

PMI Scheduling Professional (PMI-SP)[®]

EXAMINATION CONTENT OUTLINE

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(PMI-SP)[®]
Exam Content Outline**

Published by: Project Management Institute, Inc.
14 Campus Boulevard
Newtown Square, Pennsylvania 19073-3299 USA.
Phone: +610-356-4600
Fax: +610-356-4647
E-mail: customercare@pmi.org
Internet: www.PMI.org

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INTRODUCTION

The Project Management Institute (PMI)® offers a professional credential for project schedulers, known as the PMI Scheduling Professional (PMI-SP)®. PMI's professional credentialing examination development processes stand apart from other project management certification examination development practices. PMI aligns its process with certification industry best practices, such as those found in the *Standards for Educational and Psychological Testing*.

A key component of this process is that organizations wishing to offer valid and reliable professional credentialing examinations are directed to use a Role Delineation Study (RDS) as the basis for the creation of the examination. This process uses knowledge and task-driven guidelines to assess practitioner competence, and determine the level of salience, criticality, and frequency of each of the knowledge, tasks, and skills required to perform to the industry-wide standard in the role of a project scheduler.

The Role Delineation Study ensures the validity of an examination. Validation assures the outcome of the exam is in fact measuring and evaluating appropriately the specific knowledge and skills required to function as a project scheduler. Thus, the role delineation study guarantees that each examination validly measures all elements of the project scheduling profession in terms of real settings.

PMI-SP® credential holders can be confident that their professional credential has been developed according to best practices of test development and based upon input from the practitioners who establish those standards. Please see Appendix A for a detailed description of the process.

The PMI-SP examination is a vital part of the activities leading to earning a professional credential; thus, it is imperative that the PMI-SP examination reflect accurately the practices of the project scheduler. All the questions on the examination have been written and extensively reviewed by qualified PMI-SP credential holders and are supported by current project scheduling published references. These questions are mapped against the *PMI-SP Examination Content Outline* to ensure that an appropriate number of questions are in place for a valid examination.

PMI retained Professional Examination Service (PES) to develop the global *PMI-SP Examination Content Outline*. Since 1941, PES has provided a full range of assessment and advisory services to organizations across a broad range of professions, in support of professional licensure and certification, training, and continuing professional education. PES is dedicated to promoting the public welfare through credentialing as a mission-driven, not-for-profit organization.

Finally, while the *PMI-SP Examination Content Outline*, the *Practice Standard for Scheduling* and *PMBOK® Guide* have commonalities, it is important to note that those involved in the study described previously were not bound by the *Practice Standard for Scheduling* and/or *PMBOK® Guide*. They were charged with defining the role of individuals developing and maintaining project schedules and using their experience and pertinent resources to help in this task.

Although many of the domains, tasks, knowledge, and skills outlined by the *PMI-SP Examination Content Outline* are also covered by the *Practice Standard for Scheduling* and *PMBOK® Guide*, there are some that are unique to the *PMI-SP Examination Content Outline*. Candidates studying for the examination will certainly want to include the current edition of the *Practice Standard for Scheduling* and *PMBOK® Guide* as two of their references, and would be well advised to read other current titles on project scheduling.

PMI-SP Exam Content Outline

The following table identifies the proportion of questions from each domain that will appear on the examination. These percentages are used to determine the number of questions related to each domain and task that should appear on the multiple-choice format examination.

| Domain | Percentage of Items on Test |
|--|------------------------------------|
| Schedule Strategy | 14% |
| Schedule Planning and Development | 31% |
| Schedule Monitoring and Controlling | 35% |
| Schedule Closeout | 6% |
| Stakeholder Communications Management | 14% |
| Total | 100% |

DOMAINS AND TASKS

Domain 1: Schedule Strategy (14% of examination)

Activities related to establishing and documenting schedule approach, policies and procedures, roles and responsibilities, and scheduling objectives and goals.

