Managing the Implementation of Development Projects

A Resource Kit on CD-ROM
For Instructors and Practitioners

Course Syllabus and CD-ROM

"This resource kit represents a milestone in the discipline of development project implementation. It contains practical learning materials based on decades of use and refinement in on-site courses in numerous developing countries throughout the world. I recommend this resource kit without reservation to teachers, consultants, practitioners, contractors, vendors, and learners from all cultures who want to improve the management of international development projects."


This twelve-module CD-ROM resource kit contains some 2,000 pages of carefully designed learning materials for classroom instruction.

Each module includes:
- Performance-based objectives that are specific, measurable, and observable
- On-the-job project management tasks that the module addresses
- A schedule of activities
- Module and lesson outlines
- Scripted lectures, including corresponding visuals
- Case studies, exercises, and solution sets
- Teaching notes for the instructor for each exercise and case study
- Self-assessment questions and solutions
- Selected readings

System Requirements and Installing the Resource Kit

Hardware
- IBM compatible PC
- Intel Pentium II 300 MHz or higher processor, or equivalent
- 64 MB of RAM minimum
- Screen resolution 800 x 600 pixels minimum
- Pointing device (mouse)

Software
- Adobe Acrobat Reader is required to display and print the basic documents. Microsoft PowerPoint is required to download and edit the visuals in .ppt format. Microsoft Word is required to edit the Syllabus in .doc format.
- Operating System: WINDOWS 98 SETUP 2nd edition or higher
- Adobe Acrobat versions 4 or higher
- Microsoft Office 1997 (2nd edition) or more recent

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MANAGING THE IMPLEMENTATION OF DEVELOPMENT PROJECTS

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Course Syllabus
and CD-ROM

The World Bank
Washington, D.C.
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**FOREWORD**

The World Bank views project management as the analysis and implementation that takes place during the entire project life cycle, from the initial stages of project identification and appraisal through project monitoring and evaluation. Without effective management, projects and programs are unlikely to meet their time, cost, quality, and development objectives. Project success is directly linked to the effectiveness of planning, monitoring, and control at each stage of the life cycle, requiring a broad range of functional skills including communication, planning, financial management, procurement, risk and schedule management, monitoring, evaluation, and quality and human resources management, among others.

Because the skills and disciplines required to design and manage complex projects require multifunctional teams of analysts, and because projects themselves are so diverse (educational curriculum development, resettlement of displaced populations, irrigation, highway construction, and so forth), a set of learning materials covering all the skills applied at the different stages of the project life cycle and tailored to the specificities of the various sectors, countries, and types of projects, would be beyond the scope of any single curriculum.

The materials described in this syllabus and contained on CD-ROM focus on project management during the implementation phase, although many of the basic tools and techniques are applicable to all stages of the project life cycle. They are the result of learning activities delivered over many years at the World Bank Institute (formerly the Economic Development Institute) and have been compiled as a resource kit for instructors, practitioners, and students in developing countries. The modules are designed primarily for training of project managers in government ministries and corporations in developing countries who are responsible for overseeing the implementation of development projects such as those funded by government, by the World Bank, and by other multilateral or bilateral development agencies.

Frannie A. Léautier  
Vice President  
The World Bank Institute
ACKNOWLEDGMENTS

The learning materials described in this syllabus and contained on the CD-ROM are based on content developed for courses and seminars offered for many years by the World Bank Institute (WBI), formerly the Economic Development Institute of the World Bank. A team made up of content experts, instructional designers, and communications and technology specialists was responsible for developing this 12-module learning program.

The core team included the following: Robert Youker (World Bank, retired) was the principal technical consultant for content development. Mr. Youker directed WBI’s worldwide project management program from 1976 through 1984. He is a founding member of the Project Management Institute and the American Society for the Advancement of Project Management, and a former director of the International Project Management Association.

John Didier (WBI) was project manager and editorial and production coordinator.

Jerry Brown (learnings.com) was the lead instructional designer and script developer.

Edit A. Pena (WBI) was technology coordinator.

Other subject matter experts who contributed substantially to various modules included Patrick O. Malone, J. Price Gittinger, and Lauren Cooper (Cooper Associates).

The development team would like to acknowledge the following peer reviewers whose comments and expert advice greatly enhanced this product: George Patton, Russell Archibald, Earl Glenwright, Gene Schertz, Ronald C. Ng, George Lear, George Jadoun, and John Fringer.

We would also like to thank the following current and former World Bank staff for their useful comments and suggestions during the design and production phases of the CD-ROM: Yahaya Doka, Edward Olowo-Okere, Peter Copplestone, Mark Austin, Rene Ruivivar, Pamela Bigart, Raghavan Srinivasan, Hoveida Nobakht, and Richard Scobey.

Hans Thamhain (Bentley College), David Wilemon (Syracuse University), William Smith (Consultant), Owen Gadekan (Defense Systems Management College), Russell Archibald, and Dan Ono helped enrich the CD-ROM by contributing readings and other supporting materials.

We would like to acknowledge the support of WBI management, including John M. Middleton for initiating and championing the project and Philip E. Karp for his continued support during its long gestation.

Al Barkat of Intermax, Inc. designed and programmed the CD-ROM interface.

Disclaimer

These learning materials reflect good practice in project management that has been distilled from many years of experience with projects around the world. They do not necessarily reflect the specific guidelines, policies, and requirements of the World Bank or its affiliated organizations. The World Bank is currently reassessing its own way of working with client countries at the various phases of Bank-financed projects and programs, and in the near future will issue new guidelines.

The purpose of this resource kit is to provide a set of learning materials covering a range of topics related to project implementation. Coverage is neither comprehensive nor exhaustive; nor do the materials reflect the requirements of any specific agency. Because these materials have been designed for instructional purposes, in some instances the content has been simplified or abridged to facilitate achieving the teaching objectives; and case study examples are not intended to represent best practice.
Course Overview

The CD-ROM resource kit includes the following modules, which are based on the steps in the project implementation process and the tasks required of a project manager during the implementation of a development project:

1. Understanding the Project and Project Management
2. Structuring the Project Organization
3. Building the Team
4. Analyzing the Project Context
5. Refining Objectives, Scope, and Other Project Parameters
6. Preparing the Work Breakdown Structure, Responsibility Matrix, and Master Summary Schedule
7. Planning and Scheduling with the Critical Path Method
8. Obtaining Management Approval and Support
9. Designing Control and Reporting Systems (Cost, Time, Resources, and Scope (Performance and Quality))
10. Organizing Procurement
11. Executing and Controlling the Work
12. Terminating the Project.

Goal
The goal of this resource kit is to support trainers in delivering face-to-face instruction to help improve the knowledge and skills of managers who are responsible for implementing projects in developing and transitional economies that require substantial investments in human and physical capital.

Audience
The course is designed for officials from government ministries and departments, public and private corporations, or project agencies that will be overseeing the implementation of large development projects. The materials in this resource kit will provide a broad understanding of the purpose and role of project management and project managers and will help participants learn to apply a variety of management practices and planning tools as a means of administering, directing, and coordinating projects. The course does not deal with the details of day-to-day construction project management.

Components
The resource kit provides most of the learning resources that an instructor needs to deliver up to five weeks of instruction. The resource kit is not an interactive, self-instructional program, although the learning materials have been organized so that the interested learner can easily search and browse the information on the CD-ROM. All resources may be printed on a laser printer.

The modules are designed to help instructors structure and deliver courses in a classroom setting. Modules consist of one or more three-hour sessions of instruction and include these teaching resources:

- Performance-based objectives that are specific, measurable, and observable
- On-the-job project management tasks that the module addresses
- Module and session outlines
- Scripted lectures, including corresponding visuals
- Case studies, exercises, and solution sets
- Teaching notes for the instructor for each exercise and case study
- Self-assessment questions and solutions
- Selected readings

Instructors can use the materials in this resource kit as:

- A ready-to-teach unit of instruction on project implementation management. (The resource kit provides most of the learning resources required to deliver up to five weeks of instruction.)
- A source of ideas and instructional resources for planning their own courses in project management.
- A means of supplementing existing project management courses, for example, by using certain exercises, activities, or the comprehensive case study.
• A resource for learners. Although the resource kit is not an interactive, self-instructional program, the learning materials have been organized so that the interested learner can easily search and browse the information on the CD-ROM. All resources can be printed using a laser printer.

**Instructional Approach**

This is a hands-on, problem-solving course that offers learners many opportunities to practice fundamental project management skills while working in teams. Lectures are used in each session to introduce the objective of the session and to present essential information about project management processes and skills. Activities provide learners an opportunity to develop their project management skills by applying the content from the lecture to a lifelike problem. Activities also help prepare learners to work on the comprehensive case study. The comprehensive case study is based on an actual project. It is designed to let participants apply what they have learned in the module with minimal assistance from the instructor. For the instructor, the case is an opportunity to observe learner performance and to assess how much the participants have learned. In the first four modules the case is called the Milenia National Highway project. It is a broad case based on a relatively complex project with many components. Beginning in module 5 we focus in on one of those components, a bridge construction project, which is narrower and provides participants with a more manageable example.

**Self-Assessment Questions.** Each module has at least one set of learner self-assessment questions and answers. Although they may be used as test items and for quizzes, the self-assessment questions have been designed mainly to help learners review content and to determine where they need additional study. The self-assessment questions are knowledge-oriented. (Instructor observation and coaching on skills are recommended as part of the class activities.) Answers are provided along with the questions. Learners may be given the answers after completing the self-assessments. The instructor should review and discuss the answers with the learners, either individually or in class. The self-assessments are not intended for grading purposes, but rather as a tool for reinforcing and reviewing materials or identifying the need for remedial work.

**Discussion and Application.** It is suggested that ample class time be devoted to discussing the lecture material, activities, self-assessments, and comprehensive case study. If possible, learners should also be encouraged to apply what they learn to their own projects. Time for this may be allocated within each session or added at the end of a session, module, or course. Working in teams on a real project is the best method of both learning and application.

**Design.** For instructional purposes, the course is organized in 12 topical modules divided into 45 sessions. The sequence of modules reflects the order of activities that a project manager undertakes when approaching the implementation of a new project. For instructional purposes, the modules are organized in linear fashion. In the real world, however, successful project management requires the integration of various skills and knowledge and the simultaneous application of many skills. We therefore encourage instructors to integrate the various topics as much as possible when leading discussions on the exercises and case studies from the resource kit or when designing their own learning activities.

**Scope of Coverage**

**Relation to “Guide to the Project Management Body of Knowledge.”** The content covered in the Project Management Instructor’s Resource Kit is consistent with that in the Guide to the Project Management Body of Knowledge (PMBOK), which is published by the Project Management Institute (PMI) of the United States as part of the process of building standards in the discipline of project management. The PMBOK is a compilation of the topics and a taxonomy of the field of project management. A copy of the PMBOK may be obtained from the Project Management Institute Web site: http://www.pmi.org/.

**Treatment of Risk.** The subject of risk is one of the major sections of the PMBOK. (See chapter 11 in the PMBOK.) In designing this resource kit, we chose not to include a separate module on risk. We elected instead to distribute the discussion of risk over several different modules and sessions. Our rationale is that in planning and managing a project, risk analysis and management is normally not done all at once, but separately and at different times, to assess, for example, risk in schedule, cost, technical performance, and resources, as well as the various risks that may exist in the project context or environment (external actors and factors and stakeholders).

For example, when making time estimates for the activities in a project you should consider the risk that some activities have a higher probability of actually taking a longer (or shorter) time than the estimate. Instead of using PERT to create three time estimates for every activity, it is better to use a simple probability analysis to focus attention on those 5 to 10 percent of activities with a high probability of an over- or underrun. Also, when preparing the project budget (against which costs will be measured and controlled) pay...
attention to items with a high probability of variance (the risk of higher or lower costs than the estimate) and to adding in contingency funds to cover the variances.

When negotiating the commitment of resources to the schedule, you should again do a risk analysis and consider what might happen if human (or other) resources that have been promised are not available as planned. You should do the same when there is a high technical risk that the required quality of performance may be difficult to achieve because you are pushing the state of the art of the technology or of human capacity.

A general approach to dealing with risk is discussed in module 4, Managing the Project Context. The ex post evaluation of thousands of World Bank–financed projects shows that most project implementation problems come from actors and factors outside the project manager’s direct control. Examples include delays in decisions by other ministries or general economic conditions in a country. In all projects, it is necessary to consider the risk related to actors (stakeholders) and factors in the general environment or context, such as weather, economic or financial conditions, or various stakeholders.

Risk analysis in project management should not be done only once, during the later stages of the implementation planning process, but should be an integral part of planning for schedule, cost, performance, resources, and the uncertainties of the external environment. Although we deal mainly with issues of implementation in this resource kit, it is also true that a separate risk analysis or sensitivity analysis (or both) should be done earlier, during the definition stage, when project feasibility is being determined and when return on investment is being calculated.

