PM Course Specifications (PM-1 through PM-12)

NB: This material is contained in Guidelines for Undergraduate Curriculum and Resources, Volume 1, pp. 1-92 through I-109

We use an informal approach to specify courses as it is not our goal to be prescriptive about the structure and content of courses. Moreover, depending upon the college and industry, the course specification might take on a completely different look.

The PM course specifications follow a simple pattern. It consists of the label, title, description, learning objectives, and topics.

Each course maps to a few relevant KMs. Course topics are derived from such KMs; however, additional topics (not listed in KMs in the Appendix 1-A) are also listed in the course specifications. These additional topics were recommended by faculty to make a course cohesive. In the future, such topics will be embedded with the most appropriate KMs.

The learning goals for each course are listed as “objectives”. They are broader than learning outcomes. By associating a KM with a course, a detailed learning outcome can be derived from the KMs introduced in Appendix 1-A.

Finally, Volume II of the curriculum guidelines illustrates a comprehensive specification for the first course in project management along with some resources. We recommend that you consider the outlines presented in Volume II for PM-1 Foundations of Project Management course as it is a considerably more comprehensive specification.

PM-1 Foundations of Project Management

The objective of the course is to teach students how to approach project management and understand all the essential concepts from both a theoretical and applied perspective.

It draws topics extensively from the following three knowledge modules:

- Project Management Principles [T-PM]
- Project Phases and Processes [T-PP]
- Project Planning and Integration [T-PI]

The course also draws upon lecture topics from several personal and organizational modules such as the Ethics and Professionalism, Project Communications and Stakeholder Engagement, and Opportunity and Risk Management.
Objectives

The following represent high level learning objectives for the course. Detailed learning outcomes can be derived from the mapped KMs. Appendix I-A has the learning outcomes for all KMs.

1. Identify the elements of the PM life cycle, including plan, control, and organize and allocate resources.
Understand PM processes.
Comprehend and become familiar with the use of basic tools and techniques to plan, organize, and manage a project.
Optimize results while managing the triple constraints.
Manage stakeholder communications.
Demonstrate the principles and practice of team leadership.
Describe the career paths in the PM profession.

Topics

PM foundations: Define project, PM, and the role of the project manager
Program management and portfolio management
Project sponsorship, project office (PMO)
Project organizational structures
Understanding the PM context
Project life cycle: sample life cycles, including traditional versus agile
PM processes
Project initiation: creating a charter and identifying stakeholders
Project planning: creating a scope statement, building a WBS, identifying resources, building a project budget, and basic overview of scheduling networks
Creating a PM plan along with some key subsidiary plans
Project execution: directing and managing work
Project monitoring and controlling: problem solving and decision making, managing changes to scope and schedule, understanding team dynamics, and managing resources effectively
Project closing: gaining customer acceptance and documenting lessons learned
Global issues in PM
Introduction to the importance of people-oriented skills, such as communications management, HR, and leadership
Product-based planning: documents and deliverables that need to be produced at each stage in the process (i.e., the artifacts of project control)

Volume II of the curriculum guidelines illustrates a comprehensive specification for the PM-1 Foundations of Project Management course. It also illustrates how learning outcomes are identified and satisfied in a...
PM-2 Project Communications

This course provides students with comprehensive project-communications and stakeholder-engagement knowledge and skills. They will master theoretical and applied skills drawn extensively from the Plan, Distribute, and Manage Project Communications [B-DC] KM.

Topics associated with the following KMs are also drawn:

Identifying and Engaging Stakeholders [B-SE]
Project Organization and Context [B-OC]
Virtual Project Management [B-VP]

Objectives

The following represent high level learning objectives for the course. Detailed learning outcomes can be derived from the mapped KMs. Appendix I-A has the learning outcomes for all KMs.

