

SYSE 510 MP Systems Engineering Management

1. Basic Information:

1. Course Number: SYSE 510 MP
2. Course Title: Systems Engineering Management
3. Credit Hours: 4
4. Pre-Requisites: Basic engineering or project management
5. Instructor: John E. Blyler, BS Engineering Physics, MS EE
6. Class Location: Online
7. Class Hours: Online – New “Week” begins on Mondays
8. Office Hours: Email, phone, online
9. Phone: 503-614-1082
10. Email address: blylerj@pdx.edu or jblyler@extensionmedia.com
11. Final Exam: Online Exam – Self Schedule During Exam Week
12. Text:
Essentials of Project and Systems Engineering Management (3rd Ed)
by Howard Eisner
John Wiley and Sons, Inc - Order online, e.g., Amazon.com, Powells, etc.

2. Course Description

This course provides comprehensive knowledge and real-world case studies in the critical domains of project management (for cost and schedule) and system engineering management (for technical evaluation and implementation). In addition, we will focus on the interrelationships between these two domains by explicitly considering integrative management as an emerging approach. Students will gain detailed knowledge in management techniques applicable to activities within Systems Engineering, including evaluating new technologies and integrating with legacy systems, technical performance measures (TPM), process tailoring, SEMP/SEWP planning, effect of software engineering, maturity assessment models like CMMI, conducting technical reviews and audits, and more. Several case studies from a wide range of projects will be presented to illustrate key concepts and management techniques with the goal of demonstrating how projects can succeed with the proper implementation of systems engineering management.

The audience for this course is chief systems engineers, system architects, technical project/program managers in projects involving hardware, software, electronic, mechanical and manufacturing engineers. This course can be taken as part of the master's degree, certification program or for continuing education.

3. Specific Goals and Objectives:

Key objectives are:

1. Learn to manage the cost, scheduling and technical development of systems-product projects by understanding the interactive roles of systems engineers and project-program managers.
2. Understand how to create a successful project plan or blueprint, including the optimal technical approach tailored to your company, organization and/or industry.
3. Detail the cost, schedule and technical performance monitoring tools used by project managers/controllers and systems engineers.
4. Learn to utilize crucial team building techniques and ways to improve interaction between team members.
5. Learn the thirty key elements of systems engineering.
6. Understand the critical nature of requirements analysis and allocation.
7. Practice architecting a complex system through the analysis and evaluation of alternatives to select an optimal solution.
8. Understand selected highlights of software engineering and how it directly effects today's SE and PM interaction.
9. Examine and utilize new trend options – from technology to process improvements – available to systems engineers, software engineers and project managers.
10. Learn the integrative management of technical people, processes and tools to maximize efficiency and effectiveness.

4. Logistics:

Success in this course will require:

1. Reading and completing weekly assessments by the assigned date
2. Posting assignment results on, or before, the assigned date
3. Successful completion of Mid-Term and Final Examinations
4. Active participation in online discussions in the forums and weekly goals assessment

5. Metrics for Student Progress

- a. Total of 400 points
 - i. Written Assignments [10] (100 points total)
 - ii. Mid-Term Exam (100 points)
 - iii. Final Exam (100 points)
 - iv. Discussion Participation (100 points) [10 per week]
 1. 5 for responding to the discussion question of the week
 2. 5 for responding to the weekly goals assessment
 3. 2 bonus points for meaningful journal entries each week

- b. Grades will be assigned as follows (this is the minimum guaranteed distribution, the instructor reserves the right to adjust the lower thresholds as needed to ensure adequate representation of effort)
- i. 400-372 : A
 - ii. 371-360 : A-
 - iii. 359-348 : B+
 - iv. 347-332 : B
 - v. 331-320 : B-
 - vi. 319-308 : C+
 - vii. 307-292 : C
 - viii. 291-280 : C-
 - ix. 279-268 : D+
 - x. 267-240 : D
 - xi. 239-000 : F
- c. Refer to BlackBoard for due dates. ***There is a 5 point penalty per day late*.**

6. Tentative Week Plan [Deliverables are Due by 8AM PST on Monday of Following Week]

- 1. Week 1 Reading / Written Assignment #1
- 2. Week 2: Reading / Written Assignment #2
- 3. Week 3: Reading / Written Assignment #3
- 4. Week 4: Reading / Written Assignment #4
- 5. Week 5: Reading / Mid Term / Written Assignment #5
- 6. Week 6: Reading / Written Assignment #6
- 7. Week 7: Reading / Written Assignment #7
- 8. Week 8: Reading / Written Assignment #8
- 9. Week 9: Reading / Written Assignment #9
- 10. Week 10: Reading / Written Assignment #10
- 11. Week 11: Finals Week

7. Tentative Week Topics and General Reading [Specifics will be given each week]

- Week 1 Systems, Projects and Management Overview
 - Ch 1: Systems, Projects and Management
 - Ch 2: Overview of Essentials:
- Week 2 The Project Plan
 - Ch 3
- Week 3 Schedule, Cost, and Situation Analysis
 - Ch 4
- Week 4 Team Building and Team Interaction
 - Ch 6
- Week 5 The Thirty Elements of Systems Engineering
 - Ch 7
- Week 6 Requirements Analysis and Allocation
 - Ch 8

- Week 7 Systems Architecting - Principals
 - Ch 9
 - Appendix Case Studies
- Week 8 Software Engineering
 - Ch 10
- Week 9 Systems/Software Engineering and Project Management Tools
 - Ch 12
- Week 10 Integrative Management
 - Ch 13 Selected New Perspectives
 - Ch 14 Integrative Management