**Project Management in Context**

Project management should be viewed as a holistic, integrated system of skills and processes applied over the entire project life cycle, from the initial stages of project identification and appraisal through project monitoring and evaluation. These phases cannot be disconnected. The success of a project is directly linked to the effectiveness of the planning, monitoring, and control at each stage of the project life cycle. A project can be implemented properly only when implementation is consistent with the project’s objectives; and a project is successful only after it has yielded its expected future benefits to a particular set of project beneficiaries.

The range of skills associated with project management is broad, and may vary from sector to sector and from life-cycle phase to life-cycle phase. In general, however, project management functional skills include communication, planning, financial management, procurement, risk and schedule management, monitoring, evaluation, and quality and human resources management.

At the planning phase, economic and financial analysis, technical analysis, institutional analysis, environmental analysis, and gender analysis must all be applied within a context of participation and feedback from project beneficiaries and stakeholders. Involvement of government officials from various agencies, representatives from nongovernmental organizations, and other stakeholder groups can make the project context extremely complex. In addition, the requirements of multilateral and bilateral funding agencies as well as private financial institutions will impose specific reporting demands on the project manager.

In World Bank–financed projects, for example, the borrower (client country) that is responsible for project implementation must conform to World Bank standards for financial reporting, procurement procedures, and monitoring. Examples include the requirements relating to the procurement of works, goods, and services; financial auditing; and the preparation of project supervision and monitoring indicators. These procedures are intended to ensure transparency, efficiency, and accountability in the use of World Bank funds. Other lending agencies will have similar requirements.

In an ideal world, the project analysts who design the project, project managers who implement the project, and the project beneficiaries would work together throughout the life cycle; often, however, there are discontinuities at various phases: the project analysts who identify and appraise projects may not be directly involved in its implementation; and the project manager in charge of implementation may not have been involved in project selection. It is, however, essential that the project manager should understand the project objectives and the criteria against which project success will be measured.

The skills and disciplines exercised in the course of designing and implementing complex projects are many and varied, and they are most often exercised by a multifunctional team of analysts. In addition, there are many different types of projects such as, for example, educational curriculum development, resettlement of displaced populations, irrigation, highway construction, and so forth. A set of learning materials covering all the skills as applied at the different stages of the project life cycle, tailored to the specificities of the various sectors, countries, and types of projects would be beyond the scope of any single curriculum.

The purpose of this resource kit is to provide a set of learning materials covering a range of topics related
to the implementation phase. Coverage is neither comprehensive nor exhaustive, nor do the materials reflect the requirements of any specific agency. Because these materials have been designed specifically for instructional purposes, in some instances the content has been simplified or abridged to facilitate achieving the teaching objectives; and case study examples are not intended to represent best practice.

Related Resources
The following Web site URLs provide useful resources for trainers and practitioners of project management.

- Books from the Project Management Institute: www.pmbok.org/
- Project Management Institute, to download a copy of the PMBOK: www.pmi.org/
- Association for Project Management, United Kingdom Body of Knowledge: www.apm.org.uk
- International Project Management Association (IPMA) Competence Baseline: www.ipma.ch
- Material on project accounting and financial management from International Federation of Accountants: www.ifac.org

Scheduling
Completion of the entire course requires approximately 135 hours of instruction (45 sessions of 3 hours each). The modules (and sessions) can be scheduled in a variety of ways, depending upon the format being used. For example, an instructor teaching an intensive five-week workshop on project implementation would normally schedule two modules a day (on average) over the five-week period (see course calendar). However, an instructor teaching a yearlong workshop (or course) might cover only one or two sessions a week.

Preparing Materials for the Classroom
All the learning materials on the CD-ROM may be printed and copied for the participants in the course or workshop. Because each module (and session) is made up of a number of items for the participants as well as for the instructor, we suggest the following steps:

1. Print and sort the materials, which include session outlines, lecture notes, activities (problem, teacher notes, and solution), self-assessments (questions and solutions), and so forth.
2. Use the session outline as a planning tool for communicating with the class administrator, indicating how many copies of each document you want reproduced (for example, a copy of the session outline should be reproduced for each participant). You should also include instructions for collating (for example, problem statements and solutions for an activity should not be collated together, but should be distributed separately).
3. Review the session outline and your directions for reproducing and collating class materials with the class administrator.
4. After the materials are duplicated, make sure they are sorted correctly. (The guidelines below should help you plan and manage the student materials included in the course.)

Resources that an instructor might prepare ahead of time include

- For the instructor, overhead transparencies for the lectures
- For the learners, a class set of
  - module and session outlines
  - lecture visuals (six to a page) for each lecture
  - activity problem statements (for each activity)
  - self-assessment questions
  - comprehensive case study problem
  - solutions to activities and the case study and answers to self-assessment questions.

At least one day before a class, review all the required course materials for that class and ensure that everything you need has been duplicated and organized as intended.

Activities and Case Studies. Each activity and case study includes a problem set, a solution, and teaching notes. The problem set should be copied and distributed to the participants as specified in the teaching notes. The solutions to the learning activities should be separated from the problem set or case statement, copied, and kept by the instructor for distribution to the participants after the activity has been conducted. The teaching notes are not distributed to the participants, but are for the instructor’s reference.
## Course Calendar

*Numbers indicate module and session, for example, 1.1 is module 1, session 1*

<table>
<thead>
<tr>
<th>Week</th>
<th>Time</th>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
<th>FRIDAY</th>
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<tbody>
<tr>
<td>1</td>
<td>AM</td>
<td>1.1 Understanding Projects and Project Management</td>
<td>1.3 The Project Preparation and Analysis Process</td>
<td>2.1 Alternative Organizational Structures</td>
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<td>4.1 Actors and Factors</td>
</tr>
<tr>
<td></td>
<td>PM</td>
<td>1.2 The Project Life Cycle (Exercise in Teambuilding)</td>
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<td>FREE</td>
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<tr>
<td>2</td>
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<td>3.1 Project Teambuilding Principles</td>
<td>3.3 Communication and Motivation Strategies</td>
<td>3.5 Conflict Management</td>
<td>3.6 Using a Workshop Approach for Project Launch</td>
<td>5.2 Reviewing the Project Analysis Report and Refining Key Project Parameters</td>
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<td></td>
<td>PM</td>
<td>3.2 Leadership, Power, and Management Styles</td>
<td>3.4 Meeting Management, Group Dynamics, and Problem Solving</td>
<td>FREE</td>
<td>3.7 Comprehensive Case Study: Mileenia National Highway Project – Preparing a Teambuilding Strategy</td>
<td>5.3 Preparing the Product and Process Structures</td>
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<td>3</td>
<td>AM</td>
<td>5.4 Comprehensive Case Study: Bridge Construction Project</td>
<td>6.2 Preparing the Responsibility Matrix and the Master Summary Schedule</td>
<td>7.1 Planning Tools and the Critical Path Method</td>
<td>7.2 Scheduling and Allocating Resources with the Critical Path Method</td>
<td>7.4 Comprehensive Case Study: Bridge Construction Project</td>
</tr>
<tr>
<td></td>
<td>PM</td>
<td>6.1 Preparing the Work Breakdown Structure</td>
<td>6.3 Comprehensive Case Study: Bridge Construction Project</td>
<td>FREE</td>
<td>7.3 The Computer and Project Management</td>
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<tr>
<td>4</td>
<td>AM</td>
<td>8.2 Comprehensive Case Study: Bridge Construction Project</td>
<td>9.2 Managing Changes in Scope (deliverables) and Design (configuration management)</td>
<td>9.4 Comprehensive Case Study: Bridge Construction Project</td>
<td>10.1 Introduction to Procurement of Works, Services, and Goods</td>
<td>10.3 Procurement of Works: Bidding, Evaluation, and Award</td>
</tr>
<tr>
<td></td>
<td>PM</td>
<td>9.1 Designing Control Systems</td>
<td>9.3 Designing Reporting Systems</td>
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<td>10.2 Procurement of Works: Contract Types and Other Options</td>
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</tr>
<tr>
<td></td>
<td>PM</td>
<td>10.6 Procurement of Goods and Equipment: Specifications and Evaluation Criteria</td>
<td>10.8 Comprehensive Case Study: Bridge Construction Project</td>
<td>FREE</td>
<td>11.2 Managing Contracts</td>
<td>12.1 Terminating the Project</td>
</tr>
</tbody>
</table>
Lecture Visuals. The visuals for each sample lecture are printed, six to a page, for distribution to participants as lecture notes. These should be copied and distributed to the participants either before or after your presentation, unless you choose to give them copies of the fully scripted lecture to use as a reading.

Scripted Lectures with Visuals. A complete script with text and visuals is available for each sample lecture. These can be duplicated and given to participants as readings either before your presentation or after the session or course.

Overheads. The visuals for each sample lecture can be projected directly from a computer if you have the appropriate projection equipment. If the projection equipment is not available, you will need to prepare overhead transparencies. Overhead transparencies can be prepared from paper copies of the lecture visuals using a photocopy machine and special transparency film, or they can be printed directly from the computer in black and white or color using a computer printer and transparency film made for printers.

Evaluation
Evaluation of training is an attempt to measure its appropriateness and effectiveness. The commonly used Kirkpatrick Model (Evaluating Training Programs: The Four Levels. 2nd edition. Donald L. Kirkpatrick. San Francisco: Berrett-Koehler. 1998.) describes four levels of evaluation as follows:

1. Reaction. What were the participants’ reactions to the training? Were they happy?
2. Learning. What new knowledge or skills did the participants learn and remember?
3. Behavior. Are the participants applying their new behavior or learning back on the job?
4. Results. Are the new behaviors resulting in improved performance of the organization?

This resource kit provides the following materials to help instructors measure the results of training (see table 1):

1. Reaction. A sample two-page questionnaire is included that can be modified and passed out for completion at the end of each session. A sample end-of-course questionnaire is also provided. (Both are in the appendix to the syllabus.)
2. Learning. A set of self-assessment questions and answers is included with each module for learners to test their understanding of the content.

Measuring the impact of the training on the efficiency and effectiveness of the organization is the most difficult (and most costly) to carry out, but can yield the most useful information. This analysis is normally in the purview of the participant’s organization and not the training institution’s, unless the training institution is part of the organization. Instructors wishing to measure the impact of training should refer to Evaluating Training Programs: The Four Levels. 2nd edition. (Donald L. Kirkpatrick. San Francisco: Berrett-Koehler. 1998.)

The Participant Action Plan Approach for the Evaluation of the Impact of Training
As a tool for learning, the implementation of the Participant Action Plan Approach (PAPA) is relatively simple. At the end of each module and at the end of the entire course, participants ask themselves, “What skills discussed in this module do I want to put into practice at work?” They then use the planning form to commit to practicing these skills within a specified period of time. (See the sample form in appendix 3.) Action plans completed at the end of the course should also be discussed in small groups and may be shared with the class so that there is a public commitment to implementing change on the job. The act of writing and sharing the plan helps the participant start the process of transferring learning from the classroom to the workplace. At the instructor’s discretion, participants may or may not be required to give the instructor a copy of their action plans.

If PAPA is used for evaluation as well as facilitating learning, participants must give the instructor copies of their plans. In addition, several months after the course, a follow-up interview is conducted, or a questionnaire survey is sent out. Participants are sent a copy of their respective plans and are asked to indicate which behaviors they have used on the job. A comparison of the course objectives, planned on-the-job behaviors, and actual on-the-job behaviors provides a measure of the relevance of the course and its impact on the participants and their organizations.

The Five Steps in the Participant Action Plan Approach

Step 1. Planning
The instructor has to determine if PAPA is going to be used only as a learning (transfer) activity or if it is also going to be used for course evaluation. If it is to serve as a tool for evaluation, the instructor must plan the evaluation process
and answer a series of basic questions about data collection and processing, such as

- **When will the follow-up evaluation occur?** Most instructors would likely want the evaluation to occur three to six months after the course.

- **Who will actually conduct the evaluation and the data collection and processing?** Some organizations have a professional evaluation staff to manage the entire process, including questionnaire preparation and distribution, data collection, and processing. Other organizations leave it to the instructor to supervise and perhaps actually perform all these activities.

- **What resources are available?** Some organizations make funds available to cover the cost of preparing and sending questionnaires to participants and for tabulating the questionnaires that are returned. Other organizations, such as universities, may be able to provide research assistants to help with some of these tasks. Still other organizations may have no resources available for this type of activity.

- **How will action planning be structured?** Here are three basic ways to structure the action planning process:
  - **Objectives and on-the-job tasks.** Each module has an associated set of instructional objectives and on-the-job tasks and objectives listed as part of the module outline. Participants can write on the planning form those objectives or tasks that they intend to transfer to the job. Alternatively, they can use a copy of the module outline as a planning form and just check off those objectives or tasks that they plan to transfer to the job.
  - **Open-ended planning.** Participants are allowed to write whatever they want on the planning form, without relating it to the module objectives and tasks. For example, participants at the end of module 7 might write that they want to learn a particular project management software program, although this is not a stated objective for that module.
  - **Hybrid approach.** This is a combination of the two previous approaches. Participants are encouraged to use the objectives and the on-the-job tasks to develop their action plans, but they can also list other skills they want to practice or behaviors they want to try.