1. Fundamentals of communications theory and practice
   Effectively analyze audience and construct appropriate communication for that audience.
   Use effective listening and two-way communications to express ideas.
   Plan and execute effective project communications such as face-to-face, virtual meetings, performance reporting, and briefing.
   Develop methods for conducting negotiations and resolving conflicts.
   Identify appropriate communication methods for different audiences.
   Develop written and verbal communication management plan.
   Effective communications within a project team

Topics

Communication: behavioral characteristics, and mechanics and styles
Communication models and processes
Identifying communication requirements
Building an effective project communication plan
Selecting suitable tools and techniques to communicate with identified stakeholders
Effective listening and open team communications
Two-way communication, reflective communication
Influential communication—communicating to persuade
Cross cultural awareness and sensitivity
Role of communication in transforming projects
Communication methods for stakeholders
Type of communication and information distribution
Relationship between project complexity and communication
Running briefings and meetings
Personal communication, managing meetings and presentations
Virtual project teams and communicating in a distributed environment
Competency and assessing personal strengths and weaknesses
Performance reporting and giving constructive feedback
Managing conflict through effective communication
Understanding stakeholder engagement, the types of stakeholders, and their roles, influence, and power
Organizational behavior and projects
Project organization: structure and teams
Organizational structure, organizational roles, and power relationships

Note it is our intention to develop a Volume III of the curriculum guidelines and resources next for PM-2 Project Communications. The pmiteach.org website will provide the details once it is available.

PM-3 Advanced Project Management

This course builds on the foundation of PM-1 by introducing coverage of advanced topics in project scheduling, risk and quality management, and cost control as well as providing comprehensive knowledge of scheduling and other PM tools. It also introduces the topic of delivering complex projects. It draws topics from the following KMs:

- Project Resource Management [T-PR]
- Project Scheduling [T-PS]
- Project Control [T-CP]
- Opportunity and Risk Management [T-OR]

This course can also draw lecture topics from the following KMs: PM Information Systems and Information Management [T-IS], Estimating Costs [T-EC], Plan and Control Quality [T-PQ], and Project Control [T-CP]. Depending upon the mission of the program it can also consider topics from: Procurement and Contract Management [T-PC], and Supply Chains in Projects [S-SC] KMs.

Objectives
The following represent high level learning objectives for the course. Detailed learning outcomes can be derived from the mapped KMs. Appendix I-A has the learning outcomes for all KMs.

1. Construct project selection matrix: Evaluate different approaches to selecting a project.
   Create a business-case cost-benefit analysis. Consider external issues such as environment.
   Estimate and analyze schedule, tools, and techniques.
   Managing project uncertainty, strategic risk appraisal
   Opportunities and threats—risk identification, quantification, response and control.
   Cost management: cost estimating, budgeting, and cost control
   Project progress and performance and managing changes to the project baseline
   Determining the impact and following procedures as defined in the change-control plan
   Communicating project issues, their impact, variance, changes, and proposed solutions to stakeholders
   Earned value management to monitor and control cost and schedule
   Quality management: plan, analyze, and control quality
   Role of projects in delivering strategic change, starting with need for performance improvement, identifying change, project objectives, and scope of the project
   Managing and executing the project plan, change control (includes configuration management)
   Successfully delivering complex projects

**Topics**

- Project-selection methods
- Creating a business-case cost-benefit analysis
- Advanced time, cost, risk, and quality estimating and planning
- Cost budgeting and cost control using EVM, estimate at completion
- Cost and schedule performance indices, schedule variance, cost variance, optimize for the second phase, corrective options and actions
- Schedule estimation and management, earned schedule
- Risk management: identifying and quantifying risks, creating a risk-response plan, monitoring and controlling risks; simulation tools to quantify risks (Monte Carlo, decision trees, expected monetary value)
- Quality management: plan and control quality; quality analysis tools (control charts, Ishikawa diagram, audits)
Dealing with unstructured project data and knowledge repository across the organization, data analytics, system dynamics, and incorporating learning theory
Resource planning: estimating, balancing
Resource tools and techniques: organizational breakdown structures, and responsibility assignment matrix
Change management
Delivering complex projects and programs

