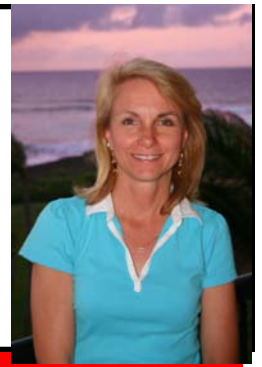


# More Reliable Software Faster and Cheaper (Software Reliability Engineering)

**A Half - Day Tutorial**



Stressed out by competitive pressures to deliver more reliable software faster and cheaper? Want to control the process rather than have it control you? Software reliability engineering (SRE) can help. This unique course is the most cost-effective way to learn and deploy SRE.

## **How SRE Helps**

SRE is based on two powerful ideas:

- Determine how often your customers will use the various functions of your product; then focus your resources in proportion to use and criticality. This approach greatly increases your development efficiency and hence your effective resource pool for adding customer value to your product.
- Further increase customer value by setting quantitative reliability objectives that precisely balance customer needs for reliability, timely delivery, and cost; engineering project strategies to meet them; and tracking reliability during test to guide release.

You can apply SRE to the next release of ANY system / component that uses software. See how others have benefited on reverse side (**Success Stories**).

## **Why This Tutorial**

Whether you are a software tester, quality assurance or reliability engineer, systems engineer or architect, project manager, or software developer, this tutorial quickly, efficiently teaches you step by step the essentials of how to apply the standard, proven, widespread best practice of SRE to your project.

The continually updated tutorial material has been perfected through interaction with thousands of participants worldwide. It uses a simple, realistic example throughout to illustrate the points. We strongly encourage you to relate the tutorial material to your experience and ask questions. You will immediately practice some of the topics you learn on a simplified project in a group workshop and receive constructive feedback.

## **You Will Learn How To**

- Determine the reliability / availability your customers need for your product and engineer your process to deliver it
- Develop operational profiles to describe how customers will use your product
- Determine how many test cases you need to and can develop
- Use operational profiles to:
  - Increase development efficiency
  - Allocate test cases efficiently
- Make test represent field use
- Process failure data to:
  - Track reliability growth and guide release of systems you develop
  - Certify systems

You will receive the tutorial view graphs, which will help you to get started in applying SRE.

It is recommended that you purchase the book *Software Reliability Engineering: More Reliable Software, Faster Development and Testing* (written in coordination with the tutorial), as it will provide an excellent refresher and supplement.

Musa offers follow-up consulting (telephone or in-person) at standard rates to answer your questions or constructively review your plans, implementation and deployment, as desired. He can also present overviews and briefings to help you inform and get the support of your management.

## **Why This Instructor (Dr. Laurie Williams)**

Dr. Laurie Williams is an associate professor in the Computer Science department at North Carolina State University (NCSU). She teaches software engineering and, more specifically, software reliability and testing. Dr. Williams is a member of the NCSU Academy of Outstanding Teachers and has been voted the "Most Helpful Professor Outside of Class" by the student body. Prior to joining NCSU, she worked at IBM for nine years, including two years as a manager of a software testing department.

At NCSU, Laurie leads the Software Engineering Realsearch group consisting primarily of world-class PhD students. The motto of the "Realseach" group is "Real Engineers – Real Projects – Real Impact." Through this "real" research, Laurie has and continues to work closely with a variety of companies, including IBM, Nortel, ABB, Microsoft, Tekelec, Sabre Airlines, and EMC.

Dr. Williams has published over 150 software engineering papers, articles, and books. Additionally, she has been an invited to give more than 60 technical presentations worldwide. Thus, Dr. Williams is *uniquely* qualified to help you gain maximum value from this course.

## **Contact**

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(over)**

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## Success Stories

AT&T's International Definity project shows the benefits that result from applying SRE and related technologies. In comparison with a previous release that did not use these technologies, reliability, customer satisfaction, and sales all increased by a factor of 10. The system test interval and test costs decreased by a factor of two; project development time, by 30%, and maintenance costs, by a factor of 10.

Other organizations such as Alcatel, Bellcore, CNES (France), ENEA (Italy), Ericsson Telecom, France Telecom, Hewlett Packard, Hitachi, IBM, Lockheed-Martin, Lucent Technologies, Microsoft, MITRE, Motorola, NASA's Jet Propulsion Laboratory and Space Shuttle Project, Nortel, Raytheon, Saab Military Aircraft, Tandem Computers, US Air Force, and US Marine Corps have used SRE profitably. You can use SRE for new or legacy systems, any application domain, distributed systems, internet-based systems, and any development methodology including object-oriented development.

The IEEE approved a standard for SRE in 1988, and the AIAA in 1993. McGraw-Hill recognized the rapid maturing of the field, publishing the *Handbook Of Software Reliability Engineering* in 1996. The IEEE Computer Society's Technical Committee on SRE grew in six years from 40 people to more than 1,000, a rate of 70 percent/year.

## Some Quotes on This Course

*"If you're in the business of putting out high reliability software, you ignore SRE at your peril."*

Review by Tom DeMarco in *American Programmer*

*"A far better approach to systems software quality than we are presently using."*

Larry Bernstein, VP, AT&T Network Systems

*"Software reliability should be required reading for all software developers."*

Dick Machol, Network VP, AT&T

From course participants:

*"One of the best tutorials I have attended"*

*"Ideas I could immediately use on my job"*

*"Simple, clear, very easy to understand"*

*"Excellent audience interaction, speaker very approachable"*

*"Well prepared, very well organized"*

*"Useful handouts"*

*"Excellent delivery, pace, real world examples"*

*"I never felt embarrassed about what I didn't know"*

*"Obviously loves to teach, entertaining speaker"*

*"The scientific approach makes me feel like a professional"*

*"I could share my professional experience in the class and receive constructive criticism and new ideas"*

*"Very inspiring"*

*"The workshops tailored the course to my project"*

*"Practical, down to earth"*

## Other Services:

- Distance learning version of this course
- SRE overview talks and management briefings (to enlist management and stakeholder (marketing, field service, etc.) support for SRE deployment)
- Technology transfer advice and help
- Follow-up consulting (remote or onsite) to review your plans, implementation, and deployment of SRE and to advise, help, and answer questions

## SRE Website

A center of SRE information in electronic form: download, print, or send hyperlinks to others. Contains video and written overviews you can use to convince your manager of value of SRE, this flyer, dates of public SRE classroom courses and tutorials, list of articles by users, and lots of other material:

<http://members.aol.com/JohnDMusa>

## Contact

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