### Step 2. In-Course Activities

This step has two parts:

- **Introduction to the concept of action planning**
- **Plan development.**

**Introducing PAPA.** Participants should be told at the start of the course that they will be encouraged to consider what they might do differently on their jobs as a result of training. Participants should be prepared at the end of each module and at the end of the course to develop action plans. They should also be prepared to discuss their action plans with colleagues in the class and with the instructor.

**Developing Action Plans.** Participants complete their action plans at the end of each module and at the end of the course. Completing action plans as the course progresses is particularly important so that participants do not forget to record specific items.

Items on action plans might resemble the following:

- Hold a project start-up meeting
- Reward desirable behaviors
- Exhibit positive leadership behaviors (keep focus on objectives or talk more openly with employees)
• Prepare critical path analysis (CPM) and keep it current
• Get management buy-in on project implementation plan before starting implementation.

Step 3. Follow-Up Activities

Note: Steps 3 through 5 occur only if the PAPA is being used for evaluation purposes.

At the end of the course, a comparison of the planned actions with the course content provides the instructor with some measure of the course’s relevance. At the planned time, usually three to six months after training, participants are either interviewed or sent questionnaires to determine the degree to which they have followed their action plans and, if so, to what effect. Participants are also asked if they have applied anything else that they learned in the course and, if so, what effects their new behaviors have had, including benefits produced and problems encountered.

Step 4. Analysis and Conclusions

The data collected during the follow-up are categorized and displayed using standard survey techniques to answer questions such as

• What were the objectives, tasks, or actions that participants intended to transfer to the job?
• Did the participants follow through and attempt the transfer?
• What were the consequences of the attempt?
• What unplanned transfers occurred?
• What were the consequences of the unplanned transfers?

Data can be presented in a variety of ways, for example, percentages can be used as in this example:

Task: Keep updated CPM. Percentage of participants who indicated they intended to do this: 95% Percentage of above who actually did keep updated CPMs: 50% Percentage of ALL class participants who kept updated CPMs: 47% Percentage of those who kept an updated CPM and reported “good” consequences as a result of keeping an updated CPM: 100% (Total number in class: 40; response rate: 100%)

Step 5. Report

The findings and conclusions should be reported in a way that meets the sponsoring organization’s information needs. Naturally, the course director should use this information to determine how effective the course was in producing desirable effects in the workplace and for judging the adequacy of the course’s objectives.

Adapting the Course for Distance Learning

This course can be adapted for delivery through television lecture to participants in remote sites. Lectures could be delivered live, or videotaped and mailed to the learners ahead of time. Another option would be to use the printed lecture scripts as required readings, like a textbook. Because of the importance of hands-on learning and problem solving to the overall instructional design of the course, it is suggested that remote participants work in groups to complete the exercises and case studies. Participants should also be able to communicate with the instructor (and other participants) by means of, for example, two-way voice with video, telephone conferencing, or computer conferencing, so that they can ask questions, share their ideas, and get feedback. Arrangements should also be made to distribute problem and solution sets, case study exercises, lecture readings, and self-assessment questionnaires and to collect homework.

To adapt the course for distance learning, use the following specific steps:

1. Select a qualified instructor (or instructors) to review work and to answer questions.
2. Adapt the lectures for broadcast or videotape presentation.
3. Prepare daily instructions for local, on-site facilitators and participants.
4. Prepare workbooks (for example, preparation and distribution of course materials).
5. Select teams from organizations or countries. (Each team should have an actual on-the-job case to work on during the course.)
6. Identify a distance learning facility with video broadcast (or videotape) and telecommunications capability.
7. Make a copy machine and paper available to participants at remote sites or on the job.
8. Make computers and Microsoft Project software available to participants at remote sites or on the job.
9. Identify someone to administer and select participants.
10. Select an on-site administrator and facilitator.
11. Develop an announcement brochure and criteria for participant selection.
12. Provide e-mail or fax capability for submission of exercises.
13. Schedule regular discussion sessions with participants by telephone or computer.
14. Set dates and times for course sessions, activities, and assignments.
15. Specify procedures if prerequisite study is necessary before selection.
16. Consider collaborating with a university or other organization to arrange for credit or certification.
At the end of the course, the learners will be able to

1. Given project-specific data, individually or as a member of a group, apply the steps in the project implementation process and develop a complete project implementation plan and project control system. The plan will incorporate proven success factors and will avoid the common mistakes that have been discussed in the course. The instructor will judge if the plan is realistic.

2. Given scenarios or case studies that incorporate preferred and nonpreferred project implementation practices that pertain to project management tasks, leadership style, teamwork, and resource management, identify potential or actual problems, discriminate between preferred and nonpreferred practices, and suggest solutions to actual or potential problems based on the principles or best practices taught in the course.

3. Given a process for implementing project management in an organization, develop a plan to apply on the job what they have learned in the course, including the identification of obstacles they are likely to face and determination of ways to overcome them.
Outline for Module 1
Understanding the Project and Project Management

This module introduces the concepts of a project, the project life cycle, and systematic project management. The module also describes the process of analyzing a project at the feasibility and design phases, examines the contents of a typical project analysis report, and discusses when a project manager should call for a reassessment of the analyses on which the project’s design is based.

In addition, the module provides participants with opportunities to interact and to begin working in teams. This module, like all the modules in the course, requires participants to work in teams to share information and to solve problems. By working in teams, participants will have opportunities to learn from one another, and they will begin to develop the teambuilding and leadership skills that are increasingly required for successful performance in project management. Participants will study the teambuilding and leadership processes formally in module 3.

Instructional Objectives
At the end of the module, learners will be able to

1. Describe what is meant by a project, project management, the project life cycle, and a systematic process of project management.
2. Given a project analysis report, analyze its content and, using a worksheet, summarize the key parameters of a project, including objectives, deliverables, budget, schedule, and organizational relationships.
3. Formulate, in writing, guidelines for deciding under what conditions the project manager should bring to management’s attention significant changes in assumptions about the project or its environment that might adversely affect project implementation or project outcomes.

Sessions
Session 1.1 Understanding Projects and Project Management
Session 1.2 The Project Life Cycle (Exercise in Teambuilding)
Session 1.3 The Project Preparation and Analysis Process
Session 1.4 Understanding the Project Analysis Report

On-the-Job Tasks for the Project Manager
- Review the existing project documentation (such as the project analysis report) to understand the project’s history.
- Identify end-of-project objectives and deliverables.
- Review or establish a hierarchy of objectives and identify higher-level project objectives (Logframe).
- Analyze the project to assess if it is likely to meet its higher-level objectives.
- Identify the assumptions underlying the project.
- Identify changes or errors in these assumptions (including technological, financial, economic, institutional, social, and environmental issues).
- Determine if these changes or problems justify recommending to management a reappraisal of the project.
Outline for Session 1.1
Understanding Projects and Project Management

Instructional Objectives
At the end of this session, the learners will be able to
1. Describe what is meant by
   - a project
   - project management
   - project life cycle
   - systematic management process.
2. Describe the World Bank Project Life Cycle and contrast it with a project life cycle that a typical country might use.
3. Distinguish between the following: program, project, and ongoing operational work.
4. Describe at least five critical success factors in project management.
5. Match these terms with their definitions:
   - decision gate
   - deliverable
   - end item
   - life cycle
   - milestone
   - objective
   - phase
   - scope
   - subphase
   - systematic management process.
6. Use the terms from objective 5 appropriately in the remainder of the course when discussing projects.

Session Schedule
Introduction to the course: 5 minutes
Lecture 1.1.1: Structure of the Course and the Module—10 minutes
Introductions by participants: 20 minutes
Lecture 1.1.2: Understanding Projects and Project Management—30 minutes
Discussion: 10 minutes
Discussion: 10 minutes
Self-Assessment Questions 1.1: Understanding Projects and Project Management—20 minutes
Discussion: 15 minutes

Class Handouts
- Student copy of the lecture visuals
- Activity 1.1.1, The World Bank Project Life Cycle, Problem and Solution
- Activity 1.1.2, Participant Problem Analysis, Problem and Solution

Self-Assessment Questions
1.1, Understanding Projects and Project Management, Questions and Answers

Outline for Session 1.2
The Project Life Cycle (Exercise in Teambuilding)

Instructional Objectives
Given a series of tasks and a need to be filled, the learners will be able to
1. Develop a life cycle (for example, create a planned sequence of actions organized into phases) to meet the needs of the project.
2. Generate a list of behaviors that affect teamwork and problem solving from the group activity.
3. Begin to feel part of a learning team and be able to give the names and occupations of at least five people in the class.

Session Schedule
Introduction: 10 minutes
Activity 1.2.1: Project Life Cycle Exercise—80 minutes
Scoring and Discussion: 20 minutes
Activity 1.2.2: Guidelines for Working in a Group—50 minutes
Discussion: 10 minutes
Class Handouts
- Student copy of lecture visuals
- Activity 1.2.1, Project Life Cycle Exercise, Problem and Solution
- Activity 1.2.2, Guidelines for Working in a Group, Problem and Solution

Outline for Session 1.3
The Project Preparation and Analysis Process

Instructional Objectives
At the end of the session, learners will be able to
1. Describe the process of project preparation and analysis.
2. Explain the purpose of a feasibility study.
3. Name the six “feasibilities” and describe each one.
4. Describe how a feasibility study is used to determine whether a proposed project is a wise use of scarce resources.
5. Describe what a hierarchy of objectives (logical framework) means.
6. Create a simple hierarchy of objectives, given a case study.

Session Schedule
Introduction: 10 minutes
Lecture 1.3.1: Project Preparation and Analysis Process and the Hierarchy of Objectives—40 minutes
Discussion: 15 minutes
Self-Assessment Questions 1.3: The Project Preparation and Analysis Process—20 minutes
Discussion: 10 minutes
Activity 1.3.1: Water Supply and Sewerage Project for Islandia—Hierarchy of Objectives (Case Study)—40 minutes
Team Presentations:
25 minutes
Discussion: 10 minutes

Class Handouts
- Student copy of lecture visuals
- Activity 1.3.1, Hierarchy of Objectives—Islandia, Problem and Solution

Prestudy
Read Water Supply and Sewerage Project for Islandia (Case Study)

Self-Assessment Questions
1.3, The Project Preparation and Analysis Process, Questions and Answers

Optional Reading
“Managing the Project Cycle for Time, Cost, and Quality: Lessons from World Bank Experience”

Outline for Session 1.4
Understanding the Project Analysis Report

Instructional Objectives
Given a project analysis report (PAR) and a worksheet, the learners will be able to
1. Summarize the key project parameters described in the PAR (including the hierarchy of objectives, deliverables, budget, schedule, and organizational relationships).
2. Review the financial and economic analyses, including the rates of return.
3. Identify at least two of the assumptions made during the preparation and design of the project that are treated in the PAR.
4. List at least two assumptions not treated explicitly in the PAR that may affect the project.
5. For each assumption, perform a sensitivity analysis. (Ask, “What is the likelihood of the assumption going wrong? What is the likely impact on the rate of return?”)
6. Develop guidelines for determining when to ask management to reassess the feasibility or design of the project.

Session Schedule
Introduction: 15 minutes
Lecture 1.4.1: Understanding the Project Analysis Report—40 minutes
Discussion: 30 minutes
Activity 1.4.1: Hierarchy of Objectives: Milenia National Highway Project—20 minutes
Discussion: 20 minutes
Activity 1.4.2: Questioning Assumptions: Milenia National Highway Project—30 minutes
Discussion: When to call for a new analysis 20 minutes
Summary: 5 minutes

**Prestudy**
Read *Milenia National Highway Project* (Project Analysis Report and Case Study)

**Class Handouts**
- Student copies of lecture visuals
- Activity 1.4.1, *Hierarchy of Objectives: Milenia National Highway Project, Problem and Solution*
- Activity 1.4.2, *Questioning Assumptions: Milenia National Highway Project, Problem and Solution*
Normal, when project managers are assigned to projects they are given a project charter with a specified or implied organizational structure that includes roles, responsibilities, and relationships of the project manager and supporting departments. As a rule, project managers must accept this structure, although there may be ways in which they can change the charter to strengthen the project managers' authority commensurate with their responsibilities to help ensure successful implementation. This module introduces the three principle organizational models used in project management: functional, matrix, and project. It examines the strengths and weaknesses of each model from the perspectives of the project manager and the organization and suggests ways of helping the project manager develop and win approval of a revised charter that can increase the chances of successful implementation.

Instructional Objectives

1. Describe the roles and responsibilities of the project manager in the type of organizational structure described in the case.

2. Recommend a revised project charter, if appropriate, that describes the project’s organizational structure and the roles and responsibilities of the project manager, project staff, project management core team, and functional departments.

3. Identify obstacles that a project manager may face in obtaining a charter that provides the necessary level of control and authority over project resources.