PM-4 Leadership in Teams

The use of teams has increased in organizations, but in project management they are an important component. The project leader has to forge a team and ensure that it functions as a cohesive unit to achieve goals and objectives under preset project constraints. The objective of this course is to prepare students for the professional work environment they will encounter upon graduation. It will prepare them for PM careers as productive project team members and eventually skilled project leaders and managers. This course draws extensively from the following KMs:

- Project Team Building and Motivating [B-TB]
- Project Leadership [B-PL]

Additionally this course may also draw topics from: Plan, Distribute, and Manage Project Communications [B-DC], Identifying and Engaging Stakeholders [B-SE], Virtual Project Management [B-VP], Project Organization and Context [B-OC], and Leaderships in projects.

Objectives

The following represent high level learning objectives for the course. Detailed learning outcomes can be derived from the mapped KMs. Appendix I-A has the learning outcomes for all KMs.

1. Understand the fundamental aspects of team structure, interpersonal dynamics, and role of the project manager.
   Time-management techniques and strategies for individuals and team activities.
   Apply emotional intelligence to project team operation.
   Review your personal team-management skills, and understand your strengths and weaknesses.
   Understand your emotional intelligence and utilize it to manage others.
   Learn facilitation techniques for effective conflict resolution.
   Demonstrate appropriate practices for motivating teams.
Acquire effective intercultural communication. Demonstrate communication competencies in multicultural, intergenerational, hierarchical, and virtual teams.

Topics

- Leadership competence in project management
- Leadership-development models
- Leadership styles and self-assessment
- Building the project team and team-building challenges in the PM context
- Team-building processes and building high performance teams
- Launching a team, including goal setting, process definition, and kickoff meetings
- Principles of motivation, motivational theories, and leadership styles
- Barriers to leading project teams successfully, such as trust, and skills deficiencies
- Managing the team dynamics
- Understanding decision making within teams
- Conflict management theory and practice
- Addressing performance issues and increasing project-team performance
- Understanding the role of the project manager in team formation, development, and closeout
- Managing stakeholder expectations, and engaging stakeholders
- Negotiation and leadership
- Unique challenges of cross-functional teams
- Leading in an intercultural environment; Gender issues in leadership; Emotional intelligence
- Team communication and socialization
- Managing changes due to project impact
- Best practices in project leadership—techniques to win over team members and stakeholders
- Role of the human resource function within the context of team selection, planning, development, managing, appraisals, incentives, release, and retention

PM-5 Organizational Behavior and Projects

This course details the relationships between the organizations that host projects and the projects themselves. Projects are a key vehicle for the execution of organizational strategy, and the effectiveness of that execution is determined to a large extent by the environment that the organization itself creates for those projects.

This course draws extensively from the following KMs:
Project Organization and Context [B-OC]
Strategic Project Management [S-SM]
Governance in Projects [S-GV]

Additionally this course may also draw topics from: Ethics and Professionalism [B-EP], Plan, Distribute, and Manage Project Communications [B-DC], Identifying and Engaging Stakeholders [B-SE], Virtual Project Management [B-VP], Project Leadership [B-PL].

Objectives

The following represent high level learning objectives for the course. Detailed learning outcomes can be derived from the mapped KMs. Appendix I-A has the learning outcomes for all KMs.

2. Highly identifiable and explicit aspect of strategy and structure as they pertain to projects
Key linkages between organizational and project-level issues including decision making, motivation, behavior, and ethics
Project structure and roles
Consider the subject from a strategic perspective, covering both the role of projects in the execution of organizational strategy and the application of strategic principles in projects.
Cover a wide range of project settings, from the traditional large-scale industrial projects through to small-scale personal projects, in both service and manufacturing settings.
Role of projects and PM as a core business activity for most organizations.
The use of structures to help explain what is going on at different points in the life cycle of a project (stage-gates).

