



# Stevens Institute of Technology

## WebCampus.Stevens

### Syllabus

**Course Number: 645**

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### Overview

- *This course provides students with a disciplined approach for identifying opportunities to influence the design of a system from a reliability, maintainability, and supportability perspective.*
- *Students will be introduced to the relevant concepts to understand the scope of the important parameters, and their relationship.*
- *There will be an emphasis on the mathematical descriptions of these parameters and their relationships.*
- *The course will also address specific methods, tools, and practices for influencing the design of complex systems for enhanced reliability, maintainability, and supportability.*
- *The intent is provide a discussion in the context of the systems engineering process, and to highlight the integration of reliability, maintainability, and supportability parameters into the overall systems engineering effort.*

### Learning Goals

After taking this course, the student will be able to understand and utilize the systems' impact of reliability, maintainability and supportability.

The course combines lectures and readings to understand the "why" and "how" of influencing system designs and architectures from a reliability, maintainability, and supportability perspective. Particular focus is also given to software intensive systems.

### Pedagogy

The course will employ readings, lectures, discussions, individual assignments and an individual term paper.

### Required Text(s)

Students need the following textbook for this course:

**Maintainability: A Key to Effective Serviceability and Maintenance Management**  
by Benjamin S. Blanchard, Dinesh Verma, Elmer L. Peterson

### Required Readings

Readings will be assigned for each week. These will be found on the course website.

### Assignments

Weekly individual assignments may include the following:

- Specified reading
- On-line discussion
- Exercise
- Term Paper (due at end of class)



## 0.11 Grading (cont...)

Getting  
Started  
Module 0

➤ The 12 <u>Online Discussions</u> will count for up to 3 points each.	<b>36 Points available</b>
➤ 2 points may be awarded for: <ul style="list-style-type: none"> <li>• completing the <u>student profile</u> at the beginning of the course</li> </ul>	<b>2 Points available</b>
➤ The 10 <u>Exercises</u> will count for up to 3 points each.	<b>30 Points available</b>
➤ The <u>Term Paper</u> will count for up to 32 points.	<b>32 Points available</b>

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**100**  
*Maximum possible earned points*

Please note that assignments in this class may be submitted to [www.turnitin.com](http://www.turnitin.com), a web-based anti-plagiarism system, for an evaluation of their originality.

## Course Schedule

Week	Subject	Assignment Due
1	<ul style="list-style-type: none"> <li>•Introduction</li> <li>•Concepts and Definitions</li> <li>•What is R, M&amp;S</li> </ul>	1. Textbook reading, Additional reading 2. Read Notes for week 3. complete the student profile
2	<ul style="list-style-type: none"> <li>•Early Influence – Requirements and Architecture</li> <li>•System RM&amp;S Requirements</li> </ul>	1. Textbook reading, Additional reading 2. Read Notes for week 3. Complete Exercise for week 4. Participate in discussion for week
3	System Reliability Concepts	1. Textbook reading, Additional reading 2. Read Notes for week 3. Complete Exercise for week 4. Participate in discussion for week
4	System Reliability Evaluation	1. Textbook reading, Additional reading 2. Read Notes for week 3. Complete Exercise for week 4. Participate in discussion for week
5	System Reliability Measures	1. Textbook reading, Additional reading 2. Read Notes for week 3. Complete Exercise for week 4. Participate in discussion for week
6	System Reliability Management	1. Textbook reading, Additional reading 2. Read Notes for week 3. Complete Exercise for week 4. Participate in discussion for week
7	Complex System Reliability	1. Textbook reading, Additional reading 2. Read Notes for week 3. Complete Exercise for week 4. Participate in discussion for week
8	System Reliability Design Methods	1. Textbook reading, Additional reading 2. Read Notes for week 3. Complete Exercise for week 4. Participate in discussion for week
9	Design for System Maintainability	1. Textbook reading, Additional reading 2. Read Notes for week 3. Complete Exercise for week 4. Participate in discussion for week 5. Draft Term Paper Topic
10	System Maintainability Measures	1. Textbook reading, Additional reading 2. Read Notes for week 3. Complete Exercise for week 4. Participate in discussion for week
11	Design for System Supportability	1. Textbook reading, Additional reading 2. Read Notes for week 3. Complete Exercise or week 4. Participate in discussion for week 5. Term paper Topic approval
12	Design for System RM&S for Software Intensive Systems	1. Textbook reading, Additional reading 2. Read Notes for week 3. Continue Term Paper 4. Participate in discussion for week
13	<ul style="list-style-type: none"> <li>• Commercial Off the Shelf (COTS) and Technology Refreshment</li> <li>• Course Review</li> </ul>	1. Textbook reading, Additional reading 2. Read Notes for week 3. Submit Term Paper 4. Participate in discussion for week 5. Complete Course Evaluation