INFORMATION SCIENCE AND ENGINEERING

18ESIS01 Software Engineering

Credits: 4 | **Total Contact hours: 60**
L-T-P : 4-0-0 | **Contact Hours/week : 03**
IA Max Marks : 30 | **SEE Max Mark: 70**
Subject Type : Core

PART - A

Module 1 **14 Hours**

Introduction to Software Engineering: Changing nature of Software, Software Myths.
A Generic View of Process:-Software engineering-A layered technology, The Capability Maturity Model Integration (CMMI)
Process Models:-The water fall model, Incremental process models, evolutionary process models, the unified process.

Software Requirements: Functional and non-functional requirements, User requirements, System requirements, Interface specification, The software requirements document.

Module 2 **8 Hours**

Requirements Engineering Process: Feasibility studies, requirements elicitation and analysis, requirements validation, requirements management, Case studies om validation and analysis.

Module 3 **15 Hours**

System models: context models, behavior models, data models, object models, structured methods
Design engineering: design process and design quality, design concepts the design model
Architectural Design
Creating an architectural design: software architecture, data design, architectural styles and patterns, architectural design

Module 4 **12 Hours**

Test Strategies: A strategic approach to software testing Black box and White box Testing, Validation Testing, System Testing,
Product Metrics, Software Quality, Metrics for analysis model, Metrics for design model, Metrics for source code, Metrics for testing, Metrics for maintenance Metrics for process and products. Software measurement, Metrics for software quality

Risk Management Reactive vs proactive risk strategies, Software risks, Risk identification, Risk projection Risk refinement,

Module 5: **11 Hours**

RMMM, RMMM plan Quality Management, Quality concepts, Software quality assurance, Software reviews, Formal technical reviews, Statistical Software Quality Assurance, Software reliability, ISO 9000 Quality standards

Case Sudy – Relevant Experiments and tutorials to be conducted using tools for Software Engineering

TEXT BOOKS

1. Roger S.Pressman, Software engineering- A practitioner's Approach, McGraw-Hill International Edition, 5th edition, 2001.

REFERENCES

1. Ian Sommerville, Software engineering, Pearson education Asia, 6th edition, 2000.
2. Pankaj Jalote- An Integrated Approach to Software Engineering,Springer Verlag, 1997.
3. James F Peters and Witold Pedryez, "Software Engineering – An Engineering Approach", John Wiley and Sons, New Delhi, 2000.
4. Ali Behforooz and Frederick J Hudson, "Software Engineering \ Fundamentals", Oxford University Press, New Delhi, 1996.