| Tasks | Schedule Strategy (14% of examination) |
|--------|--|
| Task 1 | Establish project schedule configuration management policies and procedures incorporating best practices, regulations, governing standards and organization policies, and procedures to ensure accessibility, storage, retrieval, maintenance, change control, and baseline schedule control. |
| Task 2 | Develop schedule approach, based on the unique characteristics of the project, including enterprise environmental factors and organizational process assets, in order to define schedule requirements. |
| Task 3 | Establish scheduling policies and procedures regarding methodology, selection of a scheduling tool, scheduling parameters, performance thresholds, activity granularity, presentation format, earned value management (EVM) implementation, analysis techniques, and approval requirements by using resources such as organizational process assets and project documents in order to develop the schedule management plan and standardize operational procedures. |
| Task 4 | Develop the scheduling-related components for project management plans (for example, integration, scope, cost, quality, resources, communication, risk, and procurement management), through review of contract requirements, in order to integrate scheduling activities into the overall project management process. |
| Task 5 | Provide information about project scheduling objectives and goals, the role of the scheduler, and scheduling procedures to project team members to facilitate effective participation in the project. |
| | Knowledge and Skills: <ul style="list-style-type: none">• Applicable contract requirements, regulations, and governing standards• Schedule control processes (for example, baseline control, status update procedure, variance thresholds)• Scheduling development concepts (for examples, coding, work breakdown structures, organizational breakdown structure, resource breakdown structures)• Project charter |

Domain 2: Schedule Planning and Development (31% of examination)

Activities related to defining and sequencing activities and milestones, developing the work and resource breakdown structures, and establishing the performance measurement baseline (PMB).

| Tasks | Schedule Planning and Development (31% of examination) |
|--------|---|
| Task 1 | Develop the work breakdown structure (WBS), organizational breakdown structure (OBS), control accounts (CA), and work packages through communication with subject matter experts and stakeholders and analysis of the contractual commitments in order to ensure completion of the project scope. |
| Task 2 | Define activities and milestones through communication with subject matter experts, decomposition, and application of scheduling policies and procedures to identify and document the work to be performed. |
| Task 3 | Estimate activity durations, utilizing subject matter experts and scheduling techniques such as three-point estimate, parametric, analogous and/or Program Evaluation and Review Technique (PERT) in order to develop an overall schedule model. |
| Task 4 | Sequence activities, incorporating defined dependencies (internal, external, and cross programs) milestones, and constraints (for example, calendars, geography, contracts), in order to develop a logical, dynamic schedule model. |
| Task 5 | Identify critical and near-critical path(s) using techniques such as Critical Path Method, Critical Chain, Program Evaluation and Review Technique (PERT), and Monte Carlo simulation in order to meet project delivery date requirements. |
| Task 6 | Develop the project resource breakdown structure (RBS), determine resource availability, and assign resources to activities by working with functional managers, project managers, and project team members in order to define the resource constrained schedule. |
| Task 7 | Adjust schedule model based upon resource availability, available budget, and other known constraints in order to calculate the resource constrained schedule. |
| Task 8 | Align schedule with the overall program plan or integrated master plan (IMP), through review of enterprise objectives and contract documentation, in order to ensure accomplishment of overall program objectives. |
| Task 9 | Analyze major milestones against statement of work (SOW), the contract, and/or memorandum of understanding, to assess whether schedule model delivery estimates meet required deadlines. |

| | |
|----------------|---|
| Task 10 | Perform schedule risk analysis using quantitative tools or techniques (for example, what-if scenarios, Monte Carlo simulation) in order to determine if project milestone dates are achievable within acceptable risk tolerances. |
| Task 11 | Obtain a consensus of the project customer, sponsor, project manager, and project team members, in order to establish an approved baseline schedule. |
| Task 12 | Establish the Performance Measurement Baseline (PMB), using organizational processes and standard techniques, in order to enable performance measurement and management. |
| | <p>Knowledge and Skills:</p> <ul style="list-style-type: none"> • Scope statements, including deliverables and deadlines • Work breakdown structure (WBS) • Organizational breakdown structure (OBS) • Resource breakdown structure (RBS) • Cost structure as related to schedule development • Activity definition • Activity execution techniques (duration/time, effort/work) • Dependency relationship types (Finish to Start, Start to Finish, Finish to Finish, Start to Start) • Leads and lags • Prioritization within the schedule model • Resource groups • Resource calendars • Resource allocation techniques • Activity Network Diagram (AND) • Precedence Diagramming Method (PDM) • Capacity requirements/resource requirements • Contingency reserve or buffer (funds, budget, or time) • Cost and schedule integration • Schedule baselining • Performance Measurement Baseline (PMB) • Inter-project Dependencies • Milestone definition • Schedule model components • Schedule risk-assessment techniques (for example, Monte Carlo simulation, PERT) |

