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| <b>Course Title</b>                    | <b>Human Computer Interaction (Lab)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                 |            |
| <b>Course Code</b>                     | <b>DC-321L</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                 |            |
| <b>Credit Hours</b>                    | 3 (2,1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                 |            |
| <b>Category</b>                        | Computer Science Core                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                 |            |
| <b>Prerequisite</b>                    | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                 |            |
| <b>Co-Requisite</b>                    | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                 |            |
| <b>Follow Up</b>                       | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                 |            |
| <b>Course Learning Outcomes (CLOs)</b> | At the end of the course, the students will be able to:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>BT</b>       | <b>PLO</b> |
|                                        | CLO1: HCI Interaction Paradigms.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | C2 (Understand) | 1, 2       |
|                                        | CLO2: Explain HCI design rules and evaluation techniques.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | C2 (Explain)    | 1, 2       |
|                                        | CLO3: Understand cognitive models.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | C2 (Understand) | 1, 2       |
|                                        | CLO4: Understand computer mediated communication, ubiquitous computing, and related tools & technologies                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | C2 (Understand) | 2,3,4,5    |
| <b>Course Description</b>              | <p><b>Topics: Interaction Paradigms:</b> Batch Processing, Time sharing, Networking, Graphical Displays, Microprocessor, WWW, Ubiquitous Computing. <b>Human:</b> Fitt's Law, Human Information Processor, Emotions, Psychology and Design of Interactive Systems, Accessibility. <b>Computers:</b> capabilities and limitations of Computer Systems, Color Models, New Interactive Systems: Speech, touch, gestures, handwriting recognition. <b>Interactions:</b> Models of Interaction, Frameworks, Interaction Styles, User Experience, Interaction Design. <b>Usability:</b> HCI in software Process, Learnability, Flexibility, Robustness. <b>Design Rules:</b> Principles, Standard (ISO9241), Guidelines, Heuristics (Neilsen, Norman, Shneiderman), HCI Patterns (Mobile &amp; Web Application UI). <b>Implementation Support:</b> jQuery, User Interface Management System and architectural Patterns. <b>Evaluation Techniques:</b> expert analysis (Heuristic Evaluation), Evaluation through user participation: Empirical methods and experiment design, statistical measures, Observational Techniques. <b>User Support:</b> Tutorial help, documentation, Wizards, adaptive help. <b>Cognitive Models:</b> KLM-GOMS <b>Task Analysis:</b> Hierarchical Task Analysis, Knowledge based Analysis, Entity Relationship based Techniques. <b>Dialog Design:</b> Diagrammatic Notations: State Transition Networks, Petri Nets, state charts, flow charts. Overview of Textual Notation: Grammars, Production Rules. <b>Computer Mediated Communication:</b> groupware, computer mediated communication, Meeting and decision support systems, argumentation Tools, shared application and Artefacts. Issues of Groupware implementation. <b>Ubiquitous Computing:</b> Introduction, information and data visualization overview.</p> |                 |            |
| <b>Text Book(s)</b>                    | <ol style="list-style-type: none"> <li>1. Alan Dix, Janet Finlay Gregory D Abowd, and Russel Beale, "Human Computer Interaction", 3<sup>rd</sup> Ed. Pearson Prentice Hall, 2004, ISBN-13: 978-0130461094.</li> <li>2. Julie A Jacko and Andrew Sears, "The Human Computer Interaction Handbook,", 2<sup>nd</sup> Ed., CRC, 2007, ISBN 0-8058-5870-9.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                 |            |
| <b>Reference Material</b>              | <ol style="list-style-type: none"> <li>1. Ben Shneiderman, "Designing the User Interface: Strategies for Effective Human-Computer Interaction", 6th Ed., Addison Wesley, 2016, ISBN -13: 978-0134380384:</li> <li>2. William Albert and Thomas Tullis, "Measuring the User Experience", Morgan Kaufmann, 2013, Paperback ISBN: 9780124157811</li> <li>3. Helen Sharp, Jenny Preece and Yvonne Rogers, "Interaction Design: Beyond Human-Computer Interaction", Wiley, 2002, ISBN-13: 978-0470665763</li> <li>4. <a href="http://www.ui-patterns.com">http://www.ui-patterns.com</a></li> <li>5. <a href="http://www.androidpatterns.com">http://www.androidpatterns.com</a></li> <li>6. <a href="http://www.usability.gov">http://www.usability.gov</a></li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |            |