DESIGN & IMPLEMENTATION OF HUMAN-COMPUTER INTERFACES

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INTENDED AUDIENCE: UG/PG students/working professionals

PREREQUISITES: Knowledge of data structures, algorithms, and programming desirable.

INDUSTRY SUPPORT: Industry/companies that deal with consumer electronics and user-interface design and development.

COURSE OUTLINE:

Human-computer interfaces have become very much part of our lives, due to the proliferation of large number of consumer electronic products. The key issue is to make the products usable to lay-persons. As a result, the main concern is usability and how to ensure it for the product. As it happens, development of a usable system follows a process consisting of stages. In this course, we shall learn the stages a system should follow to be usable. In the first few lectures (first week), we will get introduced to the human-computer interfaces, concept of usability and its engineering (including the stages). In the subsequent lectures, the stages will be covered. Weeks 2 and 3 are devoted to the topics on identification of usability requirements. In week 4, we shall learn about the fundamental concepts involved in usable design. Evaluation of the design to ensure usability is covered in week 5. Weeks 6 and 7 contains lectures on converting the design to an information system. Implementation of the system is discussed in weeks 8-10. Week 11 will cover the concepts related to the evaluation for system usability. In the final week (12), we will cover few related topics and conclude the course.

ABOUT INSTRUCTOR:

Prof.Samit Bhattacharya is an associate professor in the Dept of Computer Science and Engineering, IIT Guwahati, with more than 12 years of teaching and research experience. He has taught numerous courses including those related to the proposed course, to both the PG and UG level students of Computer Science and Engineering. He also has nearly five dozen publications as books, book chapters, patents, peer-reviewed journals and conference proceedings under his credit. He has already graduated four PhD students (with another four at various stages of their research) and guided more than a dozen MTech projects and nearly three dozen BTech projects including those related to this area.

COURSE PLAN:

Week 1: Introduction
Week 2: Identification of usability requirements I
Week 3: Identification of usability requirements II
Week 4: Usable interface design
Week 5: Rapid usability evaluation
Week 6: Converting design to system I
Week 7: Converting design to system II
Week 8: System implementation I
Week 9: System implementation II
Week 10: System implementation III
Week 11: Empirical usability evaluation
Week 12: Conclusion