Sessions

Session 2.1  Alternative Organizational Structures
Session 2.2  Structuring the Project Charter for Success
Session 2.3  Comprehensive Case Study: Milenia National Highway Project

On the Job Tasks for the Project Manager

- Review the PAR and the initial project charter (obtained from superiors) that defines the responsibility, authority, and relationships of the project manager, project staff, and functional department heads.
- Specify staff responsibilities.
- Assess the level of authority of the project manager and project staff.
- Evaluate the probability of successful implementation under the current charter and determine if there is a need to renegotiate the charter.
- Determine how to strengthen the project manager's authority, if necessary.
- Create a proposal for a revised project charter.
- Get the revised charter approved and distributed.
Outline for Session 2.1
Alternative Organizational Structures

Instructional Objectives
At the end of the session, learners will be able to
1. Characterize functional, project, and matrix (weak, balanced, and strong) organizational structures.
2. Identify the strengths and weaknesses of each organizational structure and describe their implications for project management.
3. Identify criteria that are useful in choosing which organizational structure is most appropriate.
4. Understand what is required to be a successful project manager in a matrix structure.
5. Describe the roles and responsibilities of a project manager in a matrix.
6. Define the following terms: power, authority, and influence.

Session Schedule
Introduction: 5 minutes
Lecture 2.1.1: Alternative Organizational Structures—30 minutes
Activity 2.1.1: Identifying the Strengths and Weaknesses of Different Types of Organizational Structures—20 minutes
Discussion: 25 minutes
Lecture 2.1.2: Choosing an Organizational Structure and Managing in a Matrix Organization—30 minutes
Activity 2.1.2: The Project Manager’s Role and Responsibility in a Matrix Organization—25 minutes
Lecture 2.1.3: The Project Manager’s Role and Responsibilities—20 minutes
Discussion: 10 minutes

Class Handouts
• Student copies of lecture visuals
• Activity 2.1.1, Identifying the Strengths and Weaknesses of Different Types of Organizational Structures, Problem and Solution
• Activity 2.1.2, The Project Manager’s Role and Responsibility in a Matrix Organization, Problem and Solution

Homework

Outline for Session 2.2
Structuring the Project Charter for Success

Instructional Objectives
Given a project analysis report (PAR) and other project information, the learners will be able to
1. Describe the characteristics of the project charter.
2. Distinguish between weak and strong project charters.
3. Given a PAR or vignette, characterize the organizational structure and the project management role stated or implied in the document.
4. Prepare a project charter that describes the project’s organizational structure and the roles and responsibilities of the project manager, project management core team, and functional departments (in a matrix environment).

Session Schedule
Introduction: 5 minutes
Activity 2.2.1: Damaa Case: Who Should Be Project Manager?—45 minutes
Lecture 2.2.1: The Project Charter—20 minutes
Discussion: 10 minutes
Activity 2.2.2: Reviewing a Project Charter for a Development Project—20 minutes
Activity 2.2.3: Case Study: Water Supply and Sewerage Project for Islandia: Analyzing the Project Organization and Preparing a Project Charter—70 minutes
Summary: 10 minutes
Self-Assessment Questions 2.2: Structuring the Organization—20 minutes

Prestudy
Read the case study, Damaa Case: Who Should be Project Manager?
Class Handouts

- Student copies of lecture visuals
- Activity 2.2.1, Damaa Case: Who Should Be Project Manager? Problem and Solution
- Activity 2.2.2, Reviewing a Project Charter for a Development Project, Problem and Solution
- Activity 2.2.3, Case Study: Water Supply and Sewerage Project for Islandia: Analyzing the Project Organization and Preparing a Project Charter, Problem and Solution

Self-Assessment Questions

2.2, Structuring the Project Organization, Questions and Answers

Outline for Session 2.3

Comprehensive Case Study: Milenia National Highway Project

Instructional Objectives

Given a PAR, the learners will identify the proposed organizational structure, assess the relative strength of the proposed organizational structure, and prepare a project charter. The learners will also prepare a plan for obtaining approval of the charter and a strategy for overcoming the limitations of a weak charter, if required.

Session Schedule

Introduction: 10 minutes
Activity 2.3.1: Comprehensive Case Study: Milenia National Highway Project—95 minutes
Team Presentations: 30 minutes
Class Discussion: 45 minutes

Class Handouts

- Activity 2.3.1: Comprehensive Case Study: Milenia National Highway Project, Problem and Solution (for Milenia Project Analysis Report see module 1 session 4)
Outline for Module 3
Building the Team

Project managers must accomplish project objectives by working through many individuals and groups. To a large extent, the ultimate success of a project depends upon how well the project manager is able to unify these different individuals and groups by developing and maintaining a shared vision of the project’s objectives and a commitment to the successful completion of the project. This module focuses on the human dimensions of development projects, with a special emphasis on teambuilding and leadership skills for the project manager. The module draws heavily on research findings from the behavioral sciences.

The first session in the module introduces principles for teambuilding and the factors that contribute to successful project teams and projects. The second session looks at leadership and management styles, considers why it is important for the project manager to assume a leadership role (especially in a matrix organization), and provides an opportunity for participants to consider their own styles. The third session considers the nature of human motivation and communication, emphasizing strategies the project manager can use to reduce miscommunication, maintain focus and commitment, and motivate behaviors that support project objectives. The fourth session deals with the management of meetings and with problem solving. These topics are considered together because so much time is spent in meetings trying to identify or solve problems. The fifth session deals with conflict and conflict management. It discusses the positive and negative aspects of conflict, introduces ways of managing conflict, and provides practice in using confrontation as a management tool. The sixth session introduces a specific methodology called the project workshop approach that can be used throughout a project’s life cycle to build understanding and commitment with various stakeholder groups. Two specific applications of the project workshop approach are described in session six. Both examples, the National Project Launch and the Stakeholders Launch, deal with the beginning of the implementation phase. The last session in the module, session 7, is a continuation of the Milenia National Highway case study. The case study requires participants to apply what they have learned in this module by developing a teambuilding strategy for the project.

Instructional Objective
Given a project analysis report (PAR) as a case study, the learners, working in project teams, will be able to develop a leadership and teambuilding plan that incorporates best practices as taught in the module.

Sessions
Session 3.1 Project Teambuilding Principles
Session 3.2 Leadership, Power, and Management Styles
Session 3.3 Communication and Motivation Strategies
Session 3.4 Meeting Management, Group Dynamics, and Problem Solving
Session 3.5 Conflict Management
Session 3.6 Using a Workshop Approach for Project Launch
Session 3.7 Comprehensive Case Study: Milenia National Highway Project: Preparing a Teambuilding Strategy

On the Job Tasks for the Project Manager
- Select appropriate staffing for a project office (if not assigned).
- Identify team members and other stakeholders.
- Agree on procedures.
- Prepare a teambuilding strategy.
- Form the team and hold a project startup workshop for the core team.
- Provide leadership to the team.
- Manage core team meetings.
• Build the team's commitment to the objectives of the project.
• Ensure that people know their roles and responsibilities.
• Use forms of power that are appropriate to the situation, including gaining influence without formal authority.
• Keep the team motivated.
• Be aware of interpersonal relations among team members.
• Identify sources of conflict and apply conflict resolution strategies.
• Analyze communications and perceptions within the team.
• Use information on personality styles and types to improve collaboration.
• Plan and convene a project launch workshop for stakeholders.

Outline for Session 3.1
Project Teambuilding Principles

Instructional Objectives
At the end of this session, the learners will be able to
1. Give at least three reasons why it is important to manage the human aspects of a project.
2. Describe the need for teambuilding when implementing a project.
3. Describe at least five common problems that affect the performance of project teams.
4. Define teambuilding and describe four basic elements of teambuilding.
5. Describe the five stages of team development.
6. Use the theory of stages of team development to analyze team interactions and guide management behavior (given vignettes or a case study).
7. Describe at least three management practices that contribute to the successful performance of project teams.
8. Describe the elements of a teambuilding strategy.
9. Explain why it is important to have a teambuilding strategy.
10. Describe how a project startup workshop helps build the core team.
11. Describe situations from their own project experience where teambuilding principles were or were not successfully applied and the effects this had on the project.
12. Given a specific management practice, predict its likely effect on teambuilding and performance.

Session Schedule
Introduction 5 minutes
Lecture 3.1.1: Principles of Teambuilding—30 minutes
Activity 3.1.1: Applying Teambuilding Principles to Scenarios—60 minutes
Activity 3.1.2: Case Study: Project Startup Meeting—30 minutes
Discussion: 20 minutes
Self-Assessment Questions 3.1: Principles of Teambuilding—20 minutes
Discussion: 20 minutes

Homework

Class Handouts
• Student copy of lecture visuals
• Activity 3.1.1, Applying Teambuilding Principles to Scenarios, Problem and Solution
• Activity 3.1.2, Case Study: Project Startup Meeting, Problem and Solution

Optional Reading

Self-Assessment Questions
3.1, Principles of Teambuilding, Questions and Answers

Outline for Session 3.2
Leadership, Power, and Management Styles

Instructional Objectives
At the end of this session, learners will be able to
1. Define and contrast the following terms: authority, leadership, management, power, and influence.
2. Explain why a project manager, especially in a matrix organization, must manage through influence.
3. Describe at least three types of leadership roles available on a project.
4. Explain why the project manager needs to be a leader.
5. Identify two tasks that are critical to effective project leadership.
6. List five roles that the project manager plays.
7. Describe at least five characteristics of an effective project leader.
8. Distinguish between examples (vignettes) of effective and ineffective project leadership.
9. Describe at least two different models for classifying management styles.
10. Describe how each of the eight basic forms of social power can be used as an influence strategy.
11. List at least five ways of increasing their own leadership effectiveness as a project manager. (This is a homework application exercise.)

**Class Handouts**
- Student copy of lecture visuals
- Activity 3.2.1, Identifying Examples of Effective Leadership, Problem and Solution
- Activity 3.2.2, Influence Strategies: Water Supply and Sewerage Project for Islandia, Problem and Solution
- Activity 3.2.3, Homework: Increasing Your Social Power, Problem only.

**Self-Assessment Questions**
3.2, Leadership, Power, and Management Styles, Questions and Answers

**Outline for Session 3.3 Communication and Motivation Strategies**

**Instructional Objectives**
At the end of this session, learners will be able to
1. Describe a basic model of communication.
2. Identify two areas of the communication model that are of potential interest to the project manager.
3. Characterize their own styles using the Casse communication styles model.
4. Explain the challenge of adapting their own communication styles to a situation that requires a different style.
5. Explain why it is important to have a communication strategy for a project.
6. Develop a communication strategy for a project (given vignettes or a case example).
7. Define what is meant by motivation.
8. Explain why motivation is important in a project setting.
9. Give at least three examples of how to motivate people.
10. Give at least three examples of how to unmotivate people.
11. Explain the importance of linking rewards with specific behaviors as a way of encouraging desired behaviors.
12. Explain how project managers can influence the motivation of people who report directly to them and of people who do not.
13. Explain why it is important to have a plan for motivating members of the project team.
14. Describe at least three strategies for strengthening or maintaining the motivation of the project team or individual team members.

15. Compare the advantages and disadvantages of monetary and nonmonetary rewards as motivators in general and in their own organization.


17. Apply the Expectancy Theory of Motivation to project situations (given vignettes), for example, to determine if a performance problem is a motivation problem.

18. Develop a motivation strategy for a project (given vignettes or a case study).

**Session Schedule**

**Introduction and Review of Homework:**
15 minutes

**Lecture 3.3.1:** Fundamentals of Communication—20 minutes

**Activity 3.3.1:** Communication Styles (Parts 1 and 2)—20 minutes

**Lecture 3.3.2:** Fundamentals of Motivation—25 minutes

**Activity 3.3.2:** Analyzing Motivation—20 minutes

**Presentations or Discussion:**
20 minutes

**Class Handouts**
- Student copy of lecture visuals
- Activity 3.3.1, Communication Styles (Parts 1 and 2), Problem and Solution
- Activity 3.3.2, Analyzing Motivation, Problem and Solution

**Outline for Session 3.4**

**Meeting Management, Group Dynamics, and Problem Solving**

**Instructional Objectives**
At the end of this session, learners will be able to
1. List at least five reasons why meetings can be unproductive.
2. Give at least three reasons why effective meetings are important for project success.
3. Classify three different types of meetings in terms of their purpose.

