MCA- C102 Software Engineering				
	L	T	P	C
	4	0	0	4

Course objective:

1. To understand the Software Engineering Practices and Process Models.

Course outcomes:

1. Assessment in each module gives the overall Software engineering practice.
2. Ability to enhance the software project management skills.
3. Ability to design and develop a software product in accordance with Software Engineering principles.

Software Process: Software Process, Characteristics, software development process models - Waterfall, Iterative, Prototype, Incremental, Spiral, win-win Spiral, Comparison. Project Management Process.

Software Requirement Analysis and specification: Software Requirements, need for SRS, Problem analysis, Requirements specification, IEEE format of SRS, Requirements Engineering, Requirements Validation, Object-oriented Analysis Case Studies - Course Scheduling, Personal Investment Management System

Software Architecture: Role of Software Architecture, Architecture views, Component and Connector view. Architectural styles of C&C view. Evaluating Architectures.

Software Design: Function Oriented Design: Principles, Module-level Concepts. Design notations and specifications, Structured design methodology, Verification, Metrics; Object-oriented design: OO Concepts, Design Concepts, Unified Modeling Language (UML); User Interface Design: Golden rules, User Interface Design, Interface Design Activities, Implementation tools

Testing Techniques & Strategies: Fundamentals, Test case design, white box, black box, basis path, control structure testing, Strategic approach to software testing, Unit testing, Integration testing, Validation testing & System Testing.

Software Maintenance: Definition, Maintenance activities, Software Reengineering, Reverse Engineering, Restructuring, Forward Engineering.

Effort & Schedule Estimation: Software Project Estimation, Decomposition techniques, Empirical Estimation Models (COCOMO, Function Point Analysis, Delphi Approach), The Make/Buy decision. Automated Estimation tools.

Recommended Books:

1. Agarwal, KK, et. al., Software Engineering, New Age International Publication
2. Jalote Pankaj, An Integrated Approach to Software Engineering, Narosa Publishing House, New Delhi
3. Pressmann, RS, Software Engineering – A Practitioner's Approach, McGraw- Hill International Editions.
4. Sommerville, Ian, Software Engineering, Pearson Education Asia,
5. Bruegge and Allen H. Dutoit, Object-Oriented Software Engineering: Using UML, Patterns and Java, Pearson Education Asia

HEAD
Department of Computer Science
Gurukul Kangri Vishwavidyalaya
Haridwar (UK) - 249404