Syllabus for Entrance Test for Ph.D. Admissions
Departments of CSE, IT & MCA

Software Engineering

Software Engineering: Role of Software, Changing Nature of Software, Legacy Software, Software Myths. A Generic View of Process: Software Engineering – A Layered Technology, A Process Framework, The CMMI, Process Patterns, Process Assessment, Personal and Team Process Models, Process Technology, Product and Process. Process Models: Prescriptive Models, the Waterfall Model, Incremental Process Models, Evolutionary Models, Specialized Process Models.. Requirements

Engineering: A Bridge To Design and Construction, Requirements Engineering Tasks, Initiating the Requirements Engineering Process, Eliciting Requirements, Negotiating Requirements, Validating Requirements. Building the Analysis Model: Requirements Analysis, Analysis Modeling Approaches, Data Modeling Concepts, Flow-Oriented Modeling, Creating a Behavioral Model and unified modeling approaches. Design Engineering: Creating An Architectural & Component Level Design: Performing User Interface Design: Testing Strategies: A Strategic Approach to Software Testing, Strategic Issues, Test Strategies include Conventional Software, Test Strategies for Object-Oriented Software, validation testing, system testing, Art of Debugging. Testing Tactics: Software Testing Fundamentals, Black-Box and White-Box Testing, White -Box Testing, Basis Path Testing, Control Structure Testing, Black- Box Testing, Object-Oriented Testing Methods, Testing Methods Applicable at the Class Level, Interclass Test Case Design, Testing for Specialized Environments, Architectures, and Applications, Testing Patterns.

Data Warehousing and Mining

Databases and Database users, Database systems concepts and Architecture, Data modeling using the Entity-Relationship model, Introduction to Data Mining, Business Intelligence, Data Warehouse and OLAP Technology, Data Preprocessing, Extraction, Transformation and Loading, Data Mining Primitives, Regression, Associations, Classification and Prediction,: Cluster Analysis

Computer Networks and Security

Reference models, Physical Layer, Multiple access protocols, Ethernet, Routing algorithms, Congestion control algorithms, Quality of service, Internet working, Network layer in the Internet, Transport service, Elements of transport protocols, Internet transport protocols: TCP & UDP, Domain Name System

WEB Technologies

World Wide Web, markup language like HTML, XHTML and XML, dynamic content generated languages like ASP, JSP and SERVLETS.