Topics:
Organizational behavior and projects
Organizational structure and design within the project context
Managing strategic and organizational changes
Project organization: structure and teams
Organizational structure, organizational roles, and power relationships
Organizational behavior and decision making
Organizational risk tolerance
Project organization: structure and teams: organizational structure, roles, power, relationships, strategic PM
Organizational behavior: decision making, management roles, organizational risk tolerance, balancing radical and incremental innovation, and motivational techniques to improve performance
Understanding business strategy and its relation to projects
Mission, goals, objectives, and processes to bring an organization’s intended strategy to reality
Strategic portfolio and program management
Strategic evaluation and selection of projects to create a well-balanced portfolio
Critical success factor, financial evaluation criteria, and measuring project success
Types of governance structures for projects within an organization
Understanding governance and decision making within the context of opportunity and risk management, resource allocation, and project schedules.
Professionalism and ethics:
  Understand global codes of ethics and conduct.
  Be aware of ethical issues.
  Recognize cultural influence on ethics.
  Analyze and remediate ethical situations.
Sustainability: the new professional responsibility
Learning from experience: knowledge as a resource in projects (managing knowledge—its generation and use), acquiring knowledge ahead of time, creating knowledge as you go (organizationally and at the project level)
Organizational changes and managing the impact of change due to projects.
  Tracking and administering project changes in a sustainable manner.
Competing with integrity in global projects

PM-6 Project Governance

This course provides an integrated introduction to enterprise project and program management and project governance. It also focuses on change management. Students learn the fundamental aspects of modern project management, both managerial and technical from the lens of governance. The key topics associated with this course are: organizational governance of projects, governance in projects, governance of the project, and change management:

  This course draws extensively from the following KMs:
  Governance in Projects [S-GV]
  Project Scope Management [T-SM]
  Ethics and Professionalism [B-EP]
  Project Handover, Closeout, Reviews [T-HC]
  Additionally this course may also draw topics from: Identifying and Engaging Stakeholders [B-SE], Virtual Project Management [B-VP], and Project Leadership [B-PL].

Objectives
The following represent high level learning objectives for the course. Detailed learning outcomes can be derived from the mapped KMs. Appendix I-A has the learning outcomes for all KMs.

3. Facing uncertainty: project governance and control
   Project governance paradigms
   Project governance models
   Organizational governance of projects
   Monitoring and controlling projects
   Applying scope-management and change-control principles to a project
   Management of monitoring and controlling of risk, scheduling, resources, and quality
   Governance of the project, starting and stopping projects, and project closeout
   Measure project sponsor or customer satisfaction—validation of results with sponsors

Topics:
   Project-governance framework for sound decision making and managerial action
   Creating a transparent and accountable organization with well-defined roles that is based on transparency and accountability
   Governance of project and program-based organization—structure, methods, procedures, and people
   Understanding project governance, processes, and structures (e.g., sponsors, steering groups, organizational structure, large projects; portfolio management, sponsors and steering groups, PMOs and program management)
   Elements of good project governance and role of top management in project sponsorship and championing projects
   Ensuring effective communication; ensuring sound project decision making
   Project structure and organizational roles in projects; making sure that there is single point of accountability
   Professionalism and ethics
   Providing training, supporting audits and reviews
   Enterprise-wide projects and management of megaprojects.
   Risk-opportunity management, and synergy
   Awareness of legal issues
   Formalization (single-project versus multi-project level)
   Strategy—translating organizational strategy into portfolios; governance strategy for large complex projects
   Resource allocation and decision making
Understanding the multiple environments in which projects function (e.g., internal versus external)
Understanding the roles and responsibilities
Ability to match decision-making approach to the situation (e.g., consultative, authoritative)
Ability to match governance processes to the appropriate project-specific situation (e.g., management review boards, PMO, single decision maker, change management boards)
Approaches to management of closeout processes, including termination, documentation, contracts, resources, and lessons learned
Measure project sponsor or customer satisfaction by validating results

**PM-7 Project Procurement and Supply Chains**

In most organizations projects are now delivered through complex supply chains and networks. They have several suppliers, contractors, and customers. There is a substantial amount of project procurement involving these entities and a substantial amount of detailed planning and scheduling occurs. This course begins with an exploration of core principles of project procurement and expands to a consideration of how modern organizations expand their influence beyond simple contractual relationships by considering supply chains.

