SOFTWARE CONCEPTUAL DESIGN

MULTI FACULTY

PRE-REQUISITES : Learners should have undergone a basic course in programming in any language, should be familiar with basic programming constructs

INDUSTRIES APPLICABLE TO : This course can be useful for graduates who wish to be employed in Software/IT companies in software engineering positions.

COURSE OUTLINE :
This course will provide learners with an overview of what all is involved in creating conceptual software designs. Specifically, it will take learners through different aspects of understanding, creating and evaluating software conceptual designs.
After going through the course, learners will be able to:

1. Think of software in terms of sub-systems, and understand what issues have to be considered in order to design these sub-systems
2. Create a software conceptual design for a given design problem, and model them using Unified Modeling Language (UML) diagrams
3. Evaluate their designs for functional and non-functional quality attributes

ABOUT INSTRUCTOR :
Prof. Sridhar Iyer is a Professor in the Dept of Computer Science & Engg, and the Head of the Interdisciplinary Programme on Educational Technology, at IIT Bombay. He is also the Head of the Centre for Distance Engineering Education and the Principal Investigator of the National Programme on Technology Enhanced Learning at IIT Bombay. His current research interests are in the field of Educational Technology.

Prof. Prajish Prasad completed his PhD from the Interdisciplinary Programme in Educational Technology at IIT Bombay. His bachelor and master degrees are in Computer Science. He is a computing education researcher, and specializes in designing technology-enhanced learning environments for topics in computer science. The focus of his doctoral research was on fostering software design evaluation skills in students. Prior to joining his PhD, he worked as a software developer in an EdTech startup, and as an engineering instructor, teaching courses for computer science undergraduates.

Prof. T.G.Lakshmi completed her PhD from the Interdisciplinary Programme in Educational Technology at IIT Bombay. She has completed her bachelor and master degrees in computer science engineering. Her doctoral research focuses on fostering software conceptual design using the Function-Behaviour-Structure design framework. She is a computing education and learning science researcher. Her interests also include designing and implementing technology-enhanced learning environments for learners. Prior to joining her PhD she was a software developer and a lecturer teaching undergraduate computer engineering students for several years.

COURSE PLAN :

Week 1: Deconstructing the software design process

Week 2: Designing Software using the FBS Framework

Week 3: Comprehending and Evaluating Software Designs

Week 4: The Next Steps - Where does one go from here