

# **MCA-17 Software Engineering**

## **UNIT - 1 Software Engineering**

The software crisis, principles of software engineering, programming-in-the-small vs. programming-in-the-large

## **UNIT - 2 Software process**

The software lifecycle, the waterfall model and variations, risk-driven approaches, introduction to evolutionary and prototyping approaches, agile process models, system classifications

## **UNIT - 3 Project management**

Relationship to lifecycle, project planning, project control, project organization, risk management, cost models, configuration management, version control, quality assurance, metrics

## **UNIT - 4 Software requirements**

Requirements analysis, functional and non-functional requirements elicitation, analysis tools, requirements definition, requirements specification, static and dynamic specifications, requirements review.

## **UNIT - 5 Software design**

Design for reuse, design for change, design notations, design evaluation and validation

## **UNIT - 6 Implementation and Maintenance**

Programming standards and procedures, modularity, data abstraction, static analysis, unit testing, integration testing, regression testing, verification and validation, tools for testing, fault tolerance, The maintenance problem, the nature of maintenance, planning for maintenance

## **Suggested readings:**

1. Pressman, Roger S., "Software Engineering: A Practitioner's Approach Ed. Boston: McGraw Hill, 2001
2. Jalote, Pankaj, "Software Engineering Ed.2", New Delhi: Narosa 2002
3. Schaum's Series, "Software Engineering", TMH
4. Ghezzi, Carlo and Others, "Fundamentals of Software Engineering", PHI
5. Alexis, Leon and Mathews Leon, "Fundamental of Software Engineering", Vikas
6. Sommerville, Ian, "Software Engineering", AWL, 2000
7. Fairly, "Software Engineering", New Delhi: TMH
8. Pfleerger, S, "Software Engineering", Macmillan, 1987