Domain 3: Schedule Monitoring and Controlling (35% of examination)

Activities related to monitoring the project schedule progress, performing schedule analyses, and managing change appropriately.

| Tasks | Schedule Monitoring and Controlling (35% of examination) |
|--------|--|
| Task 1 | Collect activity status at defined intervals from activity owners via reports, meetings, inspections, or other standard procedures in order to update and review the project progress. |
| Task 2 | Collect resource information and updates via reports, timesheets, meetings, inspections, or other standard procedures in order to report on resource utilization and availability. |
| Task 3 | Perform schedule analysis and audit, on in-house and subcontractor schedules, using industry standards, guidelines and best practices in order to identify and report project schedule, status, changes, impacts or issues. |
| Task 4 | Identify alternative project execution options, using tools and techniques such as what-if scenario analyses, in order to optimize the schedule. |
| Task 5 | Incorporate approved risk mitigation activities into the schedule, by utilizing defined change control processes, in order to establish a new performance measurement baseline (PMB). |
| Task 6 | Update the schedule model and document schedule baseline changes, received through formal change-control processes, in order to maintain an accurate schedule and facilitate forensic schedule analysis, if required. |
| | Knowledge and Skills: <ul style="list-style-type: none">• Progress measurement techniques (for example, percent complete, actual/remaining duration, estimate to complete)• Industry standards, guidelines, and best practices with respect to activity status update frequency, format, and content• Metrics to monitor, analyze, and control the schedule• Cost and schedule reserve analysis• Activity prioritization• Available data, logical data organization/relationships within data elements• Electronic file storage and retrieval standards• Resource breakdown structure (RBS)• Resource calendars• Resource groups |

| | |
|--|---|
| | <ul style="list-style-type: none"> • Resource allocation techniques • Schedule risk analysis • Project schedule change control • Reserve analysis • Knowledge of ongoing audit analysis • Activity Network Diagram (AND) • Precedence Diagramming Method (PDM) • Schedule risk assessment techniques (for example, Monte Carlo simulation, Program and Evaluation Review Technique [PERT]) <p>Schedule and cost variance management</p> |
|--|---|

Domain 4: Schedule Closeout (6% of examination)

Activities related to finalizing all schedule activities, evaluating schedule performance against the original baseline, documenting lessons learned, and distributing final schedule information.

| Tasks | Schedule Closeout (6% of examination) |
|--------|---|
| Task 1 | Obtain final acceptance of the contractual schedule components, by working with sponsor and/or customer, in order to facilitate project closeout. |
| Task 2 | Evaluate final schedule performance against baseline schedule, scheduling approach and the implementation, using standard scheduling tools and techniques, including solicitation of feedback from stakeholders, in order to identify lessons learned and develop best practices. |
| Task 3 | Update the organizational process assets, through documentation of identified lessons learned and best practices, in order to improve business processes. |
| Task 4 | Distribute final schedule reports, including earned value management (EVM) calculations and variance analysis, to stakeholders in order to facilitate project closeout. |
| Task 5 | Archive schedule files (for example, final schedule model, schedule management plan, periodic status reports, schedule change log), as per defined procedures in order to satisfy contractual requirements and prepare for potential forensic schedule analysis. |
| | Knowledge and Skills: <ul style="list-style-type: none">• Contractual schedule components• Schedule close-out procedures• Feedback techniques• Schedule review techniques• Schedule issue management• Transition planning |

Domain 5: Stakeholder Communications Management (14% of examination)

Activities related to developing and fostering relationships with stakeholders, and supporting project schedule-related communication over the course of the project.