4. Explain the importance of distinguishing between process and content when planning and managing meetings.

5. Describe a general process for managing meetings effectively (for example, planning, execution, and follow-up).

6. Define the role of the facilitator or leader in a meeting.

7. Structure a meeting agenda and select tools that are appropriate to the purpose of the meeting.

8. Distinguish between good and bad examples of how to plan meetings (given vignettes or a case study).

9. Make recommendations for more effective meeting management (given negative examples).

10. Apply a systematic technique for solving problems (given vignettes or a case study).

11. Apply a systematic technique for facilitating decisionmaking (given vignettes or a case study).

**Session Schedule**

**Activity 3.4.1:** What is Wrong with Meetings?—15 minutes

**Presentations or Discussion:**
15 minutes

**Lecture 3.4.1:** Making Meetings Work—20 minutes

**Activity 3.4.2:** Making Meetings Work—20 minutes

**Presentations or Discussion:**
20 minutes

**Lecture 3.4.2:** Problem Solving and Decisionmaking—20 minutes

**Presentations or Discussion:**
20 minutes

**Self-Assessment Questions 3.4:** Making Meetings Work—15 minutes

**Discussion and Summary:**
15 minutes

**Class Handouts**
- Student copy of lecture visuals
- Activity 3.4.1, What is Wrong with Meetings? Problem and Solution
- Activity 3.4.2, Making Meetings Work, Problem and Solution

**Self-Assessment Questions**

3.4, Making Meetings Work, Questions and Answers
Outline for Session 3.5
Conflict Management

Instructional Objectives
At the end of this session, learners will be able to
1. Define the following terms: conflict, conflict management, conflict resolution, and confrontation.
2. Explain why conflict can be either good or bad.
3. List at least three typical sources of conflict in a project.
4. Describe the dynamics of conflict on a project.
5. Describe at least one approach to managing conflict.
6. Describe how the possession of power influences the strategies available for conflict resolution.
7. Given vignettes (or a case study), recommend a conflict management strategy appropriate to the situation.
8. Use confrontation as a conflict resolution strategy (given guidelines and a vignette or case study).
9. Identify eight sources of social power that are available to a project manager.

Session Schedule
Introduction: 5 minutes
Lecture 3.5.1: Managing Conflict—20 minutes
Activity 3.5.1: Managing Conflict: Identifying Sources and Options—30 minutes
Presentations or Discussion: 30 minutes
Lecture 3.5.2: Confronting Conflict with a Collaborative Strategy—20 minutes
Activity 3.5.2: Confrontation: Role Play Exercise—45 minutes
Discussion: 30 minutes

Class Handouts
• Student copy of lecture visuals
• Activity 3.5.1, Managing Conflict: Identifying Sources and Options, Problem and Solution
• Activity 3.5.2, Confrontation: Role Play Exercise, Problem and Solution

Outline for Session 3.6
Using a Workshop Approach for Project Launch

Instructional Objectives
At the end of this session, learners will be able to
1. Describe the process for holding project implementation launch workshops, at the national level and for various stakeholders.
2. Use three checklists to plan project launch workshops.
3. Describe the value of using a workshop approach for publicly launching a project.
4. Develop a strategy for selling the concept of a project launch workshop to a supervisor.

Session Schedule
Introduction: 5 minutes
Lecture 3.6.1: Project Launch Workshops—20 minutes
Discussion: 10 minutes
Lecture 3.6.2: Planning and Getting Approval for Project Launch Workshops—30 minutes
Discussion: 10 minutes
Activity 3.6.1: Water Supply and Sewerage Project for Islandia: Making the Case for Project Launch Workshops—50 minutes
Presentations or Discussion: 50 minutes
Summary: 5 minutes

Class Handouts
• Student copy of lecture visuals
• Activity 3.6.1, Water Supply and Sewerage Project for Islandia: Making the Case for Project Launch Workshops, Problem and Solution

Optional Reading
Outline for Session 3.7
Comprehensive Case Study: Milenia National Highway Project—Preparing a Teambuilding Strategy

Instructional Objective
Given a PAR as a case study, the learners, working in project teams, will be able to develop a leadership and teambuilding plan that incorporates best practices as taught in the module.

Session Schedule
Introduction: 5 minutes
Activity 3.7.1: Comprehensive Case Study: Milenia National Highway Project—90 minutes
Team Presentations: 60 minutes
Group Discussion: 20 minutes
Module Summary: 5 minutes

Class Handouts
• Activity 3.7.1, Comprehensive Case Study: Milenia National Highway Project, Problem and Solution
Outline for Module 4
Analyzing the Project Context

A project can be influenced by people and events (or conditions) external to the project itself. We call these actors and factors, and they make up the context or environment of the project. Wise project managers take these actors and factors into account when planning and executing the implementation of a project. This module provides a framework for identifying actors and factors, analyzing their likely influence on a project, finding ways to manage the actors and factors to promote the success of a project, and dealing with the risk of things going wrong.

Instructional Objectives
Given a project analysis report (PAR), contextual information about a project, and a set of environmental scanning tools, the learners will be able to perform a context analysis (environmental scan) and develop a strategy for managing relevant actors and factors.

Sessions
Session 4.1 Actors and Factors
Session 4.2 Comprehensive Case Study: Milenia National Highway Project

On-the-Job Tasks for the Project Manager
- Identify relevant actors and factors.
- Determine the degree of dependency of the project on each actor or factor.
- Estimate the risk (for example, the probability of something going wrong) associated with each relevant actor or factor.
- Assess the degree of management control or influence over the actor or factor.
- Identify actors or factors needing special attention.
- Develop strategies for increasing control or influence, including informal links (for example, inviting a person to lunch) and formal links (for example, forming a committee).
- Develop a plan to cope with potential problems caused by actors and factors, especially those characterized by medium or high dependency, medium or high risk, and medium or low control. The plan should aim at reducing dependency and risk.

Outline for Session 4.1
Actors and Factors

Instructional Objectives
Given a PAR, information about a project, and a worksheet for listing and evaluating actors and factors, the learners (as members of a team) will be able to

1. Define the following terms: actor, factor, stakeholder, process link, structural link, environmental scan, and context analysis.
2. Use environmental scanning tools (provided to them) to identify actors and factors that may have an influence on the project.
3. Evaluate the actors and factors in terms of project dependency, risk (for example, what could go wrong and its likelihood of going wrong), and power.
4. Determine which actors and factors need to be actively managed.
5. Develop a plan for increasing power, decreasing dependency or risk, or coping with the uncertainty related to the actors and factors that need to be actively managed.
**Session Schedule**

**Introduction:** 5 minutes  
**Lecture 4.1.1:** Actors and Factors—20 minutes  
**Activity 4.1.1:** Analyzing the Project Context (the external environment): Water Supply and Sewerage Project for Islandia—Part 1: Brainstorming  
(Sector Analysis Worksheet)—20 minutes  
**Presentations or Discussion:** 15 minutes  
**Activity 4.1.1:** Analyzing the Project Context (the external environment): Water Supply and Sewerage Project for Islandia—Part 2: Evaluation  
(Actors and Factors Grid)—20 minutes  
**Presentations or Discussion:** 20 minutes  
**Activity 4.1.1:** Analyzing the Project Context (the external environment): Water Supply and Sewerage Project for Islandia—Part 3: Managing Key Actors and Factors (Worksheet for Actively Managing Actors and Factors)—20 minutes  
**Presentations or Discussion:** 20 minutes  
**Self-Assessment Questions 4.1:** Actors and Factors—20 minutes  
**Discussion and Summary:** 20 minutes

**Optional Reading**  

**Class Handouts**  
- Student copy of lecture and visuals  
- Activity 4.1.1, Analyzing the Project Context (the external environment): Water Supply and Sewerage Project for Islandia, Problem and Solution

**Self-Assessment Questions**  
4.1, Actors and Factors, Questions and Answers

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**Outline for Session 4.2**  
**Comprehensive Case Study: Milenia National Highway Project**

**Instructional Objectives**  
Given a PAR, including contextual information about a project, and a set of environmental scanning tools, learners will be able to perform a context analysis (environmental scan) and develop a strategy for managing relevant actors and factors. This will include  
1. Identifying and listing potentially relevant actors and factors that may have an influence on the project.  
2. Evaluating the actors and factors in terms of project dependency, risk, and power.  
3. Determining which actors and factors need special attention from management (for example, active management).  
4. Developing a plan for reducing dependency, increasing power, decreasing risk, or coping with the uncertainty, especially for the actors and factors judged to need special attention from management.

**Session Schedule**

**Introduction:** 10 minutes  
**Activity 4.2.1:** Comprehensive Case Study: Analyzing Project Context—The Milenia Project—80 minutes  
**Team Presentations:** 60 minutes  
**Class Discussion:** 20 minutes  
**Module Summary:** 10 minutes

**Class Handouts**  
- Activity 4.2.1, Comprehensive Case Study: Analyzing Project Context: The Milenia Project, Problem and Solution
OUTLINE FOR MODULE 5
REFINING OBJECTIVES, SCOPE, AND OTHER PROJECT PARAMETERS

Some development projects enter the implementation phase with a well-defined life cycle, objectives, deliverables, master schedule, and budget. Other projects are less clearly defined when they enter implementation. For projects that enter implementation with well-defined parameters, the project manager's role is to work with the project team to refine these parameters and to ensure that the team develops a common understanding and perception of the work to be performed and the processes that will be used to create the product and to manage the project, the budget, and the schedule. For projects with less specificity, the project manager's role may include defining the parameters rather than refining them. Modules 5, 6, and 7 introduce a set of interdependent analytical tools that help the manager answer these critical questions:

• What is the objective of the project?
• What is the work to be performed?
• How can the work be broken down and organized into manageable units?
• Who will perform each unit of work?
• When will the work be performed?
• With what resources will the work be performed?

Answering these questions is an iterative process. The project manager and the project team must ask these questions repeatedly, adjusting the answers over time as new information is gained, both during implementation planning and during execution. Each of the next three modules addresses these questions, but in increasing detail and specificity. As shown in table 2, the outputs of each module become the inputs for the succeeding module. The process begins in module 5 as the project team works at a relatively general level, analyzing the project analysis report and clarifying project objectives, deliverables, required steps in implementing the project (for example, life-cycle subphases), and other key parameters. The main outputs of module 5 are the product structure and the project's life cycle, which we call its process structure. In module 6 the work breakdown structure (WBS) is used by the project team to map, in an easily understandable form, all the product- and process-oriented work that must be performed for the project to achieve its objectives. Organizational work not included in the product and process structures is also accounted for on the WBS. The responsibility matrix and master summary schedule are tools that help the project team determine, in a general fashion, who is responsible for each major category of work and how long the work will take. In module 7 we reach our most detailed level of analysis as summary activities from the master summary schedule are disaggregated into activities that are used as inputs for the critical path method (CPM) of analysis. For the first time a detailed schedule of activities showing dependencies is developed, and resources and responsibilities are assigned to these activities. The approved CPM becomes the project manager's fundamental management tool, and it is used throughout the rest of the project for planning and control purposes.

To ensure success, project parameters should be clear and detailed, and project team members should have a shared understanding of objectives, deliverables (scope), and other key parameters.

Instructional Objectives

Given a project analysis report (PAR) and a set of guidelines, the learners (as members of a project team) will be able to

1. Refine the key parameters of a project as described in the PAR, including project objectives, deliverables (end items), components, overall budget, schedule, risks, and so forth.
2. Refine or create a product structure and a process structure (life cycle).
3. Describe the relationship between the control period and the level of detail.
4. Identify at least three influences on the duration of the control period for a project.
At the end of this module, the learners will be able to

1. Describe what is meant by the following: a project, project management, project life cycle (process structure), and systematic project management.

2. Match these terms with their definitions:
   - control period
   - component
   - decision gate
   - deliverable
   - end item
   - life cycle
   - milestone
   - objective
   - product structure
   - process structure
   - scope.

3. Use the terms from objective 6 appropriately in planning the implementation of a project.

### Sessions

**Session 5.1** Managing Projects (optional session, see session outline)

**Session 5.2** Reviewing the Project Analysis Report and Refining Key Project Parameters

**Session 5.3** Preparing the Product and Process Structures

**Session 5.4** Comprehensive Case Study: Bridge Construction Project

### On-the-Job Tasks for the Project Manager

- Lead the project team in reviewing the PAR.
- Work with team members as a group to systematically review the PAR and to reach a common understanding of objectives, deliverables, organization structure, and other key parameters.
- Set the control period and level of detail.
- Develop a product structure by listing major components and subcomponents.
- Review the overall budget and the budget for each deliverable.
- Clarify the process structure (for example, life-cycle subphases, milestones, and decision gates) for the implementation phase of project life-cycle.
- Identify where a project is in its life-cycle.

