T.E. (Information Technology) 2015 Course to be implemented from June 2017

SYLLABUS STRUCTURE

SEMESTER – I

Subject Code	Subject	Teaching Scheme			Examination Scheme					Total Marks	Credits
		Lecture	Tutorial	Practical	In-Sem. Paper	End-Sem. Paper	TW	PR	OR		
314441	Theory of Computation	4	--	--	30	70	--	--	--	100	4
314442	Database Management Systems	4	--	--	30	70				100	4
314443	Software Engineering &Project Management	3	--	--	30	70	--	--	--	100	3
314444	Operating System	4	--	--	30	70	--	--	--	100	4
314445	Human-Computer Interaction	3	--	--	30	70	--	--	--	100	3
314446	Software Laboratory-I		--	4	--	--	25	50	50	125	2
314447	Software Laboratory-II	--	--	4	--	--	25	50	--	75	2
314448	Software Laboratory-III	--	--	2	--	--	50	--	--	50	1
314449	Audit Course 3	--	--		--	--	--	--	--	Grade	
	Total	**18**	**--**	**10**	**150**	**350**	**100**	**100**	**50**	**750**	**23**
	Total of Part-I	**28 Hours**				**750**					

SEMESTER – II

Subject Code	Subject	Teaching Scheme			Examination Scheme					Total Marks	Credits
		Lecture	Tutorial	Practical	In-Sem. Paper	End-Sem. Paper	TW	PR	OR		
314450	Computer Network Technology	3	-	--	30	70	--	--	--	100	3
314451	Systems Programming	4	-	--	30	70	--	--	--	100	4
314452	Design and Analysis of Algorithms	4	-	-	30	70	--	--	--	100	4
314453	Cloud Computing	3	-	-	30	70	--	--	--	100	3
314454	Data Science & Big Data Analytics	4	-	-	30	70	--	--	--	100	4
314455	Software Laboratory-IV	--	--	2	--	--	25	--	25	50	1
314456	Software Laboratory-V	--	--	4	--	--	50	50	--	100	2
314457	Software Laboratory-VI	--	--	2	--	--	25	25	--	50	1
314458	Project Based Seminar	--	01	--	--	--	--	--	50	50	1
314459	Audit Course 4	--	--	--	--	--	--	--	--	Grade	
	Total	**18**	**01**	**08**	**150**	**350**	**100**	**75**	**75**	**750**	**23**
	Total of Part-II	**27 Hours**				**750**					

314445: Human Computer Interaction

Teaching Scheme: TH:03 Hours/Week

Credits: 03 Examination Scheme: In-Sem (Paper): 30 Marks End-Sem (paper): 70 Marks

Prerequisites: 1. Problem Solving and Object Oriented Technologies.

Course Objectives:

1. To introduce to the field of human-computer-interaction study.
2. To gain an understanding of the human part of human-computer-interactions.
3. To learn to do design and evaluate effective human-computer-interactions.
4. To study HCI models and theories.
5. To understand HCI design processes.
6. To apply HCI to real life use cases.

Course Outcomes:

1. To explain importance of HCI study and principles of user-centred design (UCD) approach.
2. To develop understanding of human factors in HCI design.
3. To develop understanding of models, paradigms and context of interactions.
4. To design effective user-interfaces following a structured and organized UCD process.
5. To evaluate usability of a user-interface design.
6. To apply cognitive models for predicting human-computer-interactions.

UNIT – I INTRODUCTION 06 Hours

What is HCI?, Disciplines involved in HCI, Why HCI study is important? The psychology of everyday things, Principles of HCI, User-centred Design.

UNIT – II UNDERSTANDING THE HUMAN 06 Hours

Input-output channels, Human memory, Thinking: Reasoning and Problem Solving, Human emotions, Individual differences, Psychology and Design.

UNIT – III UNDERSTANDING THE INTERACTION 06 Hours

Models of interaction, Ergonomics, Interaction styles, WIMP Interface, Interactivity, Context of interaction, User experience, Paradigms of Interactions.

UNIT – IV HCI - DESIGN PROCESS 06 Hours

What is interaction design?, The software design process, User focus, Scenarios, Navigation Design, Screen Design, Prototyping techniques, Wire-Framing, Understanding the UI Layer and Its Execution Framework, Model-View-Controller(MVC) Framework.

UNIT – V HCI - DESIGN RULES , GUIDELINES AND EVALUATION TECHNIQUES 06 Hours

Principles that support usability, Design standards, Design Guidelines, Golden rules and heuristics, Using toolkits, User interface management system (UIMS), Goals of evaluation, Evaluation Criteria, Evaluation through expert analysis, Evaluation through user participation, Choosing an Evaluation Method.

UNIT – VI HCI MODELS AND THEORIES 06 Hours

Goal and task hierarchy model, Linguistic model, Physical and device models, Cognitive architectures, Hierarchical task analysis (HTA), Uses of task analysis, Diagrammatic dialog design notations, Computer mediated communication, Ubiquitous Computing, Finding things on web Future of HCI.

Text Books:

1. Alan Dix (2008). Human Computer Interaction. Pearson Education. ISBN 978-81-317-1703-5.
2. Gerard Jounghyun Kim (20 March 2015). Human–Computer Interaction: Fundamentals and Practice. CRC Press. ISBN 978-1-4822-3390-2.

Reference Books:

1. Ben Shneiderman; Catherine Plaisant; Maxine Cohen; Steven Jacobs (29 August 2013). Designing the User Interface: Strategies for Effective Human-Computer Interaction. Pearson Education Limited. ISBN 978-1-292-03701-1.
2. Donald A. Norman (2013). The Design of Everyday Things Basic Books. ISBN 978-0-465-07299-6.
3. Jeff Johnson (17 December 2013). Designing with the Mind in Mind: Simple Guide to Understanding User Interface Design Guidelines. Elsevier. ISBN 978-0-12-411556-9.
4. Alan Cooper; Robert Reimann; David Cronin; Christopher Noessel (13 August 2014). About Face: The Essentials of Interaction Design. Wiley. ISBN 978-1-118-76658-3.
5. Alan Cooper (1 January 1999). The Inmates are running the Asylum, Sam's. ISBN 978-0-672-31649-4.
6. John M. Carroll (21 May 2003). HCI Models, Theories, and Frameworks: Toward a Multidisciplinary Science. Morgan Kaufmann. ISBN 978-0-08-049141-7.
7. Alan Cooper, Robert Reimann, David Cronin, Christopher Noessel, About Face: The Essentials of Interface Design,Wiley India, ISBN : 9788126559718,4th Ed
8. Rogers, Sharp, Preece, Interaction Design: Beyond Human Computer Interaction, Wiley India, ISBN: 9788126544912,3ed
9. Wilbert O.Galitz, The Essential Guide to user Interface Design, Wiley India, ISBN: 9788126502806

Web-links:

1. http://hcibib.org/
2. Andriod Design Guidelines - https://developer.android.com/guide/practices/ui_guidelines/index.html
3. iOS Human Interface Guidelines - https://developer.apple.com/ios/human-interfaceguidelines/overview/design-principles/
4. MacOS Human Interface Guidelines - https://developer.apple.com/library/content/documentation/UserExperience/Conceptual/OSXHIGuideli nes/