

EASWARI ENGINEERING COLLEGE, CHENNAI-600 089
DEPARTMENT OF INFORMATION TECHNOLOGY
LESSON PLAN

SUBJECT CODE : MU7008

SUBJECT TITLE : USER INTERFACE DESIGN

HOURS DISTRIBUTION : (L T P C 3 0 0 3)

COURSE/ BRANCH : M.E. (SOFTWARE ENGINEERING)

SEMESTER : II

ACADEMIC YEAR : 2015 - 2016

FACULTY NAME : Dr.D.SIVAKUMAR

OBJECTIVE OF COURSE :

- To understand the basics of User Interface Design.□
- To design the user interface, design, menu creation and windows creation
- To understand the concept of menus, windows, interfaces, business functions, various problems in windows design with colour, text, Non-anthropomorphic Design.
- To study the design process and evaluations.

OUTCOME OF COURSE :

- Knowledge on development methodologies, evaluation techniques and user interface building tools
- Explore a representative range of design guidelines
- Gain experience in applying design guidelines to user interface design tasks.
- Ability to design their own Human Computer

NOTES

PREREQUISITE : Operating Systems, Web Programming, Visual Programming.

UNITS	TOPIC NO	TOPIC	PERIOD	BOOKS REFERRED	PAGE NO
I	UNIT-I (9)				
	INTERACTIVE SOFTWARE AND INTERACTION DEVICE				
	OBJECTIVE: To learn the basic characteristics and principles of graphical and web user interface				
	1	Human–Computer Interface-introduction	1	T1	6
	2	History of Human–Computer Interface	1	T1	6-11
	3	Graphical Interface-introduction	1	T1	15-16
	4	Characteristics Of Graphics Interface	1	T1	23-27
	5	Advantages and disadvantages	1	T1	18-23
	6	Direct Manipulation and graphical system	1	T1	16-18
	7	Web User Interface- introduction	1	Handouts	Handouts
	8	Popularity of web user interface	1	T1	28-29
	9	Characteristic & Principles of web user interface	1	T1	29-39,40-51

II	UNIT-II(9)				
	HUMAN COMPUTER INTERACTION				
	OBJECTIVE: To study the human computer interaction, human characteristics in design,basic design principles and methods				
	1	User Interface Design Process – Obstacles –Usability	1	T1	53-60
	2	Human Characteristics In Design	1	T1	65-72
	3	Human Interaction Speed	1	T1	83-86
	4	Business Functions –Requirement Analysis,direct and indirect methods	1	T1	88-97
	5	Basic Business Functions	1	T1	97-98
	6	Design Standards	1	T1	104-107
	7	General Design Principles	1	T1	40-51
	8	Conceptual Model Design	1	T1	98-103
	9	Conceptual Model Mock-Ups	1		Handouts

III	UNIT-III (9)				
	WINDOWS				
	OBJECTIVE: To learn about the characteristics, components, types, operations on windows, selecting proper kinds of windows and how to develop system menus and navigation schemes				
	1	Characteristics– Components– Presentation Styles	1	T1	337-351
	2	Types– Managements– Organizations,Operations	1	T1	352-381
	3	Web Systems– System Timings	1	T1	381-383,Handouts
	4	Device– Based Controls Characteristics	1	T1	386-394
	5	Screen – Based Controls,Human Consideration In Screen Design	1	T1	403-502
	6	Structures Of Menu –Functions Of Menu	1	T1	250-256
	7	Contents Of Menu– Formatting	1	T1	256-266
	8	Phrasing The Menu – Selecting Menu,Choice– Navigating Menus	1	T1	267-300
	9	Graphical Menus	1	T1	302-325

IV	UNIT-IV (9)				
	MULTIMEDIA				
	OBJECTIVE: To learn the concepts used for creating web pages, providing effective feedback guidance, assistance and how to create meaningful graphics, icons and images				
	1	Text For Web Pages	1	T1	534-540
	2	Effective Feedback	1	T1	541-548
	3	Guidance & Assistance	1	T1	549-568
	4	Internationalization	1	T1	569-577
	5	Accessibility	1	T1	578-579
	6	Icons– Image	1	T1	590-604
	7	Multimedia	1	T1	605-617
	8	Coloring	1	T1	621-649
	9	Addressing usability in Ecommerce sites	1	Handouts	Handouts

V	UNIT-V (9)				
	DESIGN PROCESS AND EVALUATION				
	OBJECTIVE: To learn about the design process, different kinds of test, developing and conducting test				
	1	User Interface Design Process-introduction	1	Handouts	Handouts
	2	User Interface Design Process	1	T1	53-60
	3	Usability Testing-purpose and importance	1	T1	701-703
	4	kinds of tests	1	T1	709-729
	5	developing and conducting the test	1	T1	721-725
	6	Usability Requirements	1	T1	55-56
	7	Specification	1	T1	56-59

	8	procedures and techniques	1	Handouts	Handouts
	9	User Interface Design Evaluation	1	T1	727-728