**Table 2**

<table>
<thead>
<tr>
<th>Module 5</th>
<th>Module 6</th>
<th>Module 7</th>
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<td><strong>Inputs</strong></td>
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<td>Project analysis report (PAR)</td>
<td>Product structure (life-cycle phases)</td>
<td>Master summary schedule (summary activities)</td>
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<tr>
<td>• Objectives (components)</td>
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<td>• Initial schedule</td>
<td>Process structure</td>
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<tr>
<td>• Initial budget</td>
<td>Chart of accounts</td>
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<tr>
<td>• Organizational design</td>
<td>Organization chart</td>
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<tr>
<td>Preliminary product design</td>
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<tr>
<td><strong>Outputs</strong></td>
<td></td>
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<tr>
<td>Product: Deliverables (components and subcomponents)</td>
<td>Product: Work packages (for implementation phase)</td>
<td>Activity-based schedule and resource loading</td>
</tr>
<tr>
<td>Process: Life-cycle subphases (for implementation phase)</td>
<td>Process: Summary activities</td>
<td>Critical Path Method (CPM)</td>
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<td>Control period (time)</td>
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<tr>
<td>Issues and recommendations to management for changes in key project parameters</td>
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<tr>
<td><strong>Tools</strong></td>
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<tr>
<td>PAR review guidelines</td>
<td>Work Breakdown Structure (WBS)</td>
<td>CPM (Activity-level schedule and resource loadings)</td>
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<tr>
<td>Product structure</td>
<td>Responsibility matrix</td>
<td>Activity list</td>
</tr>
<tr>
<td>Process structure</td>
<td>Master summary schedule</td>
<td>Gantt chart or bar chart</td>
</tr>
</tbody>
</table>
• Identify risks and resolve issues. (Issues may relate to deliverables, schedule, budget, risks, and so forth.)
• Make recommendations to management.

Outline for Session 5.1
Managing Projects (Optional Session)

Note: The first four visuals and corresponding script for this session are a summary introduction to module 5. The remainder of the script and visuals (5 to 27), which repeat the content of module 1, may be omitted if module 1 has already been covered.

Instructional Objectives
At the end of the module, the learners will be able to
1. Describe what is meant by
   • a project
   • project management
   • project life cycle (process structure).
2. Match these terms with their definitions:
   • systematic management process
   • control period
   • component
   • decision gate
   • deliverable
   • end item
   • life cycle
   • milestone
   • objective
   • product structure
   • process structure
   • scope.
3. Use these terms from objective 2 appropriately in planning a project.

Session Schedule
Introduction: 15 minutes
Lecture 5.1.1: Managing Projects—45 minutes
Discussion: 30 minutes
Self-Assessment Questions 5.1: Managing Projects—20 minutes
Discussion: 60 minutes

Class Handouts
• Student copy of lecture and visuals

Self-Assessment Questions
5.1, Managing Projects, Questions and Answers

Outline for Session 5.2
Reviewing the Project Analysis Report and Refining Key Project Parameters

Instructional Objective
At the end of the session, learners will be able to refine the key parameters of a project as described in the project analysis report, including project objectives, deliverables (end items), components, overall budget, schedule, and risk. The learners will work as members of a project team and will be given a project analysis report and a set of guidelines.

Session Schedule
Introduction and review of previous session: 5 minutes (Use the first four visuals and corresponding script of session 5.1)
Lecture 5.2.1: Reviewing the Project Analysis Report and Refining Key Project Parameters—60 minutes
Discussion: 20 minutes
Activity 5.2.1: Water Supply and Sewerage Project for Islandia: Reviewing the Project Analysis Report—60 minutes
Discussion: 40 minutes

Class Handouts
• Student copy of lecture and visuals
• Student copy lecture attachments:
  • Useful Terms for Reviewing the Project Analysis Report
  • Guidelines for Reviewing the Project Analysis Report
  • Activity 5.2.1, Water Supply and Sewerage Project for Islandia: Reviewing the Project Analysis Report (PAR), Problem and Solution

Self-Assessment Questions
5.2, Reviewing the Project Analysis Report and Refining Key Project Parameters, Questions and Answers
Outline for Session 5.3
Preparing the Product and Process Structures

Instructional Objectives
At the end of the session, the learners will be able to
1. Refine or create a product structure and a process structure for a project.
2. Describe the relationship between the control period and the level of detail.
3. Identify at least three influences on the duration of the control period for a project.

Session Schedule
Introduction: 5 minutes
Lecture 5.3.1: Preparing the Product and Process Structures—60 minutes
Activity 5.3.1: Water Supply and Sewerage Project for Islandia: Preparing the Product and Process Structures—30 minutes
Discussion: 15 minutes
Self-Assessment Questions 5.3: Preparing the Product and Process Structures—40 minutes
Discussion: 30 minutes

Class Handouts
• Activity 5.3.1, Water Supply and Sewerage Project for Islandia: Preparing the Product and Process Structures, Problem and Solution

Self-Assessment Questions
5.3, Preparing the Product and Process Structures, Questions and Answers

Outline for Session 5.4
Comprehensive Case Study: Bridge Construction Project

Instructional Objective
At the end of the session, the learners will be able to demonstrate their understanding of the content introduced in this module by applying their knowledge to a case study and, as members of a team, will prepare the product structure and process structure for the case. The Bridge Construction Project is one component of the Milenia National Highway Project.

Session Schedule
Introduction: 10 minutes
Activity 5.4.1: Comprehensive Case Study: Bridge Construction Project—60 minutes
Discussion: 60 minutes

Class Handouts
• Activity 5.4.1, Comprehensive Case Study: Bridge Construction Project, Case Study, Problem, and Solution
OUTLINE FOR MODULE 6
PREPARING THE WORK BREAKDOWN STRUCTURE, RESPONSIBILITY MATRIX, AND MASTER SUMMARY SCHEDULE

This module continues the iterative process of defining the project more specifically and of formulating more detailed answers to these questions:
1. What work must the project team perform?
2. Who is responsible for each major element of work?
3. How long will the project take? (This question will not be fully answered until module 7.)

In this module, the project team uses the work breakdown structure (WBS) to synthesize and display in one place all the product-, process-, and organization-related work elements. The WBS serves as a means of grouping related work into work packages, which can be used for accounting, budgeting, and work allocation. Information from the WBS is used to create the master summary schedule (MSS) and the responsibility matrix. The MSS is the tool that allows the project manager to develop a rough schedule for the project using summary activities. Summary activities are process subphases that must occur for work packages to be produced. Summary activities will be disaggregated into activities in module 7 as part of the process of creating the project’s activity-based schedule (for example, its critical path method [CPM] plan). The responsibility matrix is a tool that clarifies organizational roles and responsibilities.

Instructional Objectives
At the end of this module, the learners will be able to
1. Given the product, process, and organization structures for the project, as members of a project team, develop the following:
   • work breakdown structure
   • responsibility matrix
   • master summary schedule.
2. Describe what is meant by the following:
   • activity
   • chart of accounts
   • master summary schedule
   • responsibility matrix

3. Use the terms from objective 2 when planning a project.
4. List at least three key attributes of a work package.
5. Describe the principles used in setting the control period for a project.

Sessions
Session 6.1 Preparing the Work Breakdown Structure
Session 6.2 Preparing the Responsibility Matrix and Master Summary Schedule
Session 6.3 Comprehensive Case Study: Bridge Construction Project

On-the-Job Tasks for the Project Manager
• Convert the product structure into a tree diagram.
• Add necessary process-related work (from the process structure) to the WBS.
• Add necessary organization-related work to the WBS.
• Adjust the level of detail of the WBS as required.
• Code the WBS.
• Create a responsibility matrix.
• Create a master summary schedule.

Outline for Session 6.1
PREPARING THE WORK BREAKDOWN STRUCTURE

Instructional Objectives
At the end of this session, the learners will be able to
1. As members of a project team, develop a WBS when given product, process, and organization structures for the project.
2. List at least three key attributes of a work package.
Session Schedule
Introduction: 5 minutes
Lecture 6.1.1: Preparing the Work Breakdown Structure—40 minutes
Discussion: 20 minutes
Activity 6.1.1: Water Supply and Sewerage Project for Islandia: Preparing the Work Breakdown Structure—60 minutes
Discussion: 30 minutes

Class Handouts
- Student copy of lecture and visuals
- Student copy of attachments to lecture:
  - Vocabulary
  - Guidelines
- Activity 6.1.1, Water Supply and Sewerage Project for Islandia: Preparing the Work Breakdown Structure, Problem and Solution

Outline for Session 6.2
Preparing the Responsibility Matrix and the Master Summary Schedule

Instructional Objective
At the end of the session, the learners will be able to develop, as members of a project team, a responsibility matrix and master summary schedule. The learners will be provided with the WBS for the project, the product and process structures, and the organization structure.

Session Schedule
Introduction and review of previous session: 5 minutes
Lecture 6.2.1: Preparing the Responsibility Matrix and Master Summary Schedule—30 minutes
Discussion: 20 minutes
Self-Assessment Questions 6.2: Preparing the Work Breakdown Structure, Responsibility Matrix, and Master Summary Schedule—20 minutes
Discussion: 20 minutes
Activity 6.2.1: Water Supply and Sewerage Project for Islandia: Preparing the Responsibility Matrix and Master Summary Schedule—60 minutes
Discussion: 30 minutes

Class Handouts
- Student copy of lecture and visuals
- Activity 6.2.1, Water Supply and Sewerage Project for Islandia: Preparing the Responsibility Matrix and Master Summary Schedule, Problem and Solution

Self-Assessment Questions
6.2, Preparing the Work Breakdown Structure, Responsibility Matrix, and Master Summary Schedule, Questions and Answers

Outline for Session 6.3
Comprehensive Case Study: Bridge Construction Project

Instructional Objective
At the end of this session, the learners will be able to develop, as members of a project team, a WBS, responsibility matrix, and MSS. Learners will be given product and process structures and an organization structure for the project.

Session Schedule
Introduction: 10 minutes
Activity 6.3.1: Comprehensive Case Study: Bridge Construction Project—90 minutes
Discussion: 60 minutes

Class Handouts
- Activity 6.3.1, Comprehensive Case Study: Bridge Construction Project, Case study (use case from module 5, session 4), Problem and Solution
OUTLINE FOR MODULE 7
PLANNING AND SCHEDULING
WITH THE CRITICAL PATH METHOD

This module deals with the use of planning tools to organize and sequence the activities (work) of a project. This must be done before the work can be scheduled and resources can be allocated. The module introduces several tools, although it features the critical path method (CPM) of time-scaled precedence diagramming. CPM allows project managers to sequence project activities, establish dependencies, and determine how long a project will take. By the end of the module, each participant should be able to prepare a critical path network plan and be able to explain the benefits of using CPM as a management tool.

**Instructional Objectives**

Given project-specific data, including the master summary schedule (MSS), the learners will be able to

1. Prepare and revise a simple CPM schedule (by hand) taking into account requirements, resources, and risks.
2. Demonstrate an appreciation of the value of preparing and using a CPM plan by listing five benefits of CPM and voluntarily using CPM to plan projects.

**Sessions**

- **Session 7.1** Planning Tools and the Critical Path Method
- **Session 7.2** Scheduling and Allocating Resources with the Critical Path Method
- **Session 7.3** The Computer and Project Management
- **Session 7.4** Comprehensive Case Study: Bridge Construction Project

**On-the-Job Tasks for the Project Manager**

**Planning**

- Review the work breakdown structure (WBS), responsibility matrix, and MSS
- Select the appropriate planning tool: activity list, bar chart, or network diagrams (precedence, arrow, and PERT)
- Generate a list of activities for each summary activity and assign responsibility
- Estimate the duration of each activity
- Establish the sequence of activities
- Prepare a precedence network diagram
- Determine the critical path
- Calculate float (slack).

**Scheduling**

- Calculate resource requirements
- Schedule float activities
- Compare results to the original schedule and resource constraints
- Evaluate risks based on expert advice and experience and modify schedule accordingly
- Identify discrepancies and opportunities and escalate to management
- Determine if the project can be completed to meet the target completion date specified in the project analysis report and, if not, decide on the best strategies to reduce duration
- Revise the MSS.

**Using Computers**

- Apply selection criteria to choose the right tool
- Set up the computer tool (modify defaults)
- Read and interpret sample output reports
- Match different types of reports with different users and purposes.
Outline for Session 7.1
Planning Tools and the Critical Path Method

Instructional Objective
At the end of the session, the learners will be able to prepare a CPM plan (by hand) for a simple project that involves five to ten activities, including creating the activity list, estimating duration, sequencing, and calculating the network for critical path and float.

Session Schedule
Introduction: 5 minutes
Lecture 7.1.1: Planning Tools and the Critical Path Method—60 minutes
Activities 7.1.1 through 7.1.5: 40 minutes
Lecture 7.1.2: Planning Tools: Arrow Diagram and PERT Diagram—20 minutes
Homework: 10 minutes

Optional Readings


Class Handouts
- Student copy of lectures and visuals
- Activity 7.1.1, XYZ, Network Analysis Exercise, Problem and Solution.
- Activity 7.1.2, Practice in Logic, Network Analysis Exercises, Problem and Solution.
- Activity 7.1.3, ABC, Network Analysis Exercise, Problem and Solution.
- Activity 7.1.4, Temporary Bridging, Network Analysis Exercise, Problem and Solution.
- Activity 7.1.5, Project Appraisal, Network Analysis Exercise Part I, Problem and Solution.

Homework
Activity 7.1.5, Project Appraisal, Network Analysis Exercise Part I.