This course draws extensively from the following KMs:

Supply Chain in Projects [S-SC]  
Procurement and Contract Management [T-PC]  
Project Handover, Closeout, and Reviews [T-HC]

Additionally this course may also draw topics from: Business and Commercial Aspects of Projects [S-BC], Ethics and Professionalism [B-EP], Virtual Project Management [B-VP], and Portfolio and Program Management Principles [S-PP].

**Objectives**

The following represent high level learning objectives for the course. Detailed learning outcomes can be derived from the mapped KMs. Appendix I-A has the learning outcomes for all KMs.

Foundational knowledge of procurement  
Understanding the role of supply chains in PM  
Developing a procurement strategy  
Project planning and delivery chain  
Life cycle and processes and supply chain integration  
Legal issues as they pertain to project procurement  
Plan, execute, and control supply-chain projects.
Project and contract closeouts (includes project review)
Focus on suppliers beyond the scope of the immediate contract.

Topics:
The processes for planning procurements
Foundational knowledge of supply chains and developing a strategy
Project planning and delivery-chain management
Identifying project procurement needs, including make-or-buy analysis
Identifying potential deliverables for contracting and their delivery milestones
Determining a vendor and the bidding process
Negotiating and ensuring due diligence and an equitable process when contracting
Determining contract types, risks, and incentives
Awarding the contract
Monitoring and managing the vendor
Supply chain management processes and life cycle
Managing vendor performance and relationships, amending contracts and managing change, the dispute process
Closing contracts: auditing, settling contracts, early termination
Project management issues pertaining to supply chains
Risk management—especially when the supplier is far removed from the chain
Supply-chain integration: quality and performance management
Trust and legal aspects: contracts claims, litigation, intellectual property
International aspects and managing global projects
Management of ethical issues in global projects
Implementing collaborative relationships

PM-8 Project Stakeholder Engagement

This course focuses on the understanding and the application of the stakeholder interface with special emphasis on leadership to ensure customer satisfaction, and sustainability. This course can draw from the following KMs:

Identifying and Engaging Stakeholders [B-SE]
Managing Global Projects [B-GP]
Project Leadership [B-PL]

Additionally this course may also draw topics from: Plan, Distribute, and Manage Project Communications [B-DC], Virtual Project Management [B-VP], Project Organization and Context [B-OC]

Objectives
The following represent high level learning objectives for the course. Detailed learning outcomes can be derived from the mapped KMs. Appendix I-A has the learning outcomes for all KMs.

4. Defining customer success factors
   Understanding proper stakeholder engagement
   Understanding and identifying stakeholders and categorizing them
   Defining strategy with stakeholders to meet customer expectations
   Ability to gather customer requirements

Topics:
   Understanding stakeholder engagement, the types of stakeholders, and their roles, influence, and power
   Developing a stakeholder-engagement plan
   Gathering information about stakeholders
   Identifying, categorizing, and prioritizing stakeholders
   Assessing stakeholders’ strengths and weaknesses
   Measuring stakeholder attitude and monitoring the relationship
   Managing stakeholder expectations for key project deliverables
   Strategic leadership and best practices in the stakeholder management
   Concepts of customer consultation, customer renewal, and sustainability
   Stakeholder orientation in agile projects

PM-9 Special Topics in Project Management

This course focuses on emerging trends and reviews unique methodologies and approaches to project management. This course also provides an opportunity to teach and develop PM simulation and modeling tools. Students are exposed to advanced research methods and contribute to original research in the emerging PM areas.

This course draws extensively from the strategic awareness KMs but there is ample opportunity to identify topics from all the KMs.

Objectives

The following represent high level objectives for the course. Detailed learning outcomes can be derived from the selected KMs. Appendix I-A has the learning outcomes for all KMs that can be considered in identifying learning outcomes.