| Tasks | |
|--------|---|
| Task 1 | Develop and foster relationships with project stakeholders, consistent with the communication management plan, in order to enhance support for the project schedule. |
| Task 2 | Generate and maintain visibility of project schedule, by working with the project manager and/or stakeholders, in order to maintain stakeholder support. |
| Task 3 | Provide senior management and other stakeholders with verbal and written schedule status updates and impact on schedule of corrective actions, as defined by the communication management plan, in order to maintain stakeholder awareness. |
| Task 4 | Communicate schedule issues that could impact delivery of project scope or adherence to the schedule management plan, in order to elevate awareness to relevant stakeholders. |
| | Knowledge and Skills: <ul style="list-style-type: none">• Targeting communications to senior management• Methods and techniques used to maintain visibility of project schedule Elements of the communication management plan |

CROSS-CUTTING KNOWLEDGE AND SKILLS

| All Domains | Cross-Cutting Knowledge and Skills |
|-------------|--|
| | <ul style="list-style-type: none"> • Oral and written communication tools and techniques • Targeting communications to intended audience • Presentation tools and techniques • Negotiation • Facilitation • Cultural sensitivity and diversity • Conflict resolution • Project life cycle • Stakeholder-impact analysis • Change management/control • Scheduling terminology • Organizational process assets • Project management software • Project management information systems • Schedule documentation and reporting techniques • Scheduling data management procedures (for example, archiving, storage, retrieval) • Estimation techniques (for example, analogy based estimation, parametric estimation, historical data, expert estimation) • Scheduling methods (for example, critical path method, critical chain, linear, agile) • Scheduling techniques (for example, resource leveling, schedule compression, simulation) • Earned Value Management (EVM) • Gantt Charts • Quantitative and qualitative schedule analysis (for example, schedule performance index, baseline execution index, float analysis) • Problem-solving tools and techniques • Contract schedule requirements |

APPENDIX A: ROLE DELINEATION STUDY (RDS) PROCESS

Defining the Responsibilities

The first step in developing a certification examination is to define the responsibilities of the recipients of the credential. It must be known what the individuals who develop and maintain project schedules actually do on the job *before* a content-valid test can be developed. A valid examination draws questions from every important area of the profession and specifies that performance areas (domains) considered more important, critical, and relevant be represented by more questions on the examination. Defining the roles of individuals developing and maintaining the project schedules occurs in two major phases: one in which individuals currently in the role defines the responsibilities and another in which the identified responsibilities are validated on a global scale.

Beginning in 2011, PMI commissioned a global, Role Delineation Study (RDS) for the PMI-SP® credential. The RDS process was led by a steering committee, representing PMI's Certification Governance structure. A project task force comprised of project schedulers was responsible for the conduct of work on the project, with oversight from the steering committee. The task force represented diversity of geography, industry, job position, and experience. Several other groups contributed to the formation and shaping of the RDS process, including representatives from organizations that use project schedulers for success, academic representatives, and Registered Education Providers (R.E.P.s). Project schedulers were also responsible for the independent reviews of the work of the task force and piloting the information before surveying a larger sample of project schedulers.

Study participants, working under the direction of Professional Education Service (PES), reached consensus on the performance domains, a broad category of duties and responsibilities that define the role, as well as the tasks required for competence performance and the knowledge and skills needed to perform those tasks.

Validating the Responsibilities Identified by the Panelists

In order to ensure the validity of the study and content outline developed by the panels, a survey requesting feedback on the panel's work was sent to project scheduling practitioners throughout the world. Surveys were distributed globally to over 800 project schedulers around the world. PMI received a robust set of responses to the survey, with participants from 83 countries and representing every major industry. This provided PMI with the statistical significance from which to draw conclusions about the criticality for competent performance and frequency of the tasks. Practitioners also rated the knowledge and skills on how essential they were to their work as project managers and when they were acquired.

Developing a Plan for the Test

Based on respondent ratings, an examination blueprint, clarifying exactly how many questions from each domain and task should be on the examination, was developed. Those domains and tasks that were rated as most important, critical, and relevant by survey respondents would have the most questions devoted to them on the examination.

Results of the study indicated that the 150 scorable questions on the test should be distributed among the domains as shown in the following table. The remaining 20 questions will be dispersed throughout the domains as pretest questions and will not count in the candidates' scores. The pretest items allow PMI to monitor the question performance better, prior to including the questions in the final databank of test questions.

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