Self-Assessment Questions
7.1.1, Planning Tools and the Critical Path Method, Questions and Answers
7.1.2, Planning Tools: Arrow Diagram and PERT Diagram, Questions and Answers

Outline for Session 7.2
Scheduling and Allocating Resources with the Critical Path Method

Instructional Objectives
At the end of this session, the learners will be able to
1. Interpret and schedule a CPM network; identify options for shortening the network, allocating resources, and managing risks and external factors; and update the network appropriately.
2. In response to possible objections to its use, provide reasons why CPM networks help project managers.

Session Schedule
Introduction: 5 minutes
Review homework assignment: 15 minutes
Lecture 7.2.1: Scheduling and Allocating Resources—20 minutes
Activities 7.2.1 through 7.2.3: 1 hour 55 minutes

Required Prestudy
Activity 7.1.5, Project Appraisal, Network Analysis Exercise Part I.
Activity 7.2.2, Jamhuri Sawmill, Network Analysis Exercise Part I.

Optional Readings

Class Handouts
- Student copy of lecture and visuals
- Solution to Activity 7.1.5, Project Appraisal, Network Analysis Exercise Part I, Problem and Solution.
• Activity 7.2.1, Project Appraisal, Network Analysis Exercise Part II: Resource Allocation and Scheduling, Problem and Solution.
• Activity 7.2.2, Jamhuri Sawmill, Network Analysis Exercise Parts I and II, Problem and Solution.
• Activity 7.2.3, Pumping System, Network Analysis Exercise, Problem and Solution.

Self-Assessment Questions
7.2, Scheduling and Allocating Resources with the Critical Path Method, Questions and Answers

Outline for Session 7.3
The Computer and Project Management

Instructional Objectives
At the end of this session, the learners will be able to
1. List the main criteria for selecting among the many CPM computer software programs.
2. Modify the criteria to meet the needs of their organizations.
3. Explain why the modification of defaults is important once a program is selected.
4. Discuss the benefits of CPM.

Session Schedule
Review questions from previous session: 5 minutes
Lecture 7.3.1: The Computer and Project Management—60 minutes
Optional Activities: 30–90 minutes
Note: If participants have access to personal computers with CPM software, they could do the following:
• Complete the tutorial for the computer software available to participants.
• Input data from Activity 7.1.3, ABC, Network Analysis Exercise.
• Practice reading sample reports created with CPM software available to participants.
Lecture 7.3.2: Module Summary: The Benefits of CPM—10 minutes
Debate the benefits of CPM: 30 minutes

Class Handouts
• Student copy of lectures and visuals
• Sample reports from available CPM software

Homework
Modifying Criteria for Software Selection
• Learners define selection criteria for their own project and organization.
• Learners make tentative recommendations and identify areas that need further research or technical consultation with information technology specialists.

Configuration Exercise
Each learner should prepare a one-page checklist of relevant configuration items, with preferences indicated. The checklist can serve as a job aid for the participant to help configure project management software available during the course or back on the job.

Self-Assessment Questions
7.3, The Computer and Project Management, Questions and Answers

Outline for Session 7.4
Comprehensive Case Study: Bridge Construction Project

Instructional Objectives
At the end of this session, the learners will be able to
1. Understand the value of the CPM and voluntarily use it to plan projects.
2. Apply CPM to a project with minimal coaching.

Session Schedule
Review homework assignments: 20 minutes
Introduction to case study: 5 minutes
Activity 7.4.1: Comprehensive Case Study: Bridge Construction Project (learning check)—2 hours

Class Handouts
• Activity 7.4.1, Comprehensive Case Study: Bridge Construction Project, Case study (use case from module 5, session 4), Problem and Solution
After the project team has put together a detailed project implementation plan (that is, the proposed schedule, resources, and budget), it must normally get management to approve the plan before going forward with additional work. The team’s approach to management can influence its success in getting approval. This module describes a number of strategies for getting sign-off. In addition, it discusses the importance of and how to ensure management support for the project throughout implementation. Because of the importance of negotiation when seeking support and approval, one part of the session is devoted to negotiating skills.

**Instructional Objectives**

At the end of this module, learners, as members of a project team, will be able to

1. Prepare a strategy for obtaining management approval of the project schedule, resources, and budget, given a revised project plan, an organization chart, and information about the context of a project.

2. Prepare a strategy for maintaining management support for the project during implementation.

**Sessions**

Session 8.1 Getting and Maintaining Management Approval and Support

Session 8.2 Comprehensive Case Study: Bridge Construction Project

**On-the-Job Tasks for the Project Manager**

- Review the proposed project implementation plan.
- Verify resource commitments with the department heads who are responsible for the various aspects of the project.
- Determine who needs to give formal and informal approvals.
- Develop a strategy for obtaining approval from relevant decisionmakers.
- Prepare a presentation to management (project review).
- Practice the delivery of the presentation.
- Present to management and negotiate.
- Revise the plan as required.
- Obtain approvals.
- Develop a strategy for maintaining support.
- Implement the strategy for maintaining support.

**Outline for Session 8.1 Getting and Maintaining Management Approval and Support**

**Instructional Objectives**

At the end of this session, learners will be able to

1. Describe why management approval is required for a project implementation plan.
2. Identify the people who need to approve the project implementation plan, either formally or informally.
3. Describe the steps involved in securing management approval.
4. Describe at least three common mistakes when preparing for or conducting a negotiation with management.
5. Describe the elements of a successful negotiation strategy.
6. Create or revise a strategy for obtaining management approval for a case example or for an actual project.
7. Describe why ongoing management support for a project is essential.
8. Describe how to maintain management support.
9. Create or revise a strategy for maintaining management support for a case study or for an actual project.
Session Schedule
Introduction: 5 minutes
Lecture 8.1.1: Obtaining Approval and Support—30 minutes
Discussion: 30 minutes
Activity 8.1.1: Obtaining Management Approval for the Islandia Water Supply and Sewerage Project Implementation Plan—60 minutes
Presentations or Discussion: 60 minutes
Introduction to Homework Assignment

Class Handouts
- Activity 8.1.1, Obtaining Management Approval for the Islandia Water Supply and Sewerage Project Implementation Plan, Problem and Solution

Self-Assessment Questions
8.1, Obtaining Management Approval, Questions and Answers

Outline for Session 8.2
Comprehensive Case Study: Bridge Construction Project

Instructional Objectives
At the end of this session, learners, as members of a project team, will be able to prepare a strategy for obtaining management approval of the project schedule, resources, and budget, given a revised project implementation plan, an organization chart, and information about the context of a project.

Session Schedule
Introduction: 5 minutes
Review Self-Assessment Questions 8.1: Obtaining Management Approval—30 minutes
Activity 8.2.1: Comprehensive Case Study: Bridge Construction Project—90 minutes
Group Presentations and Discussion: 60 minutes

Class Handouts
- Activity 8.2.1, Comprehensive Case Study: Bridge Construction Project, Problem and Solution
This module introduces a process for designing control and reporting systems and discusses several widely used control tools, such as trend analysis and earned value analysis. The module emphasizes ways of helping the project manager keep a project on course, in terms of its time, cost, resources, and scope (performance and quality), and of controlling the process of changing scope (deliverables) and design (specifications) during the project (scope control and configuration management).

**Instructional Objective**

Given an approved project implementation plan, the learners, as members of a project team, will be able to design a management control and reporting system to monitor the project’s progress and adherence to the plan in terms of its time, cost, resources, and scope (performance and quality). The plan will include provisions for data collection, processing, and reporting, and for scope control and configuration management. It should also include sample forms for data collection and reporting.

**Sessions**

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**On-the-Job Tasks for the Project Manager**

- Understand and be able to use standard tools for monitoring time, cost, resources, and scope (quality and performance) in relation to the plan and for controlling scope and design specifications.
- Determine which management tools to use for controlling the process in terms of time, cost, resources, and scope (performance and quality).
- Use the control period to determine the frequency of reporting.
- Identify the kinds of data that need to be collected.
- Identify who will provide the data.
- Identify ways of making the provision of data rewarding or at least not burdensome.
- Identify who will receive the reports.
- Identify information processing requirements.
- Design forms for data collection, display, and reporting.
- Work with the information systems department as required to establish data collection, processing, and reporting systems.
- Avoid setting up duplicate systems.
- Design systems for simplicity.
- Schedule routine, regular meetings for staff.
- Separate project review sessions from detailed problem solving sessions.
- Use appropriate technology.
- Match the appropriate report style and content to the audience and purpose.

**Outline for Session 9.1**

**Designing Control Systems**

**Instructional Objectives**

At the end of this session, learners will be able to

1. Describe the meaning of project control and why it is important.
2. Identify the key elements of a project that must be controlled.
3. Describe how each of the following management tools is used to control a project: variance analysis, trend analysis, earned value analysis, and configuration management.

4. Identify the information required to perform a variance analysis, trend analysis, and earned value analysis (for time, cost, resources, and scope).

5. Interpret the information that results from a variance analysis, trend analysis, and earned value analysis (for time, cost, resources, and scope).

6. Describe why earned value analysis is especially useful for managing internal projects and for cost reimbursement projects (for time, cost, and scope).

7. Describe common control problems associated with having information that is not real time (for example, the information available to the project manager is not current because of time lags that are introduced as a result of collecting, processing, and reporting the information).

8. Identify a project manager’s options for dealing with time lags in a reporting system.

9. Describe the principles of project control, both in general and as applied to a specific project (given a vignette or a case study).

10. Specify the management tools and control principles appropriate to a project (given vignettes or a case study).

**Session Schedule**

*Introduction:* 5 minutes

*Lecture 9.1.1:* Designing Control Systems—45 minutes

*Discussion:* 30 minutes

*Activity 9.1.1:* Zambia Forestry Project, Accounts, Budgets, and Cost Control Exercise—Part 1—45 minutes

*Presentations or Discussion:* 30 minutes

*Summary:* 10 minutes

**Homework**

Self-Assessment Questions 9.1, Designing Control Systems, Questions and Answers

**Class Handouts**

- Student copy of lecture visuals
- Activity 9.1.1, Zambia Forestry Project, Accounts, Budgets, and Cost Control Exercise—Part 1, Problem and Solution

**Self-Assessment Questions**

9.1, Designing Control Systems, Questions and Answers

(Assigned as homework)

**Outline for Session 9.2**

Managing Changes in Scope (Deliverables) and Design (Configuration Management)

**Instructional Objectives**

At the end of this session, learners will be able to

1. Describe why it is important to implement a scope control and a configuration management system for a project.

2. Describe a process for designing a scope change and a configuration management system.

3. Design a simple scope change and configuration management system for a project (given vignettes or a case study).

**Session Schedule**

*Introduction:* 5 minutes

*Discussion:* Review of Principles of Cost Control—30 minutes

*Activity 9.2.1:* Zambia Forestry Project—Part 2 Project Progress Report—60 minutes

*Presentations or Discussion:* 45 minutes

*Lecture 9.2.1:* Managing Changes in Scope (Change Control) and Changes in Design (Configuration Management)—30 minutes

*Self-Assessment Questions 9.2:* Managing Changes in Scope and Changes in Design, Questions and Answers

*Summary:* 15 minutes

**Class Handouts**

- Student copy of lecture visuals
- Activity 9.2.1, Zambia Forestry Project—Part 2 Project Progress Report, Problem and Solution

**Self-Assessment Questions**

9.2, Managing Changes in Scope and Changes in Design, Questions and Answers
Outline for Session 9.3
Designing Reporting Systems

Instructional Objectives
At the end of this session, learners will be able to
1. Describe a process for systematically designing information management systems for controlling time, cost, resources, and scope (performance and quality).
2. Identify at least three common problems that project managers encounter when designing management information systems.
3. Explain why it is important to work collaboratively with the information systems specialists in their organizations when designing information collection and reporting systems.
4. Identify principles for designing effective management information systems for projects.
5. Explain why project managers often develop project-level, quick and dirty information systems to track project expense information.
6. Design information collection and report forms and procedures for a project (given vignettes or a case study).
7. Consider the capabilities of the information management systems available within their own organizations in relation to the information needs of a project manager.

Session Schedule
Introduction: 5 minutes
Lecture 9.3.1: Designing Reporting Systems—30 minutes
Activity 9.3.1: Project Reporting to Top Management—15 minutes
Activity 9.3.2: Metal Industries Case Study—60 minutes
Team Presentations: 45 minutes
Discussion: 15 minutes
Assign Self-Assessment Questions: Designing Reporting Systems

Prestudy
Read Metal Industries Case Study, Problem.

Homework
Self-Assessment Questions 9.3, Designing Reporting Systems, Questions and Answers

Class Handouts
• Student copy of lecture visuals
• Activity 9.3.1, Project Reporting to Top Management, Problem and Solution
• Activity 9.3.2, Metal Industries Case Study, Problem and Solution

Self-Assessment Questions
9.3, Designing Reporting Systems, Questions and Answers
(Assigned as homework)

Outline for Session 9.4
Comprehensive Case Study: Bridge Construction Project

Instructional Objectives
Given a project implementation plan, the learners, as members of a project team, will be able to design a management control and reporting system to monitor project progress and adherence to plan in terms of time, cost, resources, and scope (quality and performance). The management information system (MIS) is to include provisions for data collection, processing, and reporting and for configuration management. It should also include sample data collection and reporting forms.

