

Prefix, Number and Name of Course: PSM 601 Project Management for Math and Science Professionals

Credit Hours: 3

In Class Instructional Hours: 3

Labs: 0

Field Work: 0

Catalog Description:

Prerequisites: None

An examination of current practices in project management as applied to math and science projects. Hands-on experience with the skills, tools, and techniques required in different phases of a project's life cycle, including project selection, project planning, project staffing and organization, task scheduling, project scope management, budgeting and progress reporting, risk management, quality management, project communications, and use of appropriate project management software tools. Techniques for communicating and motivating teams throughout the project life cycle. Emphasis on team building and practicing project management techniques through the use of science-based cases.

Reasons for Addition:

To create a three-semester-hour class for the graduate Professional Applied and Computational Mathematics (PACM) program and for the sciences where students will learn business practices applicable to their area of study. Course is intended to be cross-registered with students outside of the PACM program.

Courses in project management are currently taught in the fields of computer science, engineering, and management. Our goal is to offer a similar set of project management tools and techniques for the math and science disciplines.

Student Learning Outcomes Students will:	Course Content References	Assessment
1. Assess and apply fundamentals of all parts of projects and project management, including what is unique to projects in the math and science disciplines.	I	1. Class/group discussion and participation, individual case assignments, team project, examinations
2. Summarize and synthesize the project actions and activities (within integration, scope, time, cost, quality, HR, communication, and risk) and apply the techniques in real-world math and science problems.	I; II; III; IV; V; VI; VII; VIII; IX, X	2. Class/group discussion and participation, individual case assignments, team project, examinations
3. Communicate, both orally and in writing, solutions to complex project management problems drawn from math and science.	I; II; III; IV; V; VI; VII; VIII; IX, X	3. Class/group discussion and participation, individual case assignments, team project
4. Demonstrate ability to manage and communicate with team members when solving problems, within and outside of the math and science disciplines.	I; II; III; IV; V; VI; VII; VIII; IX, X	4. Class/group discussion and participation, individual case assignments, team project, peer reviews

Course Content:

- I. Project Management Foundation
 - A. Introduction to Project Management
 - B. Organizational Structure
 - C. The Project Life Cycle
 - D. Project Process Groups

- II. Project Integration Management
 - A. Project Selection
 - B. Project Management Plans
 - C. Project Execution
 - D. Monitoring and Controlling
 - E. Change Management/Control
 - F. Project Closure
 - G. Project Management Information Systems (PMIS)

- III. Project Scope Management
 - A. Scope Definition
 - B. Project Initiation (portfolios, charters, scope, work breakdown structures)

- IV. Project Time Management
 - A. Project Scheduling
 - B. Activities and Resources

- V. Project Cost Management
 - A. Project Costs
 - B. Estimating and Tools/Techniques
 - C. Budgeting
 - D. Cost Control and Earned Value Management

- VI. Project Quality Management
 - A. Project Quality
 - B. Quality Planning
 - C. Quality Assurance
 - D. Quality Control
 - E. Tools and Techniques

- VII. Project Human Resource Management
 - A. Human Resource Management
 - B. Team Initiation
 - C. Team Development

- VIII. Project Communication Management
 - A. Communication
 - B. Communication Planning
 - C. Documentation and Distribution
 - D. Performance Reporting

Course Content (continued):

- IX. Project Risk Management
 - A. Risk Management
 - B. Risk Planning
 - C. Risk Identification
 - D. Risk Analysis
 - E. Risk Response Planning
 - F. Risk Monitoring and Controlling

Resources

Scholarships:

Adams, J.R., *Principles of Project Management*, Project Management Institute, 1997.

Chesky, J., Larson, W., McQuade, M. and Menrad, R., *Applied Project Management for Space Systems (Space Technology Series)*, McGraw-Hill, 2008.

Dinsmore, P.C. and Cooke-Davies, T.J., *The Right Projects Done Right!*, John Wiley & Sons, 2005.

Flannes, S.W. and Levin, G. *Essential People Skills for Project Managers*, Management Concepts, 2005.

Heerkens, G.R., *Project Management*, McGraw-Hill, 2002.

Kerzner, H., *Project Management: A Systems Approach to Planning, Scheduling, and Controlling*, 10th Ed., John Wiley & Sons, 2008.

Meredith, J. and Mantel, S., *Project Management: A Managerial Approach*, John Wiley & Sons, 2003.

Morrison, T., Conaway, W., and Borden, G, *Kiss, Bow, or Shake Hands: How to Do Business in Sixty Countries*, Adams Media, 2006.

Project Management Institute, *A Guide to Project Management Body of Knowledge (PMBOK Guide) – Fourth Ed.*, Project Management Institute, 2010.

Project Management Institute, *People in Projects*, Project Management Institute, 2001.

Verma, V., *Managing the Project Team: The Human Aspects of Project Management Vol 3*, Project Management Institute, 1997.

Wong, Z., *Human Factors in Project Management: Concepts, Tools, and Techniques for Inspiring Teamwork and Motivation*, John Wiley & Sons, 2007.

Periodicals:

Computers and Operations Research

Harvard Business Review

International Journal of Project Management

Journal of Product Innovation Management

Management Science

PMI Today <http://www.pmi.org>

Project Management Journal <http://www.pmi.org>

Electronic and/or Audiovisual Resources:

<http://www.pmi.org> The Project Management Institute