Course Syllabus

(rev. 49 – updated 25 November 2022)

ENMG 668 (Project and Systems Engineering Management)

Spring 2023 Semester (1st Day of Class is 01-30-2023)

Course Description. This course will cover fundamental project control and systems engineering management concepts, including how to plan, set up cost accounts, bid, staff and execute a project from a project control perspective. It provides an understanding of the critical relations and interconnections between project management and systems engineering management. It is designed to address how systems engineering management supports traditional program management activities to break down complex programs into manageable and assignable tasks.

Class	Date	Topic	Blanchard Text	Eisner Text	Total Pages	PMI PMBOK (6th ed.)	INCOSE SEH (v4)
Unit 01	01-30-2023 [Monday]	**Overview of PM and SE** **Life Cycle Acquisition Process** Intro to Mighty Mouse	1.3, 1.5	1, 2.1, 2.4	18 48	1, 3	2
Unit 02	02-06-2023	**The Systems Engineering Process** Mighty Mouse LCAP	2		67		3, 7.13 4
Unit 03	02-13-2023	**Systems Design Requirements** **Functions and Architecture** **Quiz #01** Mighty Mouse FA, SA	3.1 – 3.3; 3.5	7	35 42	4.6, 5.2, 5.5, 5.6	4.2, 4.3 4
Unit 04	02-20-2023	Go over Quiz 01 **Project Planning** **SE Management (SEM) Planning** **Diamond Management Approach** Class Exercise – Hunter Test Bed Might Mouse CDRLs Table **<Quiz #02>**		3.1– 3.4, 3.6 6.2.2, 6.2.3, 6.2.5, 6.2.6	13 17	4.2, 5.1, 5.3, 5.4, 6.1, 7.1, 8.1, 9.1, 10.1, 11.1 12.1, 13.2	5.1
Unit 05	02-27-2023	Go over Quiz 02 **Project Scope Management** Mighty Mouse WBS **Quiz #03**	6.2.4		7	5.4	5.1
Unit 06	03-06-2023	Go over Quiz 03 **Project Scheduling** Begin Class Project **<Quiz #04>**	6.2.7	3.5, 4.1, 4.2	14 6	6	5.1
	03-13-2023	**Mid-Term Exam** Assigned (Covers units 01 thru 06 --take remotely before 03-20-2023) **Scheduling Workshop** Online session on how to build a Mighty Mouse schedule					
	03-20-2023	**Spring Break (3/19-till 3/26/2023]**					

Class	Date	Topic	Blanchard Text	Eisner Text	Total Pages	PMI PMBOK (6th ed.)	INCOSE SEH (v4)
Unit 07	03-27-2023	**Project Pricing and Estimating** **<Quiz #05>** **Begin Class Project** Class Project Workshop	6.2.8	3.7, 4.3, 4.4	4 28	7	5.2
Unit 08	04-03-2023	Go over Quiz 05 **Project Control & Status Reporting** **Quiz #06** How to baseline and track progress in your Mighty Mouse project schedule	6.2.9, 6.2.10 8		6 13	4.5	5.2
Unit 09	04-10-2023	Go over Quiz 06 **Design Review and Evaluation** Mighty Mouse PDR/CDR Entry Criteria	5, 6.1, 6.3	3.10, 13.3	41 11		3.3 5.1
Unit 10	04-17-2023	**Configuration Management (CM)** **Risk Management (RM)**	5.4 6.7	7.3.22 3.8 7.3.9	5 6 6	4.6, 5.5, 5.6, 11 8	5.5 5.4 5.8
Unit 11	04-24-2023	**Quality Management (QM)**		7.3.9	6	8	5.8
Unit 12	05-01-2023	**Supplier Management & Contracting**	6.4 - 6.6, 6.9		10		
Unit 13	05-08-2023	**Class Project Presentations** **Final Exam Assigned**	NA	NA	NA	NA	NA
	05-15-2023	**Final Exam Due:** Take remotely before Monday, 5-15-23 by 11:30 PM.	NA	NA	NA	NA	NA

The PMI PMBOK and INCOSE SEH columns are for reference only – not additional reading assignments.
ENMG 668-01 (1701). This hybrid course meets alternate Monday evenings from 4:30 till 7:00 PM ET in Room # 415 of the Fine Arts Building. An online session will be conducted on alternate Monday evenings when we are not in class. Last day of classes = Tuesday, 05/16/2023.

Specific Student Learning Outcomes (SLOs) include:

1. Comprehension. For students to demonstrate an understanding of the relationship between project management and systems engineering.
2. Synthesis. For students to compile component ideas of a plan into a new whole project plan for the execution of large, complex, projects and ensure all aspects of the project are addressed and adequately funded.
3. Analysis. For students to analyze and breakdown a project into a Work Breakdown Structure (WBS) of simpler parts, call Work Packages, and examine components of a complex project in terms of these manageable work units.
4. Application. For students to apply the knowledge gained from project planning to actual situations and create a project schedule that maps and relates to the program's WBS.
5. Evaluation. For students to make and defend project planning decisions based on the Integrated Master Schedule (IMS) and estimate the total cost of the project, and the cost of each work package, and stand up the project control function (i.e., distribute funds into cost accounts) to facilitate execution of large, complex, projects.

To accomplish these goals the course consists of reading assignments, in class and on-line class lectures, lecture briefing slides with content summarizing course concepts, an on-going illustrative class example project used to demonstrate course concepts, an assigned class project which includes hard copy deliverables as well as group presentations, course quizzes, a mid-term examination, and a final examination.

Textbooks:

Blanchard, B.S., Blyer, J.E., System Engineering Management, 5th Ed., John Wiley & Sons, Hoboken, NJ, ISBN 9781119047827, 2016.

Optional Textbook:

Eisner, H., Essentials of Project and Systems Engineering Management, 3rd Ed., John Wiley & Sons, Hoboken, NJ, ISBN 0-471-14846-6, 2008.

Optional References:

Drucker, P. (2008). *Management,* Revised Ed. New York, NY: HarperCollins Publishers.

Heagney, J. (2012). *Fundamentals of project management*, 4th ed. New York, NY; American Management Association.

International Council of Systems Engineering (INCOSE) (2015). *Systems Engineering Handbook: A Guide for System Life Cycle Processes and Activities*, 4th ed.. San Diego, CA: INCOSE Publications.

Kerzner, H. (2009). *Project management: A systems approach to planning, scheduling, and Controlling*, 10th ed. John Wiley & Sons; Hoboken, NJ.

Kersner, H. (2011). *Project management metrics, KPIs, and dashboards: A guide to measuring and monitoring project performance*. Hoboken, NJ; John Wiley & Sons.

Kossiakoff, A., Seymour, S., Flanigan, D., and Biemer, S. (2020). Systems Engineering Principles and Practice, 3rd, Ed. John Wiley & Sons: Hoboken, NJ. ISBN 9781119516668.

Project Management Institute (PMI) (2008). *Project Management Body of Knowledge (PMBOK) Guide*, 4th ed. PMI Publications, Newtown Square, PA.

Shenhar, A., and Dvir, D. (2007). *Reinventing project management: The diamond approach to successful growth and innovation*. Boston, MA; Harvard Business School Press.