ASSIGNMENT TOPICS

SL.NO	ASSIGNMENT TOPICS	SUBMISSION DUE
1	Importance of UI in web design.	Feb 15 2015
2	Case Study: Efficiency Vs Ease of use- UI design in ecommerce site	March 15 2015
3	Evaluating user interface design of any two operating systems.	April 15 2015

CONTENT BEYOND SYLLABUS

SL.NO	ADDITIONAL TOPICS
1	Principles of good screen design
2	Merging of graphical business systems and the web

REFERENCES

- T1. Wilbent. O. Galitz ,“The Essential Guide To User Interface Design”, John Wiley& Sons, 2001.
T2. Deborah Mayhew, The Usability Engineering Lifecycle, Morgan Kaufmann, 1999 Ben Shneiderman, “Design The User Interface”, Pearson Education, 1998.
T3. Alan Cooper, “The Essential Of User Interface Design”, Wiley – Dream Tech Ltd., 2002. Sharp, Rogers, Preece, ‘Interaction Design’, Wiley India Edition, 2007
T4. Alan Dix et al, " Human - Computer Interaction ", Prentice Hall, 1993.
T5. Ben Schneiderman, " Designing the User Interface ", Addison Wesley, 2000.

HOD

FACULTY

PROGRAMME EDUCATIONAL OBJECTIVES

1. Our graduates will have fundamental technical knowledge and develop core competency in diversified areas of Mechanical Engineering such as thermal, design and production and their related software with a view to expanding the knowledge horizon and inculcating lifelong learning among students.
2. A major fraction of our graduates will pursue advanced studies, research and industrial product development in the field of Mechanical engineering through developing partnerships with industrial and research agencies thereby serving the needs of the industry, government, society and scientific community.
3. Our graduates will be capable of building their own careers upon a solid foundation of knowledge and a strong sense of responsibility to serve their profession and society ethically.
4. Our graduates will have effective communication, leadership, teaming, problem solving and decision making skills by understanding contemporary issues thereby contributing to their overall personality and career development.

PROGRAMME OUTCOMES(a-k)

- (a) an ability to apply knowledge of mathematics, science, and engineering,
- (b) an ability to design and conduct experiments, as well as to analyze and interpret data,
- (c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability,
- (d) an ability to function on multidisciplinary teams,
- (e) an ability to identify, formulate, and solve engineering problems,
- (f) an understanding of professional and ethical responsibility,
- (g) an ability to communicate effectively,
- (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context,
- (i) a recognition of the need for, and an ability to engage in life-long learning,
- (j) a knowledge of contemporary issues, and
- (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
- (l) ability to use software for design, simulation and analysis of mechanical systems.

<i>UNITS</i>	<i>Course outcome</i>	<i>OB1</i>	<i>OB2</i>	<i>OB3</i>	<i>OB4</i>	<i>OCa</i>	<i>OCb</i>	<i>OCc</i>	<i>OCd</i>	<i>OCe</i>	<i>OCf</i>	<i>OCg</i>	<i>OCh</i>	<i>OCi</i>	<i>OCj</i>	<i>OCk</i>
FINITE ELEMENT ANALYSIS OF ONE DIMENSIONAL PROBLEMS	Understand how to mathematically model physical systems and solve using numerical techniques in 1D.	S	W	M		S		W		M			W			
	Select appropriate element and boundary conditions for various 1D, Boundary problems.	S	W	M		S		W		M						
	Apply various solution techniques to solve Boundary value problems and Eigen value problems for 1D.	S	W	M		S		W		M			W			W
FINITE ELEMENT ANALYSIS OF TWO DIMENSIONAL PROBLEMS	Understand how to mathematically model physical systems and solve using numerical techniques in 2D.	S	W	M		S		W		M						
	Select appropriate element and boundary conditions for various 2D, Boundary problems.	S	W	M		S		W		M						
	Apply various solution techniques to solve Boundary value problems and Eigen value problems for 2 D.	S	W	M		S		W		M			W		W	W
ISO-PARAMETRIC FORMULATION	Understand how to mathematically model physical systems and solve using numerical techniques in 2D.	S	W	M		S		W		M						
	Select appropriate element and boundary conditions for various 2D, Boundary problems.	S	W	M		S		W		M						
	Apply various solution techniques to solve Boundary value problems and Eigen value problems for 2 D.	S	W	M		S		W		M			W			
SOLUTION TECHNIQUES	Understand how to mathematically model physical systems and solve using various numerical techniques.	S	W	M		S		W		M						
SPECIAL TOPICS	Understand how to mathematically model physical systems and solve dynamic systems using FEA	S	W	M		S		W		M			W			

MAPPING OF COURSE OUTCOMES WITH PEO & THE PROGRAMME OUTCOME- FINITE ELEMENT METHODS IN MECHANICAL DESIGN (ED 7201)

STRONG	S
MEDIUM	M
WEAK	W