



Course: ENPM 808M Systems Engineering Management

Semester: Summer 2021

Days: Monday/Wednesday

Time: 6:00 pm – 845 pm

Location: Online

Instructors: Mr. Nidak Sumrean

E-mail: nsumrean@umd.edu

Office hours: By appointment.

Course Description

This course provides an overview of project management within the context of systems engineering. Topics include: organizational structures; leadership; team dynamics; life cycle models; systems engineering processes and products; the management implications of implementing model-based systems engineering; proposals, contracts, and the acquisition process; project planning; cost estimation and modeling; scheduling (PERT, CPM, and Gantt charts); project measurement, assessment and control (including earned value management and technical performance measurement); risk management; configuration management; quality management; and maturity models.

Textbooks:

- 1) Project Management: A Systems Approach to Planning, Scheduling, and Controlling, 12th Ed., Harold Kerzner, Wiley, 2017.
- 2) INCOSE Systems Engineering Handbook: A Guide for System Life Cycle Processes and Activities, 4th Ed., INCOSE, Wiley, 2015 (from the INCOSE Website)

Some Course References:

- 1) A Guide to the Project Management Body of Knowledge (PMBOK® Guide), 6th Ed., Project Management Institute (PMI), 2017.
- 2) Systems Engineering Management, 4th Ed., Benjamin Blanchard, Wiley, 2008.
- 3) Project Management in Practice, 5th Ed., Jack Meredith, et. al., Wiley, 2014.
- 4) Defense Acquisition Guidebook (DAG), 2015.

Course Syllabus

Class 1 (6/2): Course Overview

- Reading:
 - INCOSE Systems Engineering Handbook (SEHB) Table of Contents and Chapter 5.
 - Kerzner Chapter 3

- Topics:
 - Introduction and course overview
 - Systems Engineering and Project Management
 - Organizational Structures as context for PM

Class 2 (6/7): Intro to PM and Staffing

- Reading: Kerzner Chapters 1, 2, and 4 and SEHB Ch 3
- Topics:
 - Project management overview and introduction
 - Life Cycle Models
 - Staffing Organizations & Teams

Class 3 (6/9) Leadership, Teams, and Time Management

- Reading: Kerzner Chapters 5 & 6 and SEHB Chapters 2.10- 2.11, 5.3, & 5.7
- Topics:
 - Management Functions and Leadership
 - Communications and Teams
 - Managing Personality Conflicts
 - Problem Solving and Decisions
 - Time Management & Stress

Class 4 (6/14): Project Planning I – The Acquisition Process, Life Cycle Models, and Systems Engineering

- Reading:
 - SEHB Chapter 6, 3-5, 9, and 10 and Kerzner 2.12-2.13 and 11.1-11.7
 - Government Acquisition Process and Contract Line Items (CLINs)
https://en.wikipedia.org/wiki/Government_procurement_in_the_United_States
- Topics:
 - The Government Acquisition Process and the Acquisition LCM
 - More on Life Cycle Models and SE Processes
 - Source Selection, RFPs, proposals, contracts, and contract deliverables.
 - INCOSE Agreement Processes

Class 5 (6/16) Project Planning II – General Project Planning

- Reading: Kerzner Chapters 11 and SEHB Chapters 4.3, 4.9, 4.11, 5.1, & 5.5
- Topics:
 - The Work Breakdown Structure (WBS), Work Packages, & Cost Accounts
 - Program Baselines
 - Configuration Management

Class 6 (6/21): Project Planning III – Key Systems Engineering Planning Products

- Reading:
 - Systems Engineering Plan (SEP) Preparation Guide.
<http://www.acq.osd.mil/sse/docs/SEP-Prep-Guide.pdf>
 - [<http://www.everyspec.com/DATA+ITEM+DESC+\(DIDs\)/DI-MGMT/DI-MGMT-81024-SYSTEM_ENGINEERING_MGMT_PLAN_\(SEMP\)_2911/>](http://www.everyspec.com/DATA+ITEM+DESC+(DIDs)/DI-MGMT/DI-MGMT-81024-SYSTEM_ENGINEERING_MGMT_PLAN_(SEMP)_2911/)
- Topics: The SEP, SEMP, CMP, RMP, & TEMP

