Mechanical and Industrial Engineering Syllabi   NJIT Syllabi

Fall 2019

EM 637-851: Project Control

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EM637 Project Control Syllabus

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Classroom:	Fall 2019 - Moodle. Starting Spring 2020 – Canvas. (http://Moodle.njit.edu/) *
Office Hours:	If you need to communicate directly with me, first use the above email address. I check this every other night. If I can easily answer your question via email, I will. If a spoken conversation is more appropriate, I can make time by appointment only. Please propose a date and time and phone #, and I'll either call you or (if I have to) propose an alternate time.

* If you have problems using Moodle, http://moodle.njit.edu has a "need help" section. If you still need help after having looked at these, contact the Helpdesk at 973-596-2900.

COURSE OBJECTIVES

The purpose of this course is to give the student an understanding of Project Control, and to provide practical guidance and tools to enable the student to perform Project Control in the "real world". Project Control is an important component of Project Management, and the success of any project relies on the ability to control the project. Project Control focuses on project scope, schedule and budget, and how to determine when the project is "off-course" in these areas, and how to get back on track.

Learning material for this course was derived from:
- The course text book
- Project Management Institute knowledge
- Independent Subject Matter Expertise
- My practical experience working in project environments at Computer Sciences Corp., First USA Bank, PECO Energy - an Exelon Corp., Cendant Mortgage and Lockheed Martin.

It is assumed that the student as already taken EM 636 - Project Management (an EM637 prerequisite), and is familiar with the following topics. General Project Management theory
- Quality Control
- Organizational cultures and structures
- Motivational theory
- Communications theory

If the student has not taken EM636, or does not have practical experience
running a project team or being a member of a project team, or closely
observing either, then it is not recommended that this course be taken.

Some of the course material may refer back to material taught in Project
Management.

TOPIC AREAS

The course is divided into 4 learning areas, or modules, as described below.

Module 1 - Project Control Enablers

   Enablers are tools, or processes, or business models, which provide project
   control "anchors" - support mechanisms to encourage project control. The
   student will learn about the following enablers, and their value in helping
   to keep a project under control.

   • Project Methodology, and organization acceptance of this
   • Project organizational charts - Who's Who
   • Defined roles for the project team
   • Project Stakeholders identified and on-board
   • Approved Business Requirements and Scope statements
   • Project Charters
   • Project financial buy-in, with recognized cost-benefit analysis
   • Approved Vendor contracts, with change control systems established
   • Project Management Information Systems
   • Project Charters
   • Design Approvals
   • Historical Data

Module 2 – Project Plan Development

   The project plan provides a path to follow to a successful project
   completion. It also provides the measurement benchmark. Without a plan,
   there is no way to measure if the project is off-course. The student will
   learn about project plan components, and ways to develop usable project
   plans. Topic areas include:

   • Performance Requirements/Cost/Time/Scope (PCTS) trade-off analysis in
     planning
   • Project plan components
   • Who should develop the project plan
   • Work Breakdown Structures
   • Work Packages
   • Risk Analysis in planning
   • Cost Estimates

Module 3 - Schedule Development

   Project time control is about knowing when you need to be done with each
   component of the project. The project schedule is the means to measure
   success against time. The student will learn the steps and techniques

required to develop good working schedules. The scheduling tool of choice for the course will be Microsoft Project. Areas covered include:
- The schedule development process
- Network development techniques
- Fast Tracking, Schedule Crashing, & Resource Leveling

Module 4 – Project Control

Once a project has the right enablers in place, and a good project plan and schedule in place, and that project is "in flight", the real work of project control begins. The student will learn about tools, processes and techniques which provide for the timely detection of whether the project is on/off course, and how to get that project back on course. Topic areas include:
- Performance Requirements/Cost/Time/Scope (PCTS) trade-off analysis in project control
- Risk analysis in project control
- Earned Value Analysis and other financial tracking methods
- Change Approval Processes
- Work Authorization Systems

Assignments and Grading

Assignments will include (but not be limited to) the following:

- Reading assignments from the course book
- Study of course material provided as slides or documents posted to Moodle
- Responding to posted discussion questions on Moodle
- Practical application of techniques taught in the class, such as development of a project schedule, or development of other project control tools.

Your performance will be assessed as follows:
A Final Exam (no midterm) – 33%
Class Participation (via Moodle) – 33%
Completion of Assignments - 33%
Work submitted late will be assessed a grading penalty.

NOTE - this course is NOT a "casual - take at your own pace" Moodle course. There are weekly reading/writing assignments, and weekly class participation in Moodle "Discussion Forums" is mandatory. The Class Policy outlined below discusses due dates. Except for a few of the writing assignments, the Work in this course will take you about 3-4 hrs per week on average.

Course Materials

Project Planning, Scheduling, and Control - 5th Edition, James P. Lewis, ISBN – 978-0-07-174652-6, Publisher: McGraw Hill, Copyright: 2011

Additional Reference Material

This course uses Project Management Institute (PMI) material as reference material in many places. While not required for the class, it would be useful for the student to have access to the latest PMI "Guide

to the Project Management Body of Knowledge" as an additional information source. (See http://www.pmibookstore.org).

This course will also reference the course book from Project Management – EM636: "Project Management – A Systems Approach to Planning, Scheduling & Controlling", by Harold Kerzner (ISBN – 0-471-28835-7).

The student will have to create a project schedule as part of the course assignments. **The required tool for this will be Microsoft Project. The reason for this is that Microsoft project is the industry standard for developing project schedules. In order to gain real world value from this class, you must get hands on experience using this tool.** NJIT has Microsoft Project (for PC's only) available as a download for students. There are certain restrictions. You will need an active UCID, and an active password that works for the on campus computers (the PW that works for the Registrar On-Line and Highlander will NOT work). Go to the following link to get started: **ist.njit.edu/software-distribution**. You will need "Project professional 2016 for Office 365 Users". You will not need Microsoft Project until week 10 (Spring/Fall Semester), week 7 (Summer semester), but I strongly urge you to download the program early in the class and get it working. I will not allow late submissions of the schedule because you delayed getting the schedule.
SPECIAL NOTE FOR APPLE USERS -
Microsoft does not make a version of Project for the APPLE world. It is your responsibility to get access to a PC to complete this assignment. Options for this include: Use the schools PC computer labs; Borrow use of a PC from a friend/fellow student/work associate. I will not allow late submissions of the schedule because you delayed getting access to a PC.

The student will have to create a network chart as part of the course assignments. The required tool for this will be either Microsoft Visio or Excel. NJIT has both available as a download for students. There are certain restrictions. You will need an active UCID, and an active password that works for the on campus computers (the PW that works for the Registrar On-Line and Highlander will NOT work). Go to the following link to get started: **ist.njit.edu/software-distribution**. You will not need these until week 9 (Spring/Fall Semester), week 6 (Summer semester), but I strongly urge you to download the program early in the class and get it working. I will not allow late submissions of the schedule because you delayed getting the schedule.

Course Schedule and assignments – will be provided on Moodle by the first week of the course.