



STANLEY
COLLEGE OF ENGINEERING & TECHNOLOGY FOR WOMEN
(Approved by AICTE , New Delhi | Affiliated to Osmania University ,Hyderabad)
Address : Chapel Road, Abids ,Hyderabad

CS-567

SOFTWARE ENGINEERING FOR REAL TIME SYSTEMS

UNIT-I

Introduction: Review of Software Engineering Concepts, Characteristics of Real Time Systems, Importance of including Time Factor, The Real Time System Life Cycle: Requirement Specifications, State Charts.

UNIT-II

Structured Design Approaches: Event Based Model, Process-Based Structured Design, Graph-Based Theoretical Model, Petri Net Models: Stochastic Petri Net (SPN) Model Analysis, Annotated Petri Nets, Time-Augmented Petri Nets, Assessment of Petri Net Methods.

UNIT-III

Axiomatic Approaches: Weakest Precondition Analysis, Real Time Logic, Time Related History variables, State Machines and Real-Time Temporal Logic.

UNIT-IV

Language Support Restrictions: Real-Time Programming Discipline, Real-Time Programming Languages, Schedulability Analysis.

UNIT-V

Verification and Validation of Real-Time Software: Testing Real Time Properties, Simulation as Verification Tool, Testing Control and Data Flow, Proof Systems, Operational Approach.

Suggested Reading:

1. Shem – Tow Levi and Ashok K. Agarwal, “Real Time System Design”, McGraw Hill International Editions, 1999.
2. Cooling J.E. Jim Cooling, “ Software Engineering for Real Time Systems” Addison Wesley