Class 7 (6/23): Midterm Exam (Classes 1-6)

Class 8 (6/28): Activity Networks and Schedules

- Reading: Kerzner Chapters 12-13
- Topics:
 - Scheduling (PERT Charts, CPM) Techniques
 - Project Graphics and Gantt Charts

Class 9 (6/30): Project Planning IV: Schedules & Cost Estimation

- Reading: Kerzner Chapters 14 & 18
- Topics:
 - Cost Estimation (types of estimates, overhead costs, supporting material)
 - Net Present Value Calculation
 - Learning Curves

Class 10 (7/5): 4 July Holiday

Class 11 (7/7): Project Measurement & Control I: Cost and Schedule

- Reading: Kerzner Chapters 15 and SEHB Sections 5.2 and 5.7
- Topics:
 - Cost loaded schedules
 - Earned Value Measurement

Class 12 (7/12): Trade-off Analysis, Decision Management, and Risk Management

- Reading: Kerzner Chapters 16-17 and SEHB Sections 5.3 and 5.4
- Topics:
 - Trade-off Analysis
 - Decision Management
 - Risk Management

- Use of TPM and EVM in Risk Management

Class 13 (7/14): Contract Management, Quality Management, and Modern Developments in PM

- Reading: Kerzner Chapters 19-21
- Topics:
 - Contract Management
 - Quality Management
 - Modern Developments in PM

Class 14 (7/19): Class Presentations

Class 15 (7/21): Final Exam (Classes 7 & 9-13)

Grading:

- Homework 25%
 - Each homework assignment and presentation will each be graded using a 100 point scale.
 - The homework grade will be an average of the score received on all homework.
- Class Project 25%
- Midterm Exam: 25%
- Final Exam: 25%
- The Class Project and both Exams will be graded on a 100 point scale.

A letter grade will be assigned according to the points accumulated by the student during the semester.

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| 97 - 100 : A+ | 87 - 89.x : B+ | 77 - 79.x : C+ | 60 - 69 : D |
| 93 - 96.x : A | 83 - 86.x : B | 73 - 76.x : C | 59 & Below : F |
| 90 - 92.x : A- | 80 - 82.x : B- | 70 - 72.x : C- | |

XF: Failure due to academic dishonesty

Course Policies:

- Please inform us of any accommodations needed relative to disabilities.
- Please review the syllabus and inform us of any conflicts due to a need to observe a religious event.
- Class attendance is highly recommended.
- On Due Dates:
 - The exams, homework assignments, presentation and SEMP are due on the dates specified in the course CDRL; **these dates are fixed and non-negotiable** (though changes in class-wide due dates are at the discretion of the instructor).
 - **Late submissions will be penalized 20% per day late (homework submitted after class starts is considered one day late).**
 - Business or leisure travel does not constitute exceptional circumstances. In the event of such travel, the student should take the necessary measures to submit deliverables electronically.
 - There will be **no makeup exams**, please check your calendar and report to the instructor any conflicts as soon as you become aware of them and arrangement will be made for you to take the exam earlier than scheduled.
- On Exams:
 - Both exams will be closed book, closed notes.
 - Bring a calculator to the exams!
 - No laptop computers or wireless devices are allowed during the exams.
 - No communications are allowed between students during the exams.
 - No exchanging of tools, papers, books, pens or any other material is allowed during the exams.
- The University of Maryland, College Park has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student you are responsible for upholding these standards for this course. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information on the Code of Academic Integrity or the Student Honor Council, please visit <http://www.studenthonorcouncil.umd.edu/whatis.html>.