

V&V Topics

◇◇ Requirements Management ◇◇

Requirement Elicitation, Requirements Ambiguity,
Software Requirements Specification (SRS) Document

◇◇ Configuration Management ◇◇

Defect Management, Version Control,
Change Management, Continuous Integration

◇◇ Software Reviews ◇◇

Formal Inspection, Peer Review, Walkthroughs,
Code Inspection

◇◇ Software Testing ◇◇

Software Test Plans (STP), Test Case Development,
Software Quality, Unit Testing, Integration Testing,
Performance Testing, Load Testing



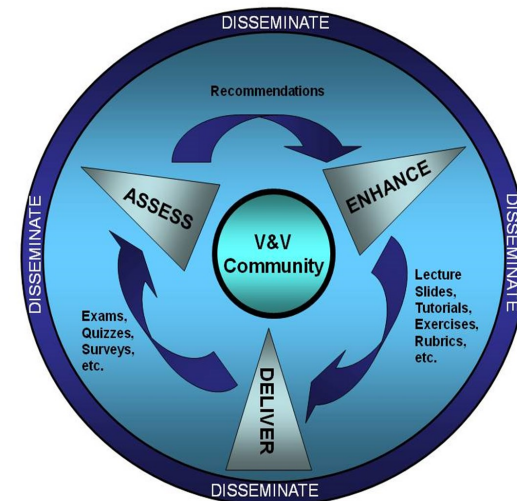
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Let's Create a V&V Community !!!

ACTIVE LEARNING TOOLS

- Case Studies • Class Exercises • Case Study Videos •

*42 delivery hours of Course Modules for
teaching Software V&V Topics*



**Collaborative Education -
Building a Skilled Software Verification and
Validation User Community**

NSF-TUES Award # 1245036



Case Studies: Case studies serve as useful tools to teach software methods & processes. In this project case studies are drawn from a wide range of industry V&V practices. Students are presented industry standard documents for review to prepare for the tasks. This project has disseminated the following case studies.

Software V&V Topic	Case Study Topic
Requirements Management	<ul style="list-style-type: none"> Requirements from a Customer Perspective - Ambiguity Understanding User Requirements
Software Testing	<ul style="list-style-type: none"> Test Case Development Performance Testing/Load Testing A Software Test Plan (STP)
Software Reviews	<ul style="list-style-type: none"> Importance of Peer Reviews Peer Review Tools
Configuration Management	<ul style="list-style-type: none"> Continuous Integration (CI) Version Control Management System
Additional Topics	<ul style="list-style-type: none"> Liability for Bad Software and Support Software Legal Issues

Case Study Videos: One commonly used technique to enhance the classroom learning experience is the use of videos which are viewed as an effective method of presenting standard material while addressing students of different learning styles. In this project the Case study videos provide a realistic picture for the audience to appreciate many SV&V processes being practice. Four videos ranging from 15 to 24 minutes have been disseminated.

Software V&V Topic	Video Case Study Topic
Requirements Management	<ul style="list-style-type: none"> Requirements Analysis Scenes (15 mins)
Software Reviews	<ul style="list-style-type: none"> Formal Inspection Scenes (15 mins) Security Inspection Scenario (15 mins)
Additional Topics	<ul style="list-style-type: none"> Scrum Scenes (24 mins)

Class Exercises: Class exercises have been designed for the class time to explicitly raise questions to invite student participation. This project has disseminated sixteen exercises. This project has disseminated the following exercises.

Software V&V Topic	Exercise Topic
Requirements Management	<ul style="list-style-type: none"> Ambiguous Questions Business Requirements and Functional Requirements Clarifying User Requirements Needs Statement to SRS Needs Statements to User Requirements Requirement Ambiguity Stated and Implied Requirements
Software Testing	<ul style="list-style-type: none"> Cost Effective Testing Approach Test Cases for a Given Requirement Testing Tools Understanding Testing
Software Reviews	<ul style="list-style-type: none"> Code Inspection SRS Review
Configuration Management	<ul style="list-style-type: none"> Defect Lifecycle
Additional Topics	<ul style="list-style-type: none"> Deming's 14 Points on System of Profound Knowledge (SoPK) Understanding IEEE Standards

Industrial Partners: Eaton Electrical Corp., PNC Bank, ANSYS, ServiceLink, JDA Software Group



Academic Development Partners: Milwaukee School of Engineering, Virginia State University

Academic Implementation Partners: Milwaukee School of Engineering, Virginia State University, Embry-Riddle Aeronautical University, Montana Technical University, University of Michigan-Dearborn, Fairfield University, Auburn University, East Carolina University, Kennesaw State University, Bowie State University, Clarion University,