the need and types of AR. 3. To classify the tools and principles used in AR. 4. To examine IOT tools used in AR for commercial purposes. 5. To examine multiplayer experience.

Prerequisites: NIL

CO, PO AND PSO MAPPING

CO	PO -1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PSO-1	PSO-2	PSO-3	PSO-4
CO-1	3	2	1	-	1	3	-	-	-	3	-	-
CO-2	2	1	1	-	-	2	-	-	-	3	-	-
CO-3	1	2	3	-	2	-	-	-	-	3	-	-
CO-4	3	-	2	-	-	3	-	-	-	3	-	-
CO-5	1	-	1	-	3	-	-	-	-	3	-	-

1: Weakly related, 2: Moderately related and 3: Strongly related

MODULE 1: INTRODUCTION TO AR	(4)
• Introduction to AR. Uses of AR in everyday life. • How does AR work?	**CO-1** **BTL-3**
MODULE 2: AUGMENTED REALITY	**(6)**
Types of Augmented Reality, common features of AR, uses of AR, need for AR.	**CO-2** **BTL-3**
MODULE 3: TOOLS AND PRINCIPLES	**(6)**
• Tools used to design AR (wireframe, TORCH AR etc) • Design principles of AR • Translucent vs transparent UI	**CO-3** **BTL-3**
MODULE 4: AR IN DIFFERENT INDUSTRIES	**(6)**
Top industries adopting augmented reality, Examples of AR – for commercial purposes.	**CO-4** **BTL-3**
MODULE 5: INSIDE OBJECT, MULTIPLAYER EXPERIENCE	**(6)**
Off-screen exploration, Audio exploration, Haptic Feedback, Depth collisions, Inside Object, Multiplayer Experience	**CO-5** **BTL-3**

REFERENCE BOOKS	
1	The Design of Everyday Things by Don Norman
2	Creativity Inc. by Ed Catmull

COURSE TITLE	DESIGN PRINCIPLES FOR WEARABLE		CREDITS		2
COURSE CODE	UXB0853	COURSE CATEGORY	ELE	L-T-P-S	2-0-0-0
Version	1.0	Approval Details		LEARNING LEVEL	BTL - 3

ASSESSMENT SCHEME

First Periodical Assessment	Second Periodical Assessment	Seminar/ Assignments/ Project / Surprise Test / Quiz	ESE
15%	20%	15%	50%

Course Description	**In this course, students will learn about the evolution of wearable devices and technologies used. They also learn about the psychology of the users.**
Course Objective	1. To demonstrate the evolution of wearable devices. 2. To demonstrate the technologies used in wearable devices. 3. To demonstrate user behavior for wearable devices. 4. To demonstrate the psychology of the users. 5. To classify the industry constraints.
Course Outcome	Upon completion of this course, the students will be able to 1. To examine the evolution of wearable devices. 2. To examine the technologies used in wearable devices. 3. To examine the user behavior for wearable devices. 4. To examine the psychology of the users. 5. To examine the industry constraints.

Prerequisites: NIL

CO, PO AND PSO MAPPING

CO	PO -1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PSO-1	PSO-2	PSO-3	PSO-4
CO-1	3	2	1	-	1	3	-	-	-	3	-	-
CO-2	2	1	1	-	-	2	-	-	-	3	-	-
CO-3	1	2	3	-	2	-	-	-	-	3	-	-
CO-4	3	-	2	-	-	3	-	-	-	3	-	-
CO-5	1	-	1	-	3	-	-	-	-	3	-	-