5. Introduce emerging trends.
   Cover PM in practice trends, globally.
   Review other unique methodologies and approaches to PM.
   Learn some key topics in-depth.
   Get exposed to other learn-by-doing tools and techniques.
   Conduct simulation and modeling to learn from mistakes.
Learn useful PMIS and information management software including simulation software.

Topics:
The following is a brief list of suggested topics that can be leveraged to identify a topics course. The pmiteach.org site will describe current special topics.

- Agile PM
- Sustainability and green PM
- Scrum, LEAN, Capability Maturity Model Integration (CMMI), and Six Sigma
- 24/7 business cycle and PM
- Outsourcing, offshoring, and in-shoring
- Trends in information-technology tools: collaborative and social media tools
- Crisis-management leadership and stakeholder engagement
- Project management software
- Ethics and professionalism: ethical decision making
- Dealing with various interfaces and stakeholders
- Universal application of ethics (internal versus external)
- Global projects and leading virtual project teams
- Decision making within distributed teams
- Mastering the leadership role in project management
- Business analysis
- Change management
- Requirements management
- Advanced cost estimating
- Risk analysis and management of healthcare projects
- Simulation, modeling, and testing
- Project management and entrepreneurship
- Project management and organizational change
- Strategic-oriented implementation of projects
- Transitioning from project management to program management
- IT project management for mobile application development
- Distributed software development

Other Courses
For the remaining courses, PM-10 to PM-12 we only provide learning a course label, description, and learning objective. We not provide a list of topics and customization would depend upon the organization.
PM-10 Integrative Study

This is an example of a capstone course that provides an opportunity to demonstrate that students have fully mastered the principles of project management. The course integrates learning from the courses in the PM major with other academic courses taken, and may involve interdisciplinary partnerships among university departments and/or industry. Experiential learning, that is, reflection, is a key focus and occurs throughout this course. Substantial learning can take place here, especially if implementation of a real-world project will strengthen chances for entry-level employment at an organization that values PM.

Objectives

The following represent high level objectives for the course. Specific learning outcomes can be identified by consulting the KMs in Appendix I-A. However, due to the nature of the course, a customized learning outcome might need to be designed.

1. Integrate skills and knowledge across curriculum.
2. Demonstrate proficiency in PM skills.
3. Assess the capability and performance as a team member.
4. Demonstrate ethical and communication skills.
5. Provide an opportunity to start gaining some work experience.

PM-11 Global Project Management

This course provides an opportunity to acquire and integrate skills and knowledge as they pertain to international projects. Global projects demand a broad range of research, analysis, and skills in the financial planning and budgeting area. A key PM issue introduced throughout the course is managing complexity in projects, and how one can go about applying mindfulness and analysis for optimal results. Other issues introduced in this course include distributed project management, outsourcing, virtual project management, governance issues, language and cultural diversity, and management of risks. Students have an opportunity to master the topics of managing conflict in projects, change management, and portfolio and program management. This course also provides students with an opportunity to enrich leadership skills as they pertain to decision making within distributed teams, as well as change-control in large, distributed projects.

Objectives

The following represent high level learning objectives for the course. Detailed learning outcomes can be derived from the mapped KMs. Appendix I-A has the learning outcomes for all KMs.

6. Managing global projects and virtual project management
7. Tackling project complexity
PM-12 Agile Project Management

Agility refers to the ability of an organization to rapidly react to unpredictable scenarios, and within the context of product development, responding to unclear requirements. There are several industry domains where agility is being practiced, such as manufacturing, engineering, software development, and supply chain management. This course provides students with a comprehensive overview of the principles, processes, and practices of agile project management. Students learn techniques for initiating, planning, and executing projects using agile methodologies. Knowledge of agile development frameworks and agile tools and techniques are introduced.

Objectives

The following represent high level learning objectives for the course. Detailed learning outcomes can be derived from the mapped KMs. Appendix I-A has the learning outcomes for all KMs.

Objectives

8. Multidisciplinary review of agile literature
Agile project management principles
Comparison of agile and traditional PM models
New roles and responsibilities in agile projects
Best practices and techniques to introduce agile PM