



# NARSIMHA REDDY ENGINEERING COLLEGE

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## UNIT-V Risk Management and Quality Management



# Course Outcomes

- ▶ • Understand risk management strategies
- ▶ • Apply software quality assurance practices



# Unit V Syllabus

- ▶ Risk Management
- ▶ Software Risks
- ▶ RMMM
- ▶ Quality Concepts
- ▶ SQA
- ▶ Reviews
- ▶ Software Reliability
- ▶ ISO 9000



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# Introduction to Risk Management

- ▶ Risk management identifies, analyzes, and controls potential project risks.



# Need for Risk Management

- ▶ • Reduce project failures
- ▶ • Improve planning
- ▶ • Enhance decision making



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# Reactive Risk Strategies

- ▶ Respond to risks after they occur.
- ▶ Examples: Crisis management, Fire-fighting approach.

# Proactive Risk Strategies

- ▶ Identify and prevent risks before occurrence through planning and analysis.



# Reactive vs Proactive Strategies

- ▶ Comparison of timing, approach, cost, and effectiveness.



# Software Risks

- ▶ Potential problems affecting project success and software quality.

# Types of Software Risks

- ▶ Project Risks
- ▶ Technical Risks
- ▶ Business Risks



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# Risk Identification

- ▶ Process of identifying potential project and technical risks.

# Risk Identification Techniques

- ▶ Brainstorming
- ▶ Checklists
- ▶ Expert Judgment
- ▶ Historical Data



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# Risk Projection

- ▶ Assessing probability and consequences of identified risks.



# Risk Components

- ▶ Risk Probability
- ▶ Risk Impact
- ▶ Risk Exposure



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# Risk Refinement

- ▶ Detailed analysis and decomposition of risks.



# Risk Prioritization

- ▶ Ranking risks based on severity and impact.

# RMMM Plan

- ▶ Risk Mitigation, Monitoring, and Management Plan.



# RMMM Activities

- ▶ Mitigation Strategies
- ▶ Monitoring Mechanisms
- ▶ Contingency Plans



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# Introduction to Quality Management

- ▶ Quality management ensures software meets customer requirements.



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# Quality Concepts

- ▶ Conformance to requirements and fitness for use.

# Software Quality Assurance (SQA)

- ▶ Planned activities ensuring software quality throughout SDLC.

# Objectives of SQA

- ▶ Defect prevention
- ▶ Standards compliance
- ▶ Process improvement



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# SQA Activities

- ▶ Audits
- ▶ Reviews
- ▶ Testing Support
- ▶ Metrics Collection



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# Software Reviews

- ▶ Systematic examination of software artifacts.

# Types of Reviews

- ▶ Peer Reviews
- ▶ Walkthroughs
- ▶ Inspections



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# Formal Technical Reviews

- ▶ Structured review process to identify defects early.

# Benefits of FTR

- ▶ Improved quality
- ▶ Reduced rework
- ▶ Knowledge sharing



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# Statistical SQA

- ▶ Uses statistical techniques to monitor and improve software quality.



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# Software Reliability

- ▶ Probability of failure-free software operation over a specified period.

# Reliability Metrics

- ▶ MTTF
- ▶ MTTR
- ▶ MTBF
- ▶ POFOD



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# ISO 9000 Quality Standards

- ▶ International standards for quality management systems.



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# Benefits of ISO 9000

- ▶ Improved processes
- ▶ Customer satisfaction
- ▶ Continuous improvement



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# Case Study: Aadhaar Project

- ▶ Risk management and quality practices in a large-scale project.



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# Real-Time Example: Banking Software

- ▶ SQA and reliability in secure transaction systems.



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# Summary

- ▶ Review Unit V concepts and best practices.