1: Weakly related, 2: Moderately related and 3: Strongly related

MODULE 1: INTRODUCTION TO WEARABLE DEVICES	(4)
• Introduction to wearable device. History and evolution. Companies manufacturing and how has it impacted a customer. • Need for wearable devices	**CO-1** **BTL-3**
MODULE 2: AUGMENTED REALITY	**(6)**
Type of technology used, applications of wearable technologies, Types of wearable technologies.	**CO-2** **BTL-3**
MODULE 3: TOOLS AND INNOVATION	**(6)**
• User persona, empathy maps and CJM to understand the various touchpoints. • User behaviour and his desirability for wearable devices • Gestures-Bite sized information, non-intrusive design. • Synchronization, design and aesthetics of a wearable design from a user's point of view.	**CO-3** **BTL-3**
MODULE 4: BEHAVIOR & PERSPECTIVE OF A USER	**(6)**
Psychology of wearables and wearable technologies, Leveraging Multiple Senses in Wearables, etc.	**CO-4** **BTL-3**
MODULE 5: CASE STUDY AND INDUSTRY CONSTRAINS	**(6)**
Examples of wearable healthcare technologies, smart wearable devices.	**CO-5** **BTL-3**

REFERENCE BOOKS	
1	Designing for wearable devices. Effective UX for Current and Future Devices author Scott Sullivan
2	Design for How People Think: Using Brain Science to Build Better Products

COURSE TITLE	DESIGN PRINCIPLES FOR LOGISTICS		CREDITS		2
COURSE CODE	UXB0854	COURSE CATEGORY	ELE	L-T-P-S	2-0-0-0
Version	1.0	Approval Details		LEARNING LEVEL	BTL - 3

ASSESSMENT SCHEME

First Periodical Assessment	Second Periodical Assessment	Seminar/ Assignments/ Project / Surprise Test / Quiz	ESE
15%	20%	15%	50%

Course Description	**In this course, students will learn about ecosystem of logistics management and methodologies in logistics management.**
Course Objective	1. To classify different fields and domains of logistics. 2. To demonstrate the ecosystem of logistics management. 3. To classify the types of logistics management. 4. To demonstrate the relationship between logistics and customer experience. 5. To demonstrate tools and other methodologies in logistics management.
Course Outcome	Upon completion of this course, the students will be able to 1. To examine different fields and domains of logistics. 2. To examine the ecosystem of logistics management. 3. To examine the types of logistics management. 4. To examine the relationship between logistics and customer experience. 5. To examine tools and other methodologies in logistics management.

Prerequisites: NIL

CO, PO AND PSO MAPPING

CO	PO -1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PSO-1	PSO-2	PSO-3	PSO-4
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CO-2	2	1	1	-	-	2	-	-	-	3	-	-
CO-3	1	2	3	-	2	-	-	-	-	3	-	-
CO-4	3	-	2	-	-	3	-	-	-	3	-	-
CO-5	1	-	1	-	3	-	-	-	-	3	-	-

1: Weakly related, 2: Moderately related and 3: Strongly related

MODULE 1: INTRODUCTION TO LOGISTICS AND LOGISTIC MANAGEMENT	(4)
Definition of logistics, different fields and domains of logistics, Military and business logistics, what is logistics management? importance of logistics management.	**CO-1** **BTL-3**
MODULE 2: ECOSYSTEM OF LOGISTICS MANAGEMENT	**(6)**
Introduction to ecosystem of logistics management, activities of logistics systems, major components of logistics, 7R's of logistics.	**CO-2** **BTL-3**
MODULE 3: TYPES OF LOGISTICS MANAGEMENT	**(6)**
Major activities involved in logistics management, various types of logistics management.	**CO-3** **BTL-3**
MODULE 4: UX FOR LOGISTICS	**(6)**
• Understanding the correlation between logistics and customer experience. • Identifying various touchpoints and interaction within the ecosystem through journey maps	**CO-4** **BTL-3**
MODULE 5: TOOLS AND OTHER METHODOLOGIES	**(6)**
Using UX processes, tools and other methodologies to identify, analyze and bridge various pain points within the logistics management and user.	**CO-5** **BTL-3**

REFERENCE BOOKS	
1	Strategic Supply Chain Design: Theory, Concepts and Applications- Werner Delfmann, Thorsten Klaas-Wissing
2	User Experience in the Age of Sustainability: A Practitioner's Blueprint- Kem-Laurin Kramer