Session Schedule
Review Self-Assessment Questions and Answers 9.3: Designing Reporting Systems—15 minutes
Introduction: 5 minutes
Activity 9.4.1: Comprehensive Case Study: Bridge Construction Project—85 minutes
Team Presentations: 45 minutes
Discussion: 20 minutes
Summary of Module and Look Ahead: 15 minutes

Class Handouts
• Activity 9.4.1, Comprehensive Case Study: Bridge Construction Project, Problem and Solution
OUTLINE FOR MODULE 10
ORGANIZING PROCUREMENT

This module introduces the process of procurement of works (for example, construction of bridges), services (for example, the work performed by consultants), and goods (for example, computer hardware) from the perspective of the project manager, who would work closely with the procurement personnel on the project team. The module deals with the procurement process that begins with the planning stage, continues through the bidding stage, and ends with contracts awarded. Supervision of contracts is discussed in module 11 as part of managing the execution of the work. The first session of module 10 introduces the basic principles of procurement and how fundamental differences in the nature of works, services, and goods dictate the use of different methods of procurement for each. Throughout the module, the learners will have opportunities to consider how procurement strategies and plans should meet the needs of a project. They will also have opportunities to review sample procurement documents. The module culminates with the comprehensive case study in which learners prepare a project’s procurement strategy, summary plan, and sample documents.

Note: This module provides a generic treatment of procurement principles and practices. It is not specific to the World Bank’s rules and requirements. Occasional reference is made to World Bank materials as examples of good practice, and information is provided on how to obtain information on procurement from various international agencies.

### Instructional Objective

Given a set of review guidelines and a case example that includes options for procurement of works, services, and goods; a proposed procurement schedule; and sample documents, the learners, working on a team, will recommend a procurement strategy, schedule, and revisions to the documents that reflect best practices for each type of procurement.

### Sessions

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### On-the-Job Tasks for the Project Manager

- Hire (if not already assigned) and supervise procurement staff.
- Review national procurement requirements and those of financing institutions.
- Establish procurement strategy in collaboration with procurement staff:
  - Review deliverables and identify items for procurement.
  - Decide on methods of procurement (for example, national, international, and so forth).
  - Identify donor requirements and incorporate those requirements in the plan.
  - Select the appropriate type of contracts.
• Decide how the total procurement will be divided into separate contracts.
• Prepare a schedule for procurement.
• Supervise preparation of necessary documents (announcements, letters, invitation to bid, and so forth).
• Supervise planning and execution of bidding and selection process.
• Supervise process for evaluating bids.
• Supervise preparation and negotiation of contracts.
• Supervise creation of procedures for management of contracts and disbursement of funds.

Outline for Session 10.1
Introduction to Procurement: Works, Services, and Goods

Instructional Objectives

A the end of this session, learners will be able to

1. Define each of the following terms in relation to procurement:
   • works
   • services
   • goods
   • transparency
   • economy
   • accountability
   • effectiveness
   • BOT (build, operate, and transfer)
   • monetarized characteristics
   • nonmonetarized characteristics
   • qualitative characteristics
   • quantitative characteristics.

2. Give examples of works, services, and goods.
3. List at least three generalizations about procurement that relate equally to the procurement of works, services, and goods.
4. Describe the role of the project manager in the procurement process.
5. List at least two common mistakes related to procurement in projects.
6. Explain the differences between (a) international competitive bidding (ICB), (b) national competitive bidding (NCB), (c) shopping, and (d) direct purchase.
7. Characterize the differences in procurement methods recommended for procuring (a) works, (b) services, and (c) goods.
8. Use the spectrum of procurement to classify works, services, and goods in terms of their quantitative and qualitative characteristics.
9. Explain how the spectrum of procurement can be used to narrow procurement options for the procurement of works, services, or goods.
10. Describe the elements of a procurement strategy and schedule.
11. Explain the importance of having a procurement strategy and schedule.
12. Develop a procurement strategy and schedule given a situation requiring procurement of works.

Session Schedule

Introduction: 15 minutes
Lecture 10.1.1: Introduction to Procurement: Works, Consulting Services, and Goods—20 minutes
Activity 10.1.1: Packaging (Bundling) in the Procurement Process—15 minutes
Presentation and Discussion: 20 minutes
Activity 10.1.2: Planning the Total Procurement Process—60 minutes
Presentation and Discussion: 40 minutes
Summary: 15 minutes
Self-Assessment Questions 10.1: Introduction to Procurement: Works, Services, and Goods—20 minutes

Handouts

• Student copy of lecture visuals
• Activity 10.1.1, Packaging (Bundling) in the Procurement Process, Problem and Solution
• Activity 10.1.2, Planning the Total Procurement Process, Problem and Solution

Self-Assessment Questions

10.1, Introduction to Procurement: Works, Services, and Goods, Questions and Answers
Outline for Session 10.2
Procurement of Works: Contract Types and Other Options

Instructional Objectives
At the end of this session, learners will be able to
1. Contrast procurement using BOT financing with procurement using public funds.
2. Describe the three ways in which works can be executed: by contract, by force account, and by community labor.
3. List the advantages and disadvantages of each of the three ways of executing works, both in general and for a specific set of circumstances (to be given).
4. List at least two common types of contracts (for example, measured and cost reimbursement) giving the advantages and disadvantages of each type.
5. Describe two specific types of measured contracts and two specific types of cost reimbursement contacts. Give the advantages and disadvantages of each type.
6. Given various sets of circumstances for the procurement of works (in vignettes or a case study), recommend an appropriate method for each procurement.
7. Identify the two parts of the FIDIC (Federation Internationale des Ingenieurs-Conseils) documents and describe the function and contents of each part.
8. Describe why it is usually advantageous to use standard contract documents, such as the FIDIC.

Session Schedule
Introduction: 10 minutes
Lecture 10.2.1: Procurement of Works: Contract Types and Other Options—30 minutes
Activity 10.2.1: Types of Works Contracts—15 minutes
Presentation and Discussion: 15 minutes
Activity 10.2.2: Work Other Than by Contract—15 minutes
Presentation and Discussion: 15 minutes
Activity 10.2.3: Cost-Reimbursable Contracts—10 minutes
Presentation and Discussion: 20 minutes
Activity 10.2.4: Choice of Method of Working—20 minutes
Presentation and Discussion: 20 minutes
Summary: 10 minutes

Self-Assessment Questions 10.2: Procurement of Works: Contract Types and Other Options—20 minutes

Class Handouts
• Student copy of lecture visuals
• Activity 10.2.1, Types of Works Contract, Problem and Solution
• Activity 10.2.2, Work Other Than by Contract, Problem and Solution
• Activity 10.2.3, Cost-Reimbursable Contracts, Problem and Solution
• Activity 10.2.4, Choice of Method of Working, Problem and Solution

Self-Assessment Questions
10.2, Procurement of Works: Contract Types and Other Options Questions and Answers

Outline for Session 10.3
Procurement of Works: Bidding, Evaluation, and Award

Instructional Objectives
At the end of this session, learners will be able to
1. Define the following terms: specifications, bill of quantities, and responsiveness.
2. List at least five criteria frequently used in evaluating the fitness of bidders.
3. Compare the advantages and disadvantages of prequalifying bidders with postqualifying bidders.
4. Describe each step in a normal bidding process.
5. List and describe each of the three parts of a typical contract.
6. Identify situations in which simpler contracts are preferable to more complex ones.
7. Compare the advantages and disadvantages of having or not having site visits organized by the client.
8. Given a situation (such as a bidder offering an alternative design), recommend a mechanism for decisionmaking or problem solving.
9. Explain how the client’s reputation and behaviors for administering contracts affects the bids.
10. Describe the steps in the evaluation and award process.
11. List the criteria traditionally used in evaluating bids.
12. Given one or more situations related to
responsiveness, resolve each situation.

13. Given a situation (such as a bidder offering an alternative design), explain the role of judgment in reaching a satisfactory conclusion.

14. Given a procurement situation (for works), develop a procurement strategy and schedule (to include specifications, bill of quantities, and outline of bid procedures), evaluate bids, and select a lowest evaluated bidder.

Session Schedule

Introduction and Review of Self-Assessment Questions 10.1, Introduction to Procurement: Works, Services, and Goods—10 minutes

Lecture 10.3.1: Procurement of Works: The Bidding Process—20 minutes

Activity 10.3.1: The Bidding Period—20 minutes

Presentation and Discussion:
20 minutes

Lecture 10.3.2: Procurement of Works: Evaluation and Award—15 minutes

Activity 10.3.2: Submission, Opening, and Examination of Bids—40 minutes

Activity 10.3.3: The Treatment of Uniformly High Bidding—20 minutes

Presentation: 30 minutes

Summary: 10 minutes

Assign Self-Assessment 10.3: Procurement of Works: Bidding, Evaluation, and Award

Homework

Self-Assessment 10.3, Procurement of Works: Bidding, Evaluation, and Award

Class Handouts

- Student copy of lecture visuals
- Activity 10.3.1, The Bidding Period, Problem and Solution
- Activity 10.3.2, Submission, Opening, and Examination of Bids, Problem and Solution
- Activity 10.3.3, The Treatment of Uniformly High Bidding, Problem and Solution

Self-Assessment Questions

10.3, Procurement of Works: Bidding, Evaluation, and Award, Questions and Answers

Outline for Session 10.4
Procurement of Services: Use of Consultants and Developing Terms of Reference

Instructional Objectives

At the end of this session, learners will be able to

1. Define the term, Terms of Reference (TOR).

2. Describe when it is appropriate to use consultants.

3. Compare the advantages and disadvantages of using consulting firms compared to using individual consultants.

4. Given a vignette, identify appropriate sources for consultant expertise.

5. Based on the learner’s experience, describe issues in the use of consultants from the client’s perspective and from the consultant’s perspective.

6. Describe a process for selecting and contracting with consultants.

7. Describe the characteristics of a well-crafted TOR.

8. Use a checklist to critically review and recommend improvements to a draft TOR for a specific assignment.

Session Schedule

Review of Self-Assessment Questions 10.3 and discussion: 10 minutes

Introduction: 10 minutes

Activity 10.4.1: Pros and Cons of Using Consultants: Clients’ and Consultants’ Views—20 minutes

Presentation and Discussion:
15 minutes

Lecture 10.4.1: Use of Consultants and Developing Terms of Reference—30 minutes

Activity 10.4.2: Identification of Appropriate Sources of Consulting Expertise: Development of Terms of Reference for Consultants—60 minutes

Presentation and Discussion:
40 minutes

Summary: 10 minutes

Optional Reading


**Class Handouts**

- Student copy of lecture visuals
- Activity 10.4.1, *Pros and Cons of Using Consultants: Clients’ and Consultants’ Views*, Problem and Solution
- Activity 10.4.2, *Identification of Appropriate Sources of Consulting Expertise: Development of Terms of Reference for Consultants*, Problem and Solution

**Outline for Session 10.5**

**Procurement of Services: Evaluation Criteria and Selection Procedures**

**Instructional Objectives**

At the end of this session, learners will be able to:

1. Define the following terms: criteria, short list, request for proposals (RFP), fixed budget contract, and time-based contracts.
2. Explain why procurement of consultants is fundamentally different from procurement of works.
3. Describe at least one method for establishing quality criteria for selecting consultants.
4. Compare the advantages or disadvantages of selection based on (a) quality, (b) quality and price, and (c) price.
5. Describe how to develop a short list of consultants.
6. Describe the evaluation and selection process recommended in the session for procurement based on (a) quality and (b) quality and price.
7. List the elements that should be included in an RFP.
8. Construct and use a summary rating system (that is, weighted selection grid) for ranking vendors.
9. Describe how to deal with different exchange rates when comparing proposals.
10. Given a procurement-related case study (or vignette) about a project, develop weighted evaluation criteria and selection procedures and use them to select a consultant.
11. Describe the process of preparing to negotiate with a service provider.
12. Describe the types of contracts typically used for procuring services and give their advantages and disadvantages.
13. Given vignettes, identify the appropriate contract for a specified type of job.
14. Match the terms and conditions of a contract to meet the requirements of the job.
15. Describe the process consultants usually use to establish their fees.
16. Describe how to negotiate sensitive issues (such as price) with a service provider.
17. Identify the elements of a successful negotiation in terms of outcomes achieved and the process employed.

**Session Schedule**

**Introduction:** 10 minutes

**Lecture 10.5.1: Evaluation Criteria and Selection Procedures**—15 minutes

**Activity 10.5.1: Defining Quality Factors and Their Weights for the Evaluation of Proposals**—10 minutes

**Presentation and Discussion:** 15 minutes

**Lecture 10.5.2: Procurement of Services: Contracts and Negotiation**—20 minutes

**Activity 10.5.2: Preparing for Negotiations**—15 minutes

**Presentation and Discussion:** 15 minutes

**Activity 10.5.3: Negotiating and Understanding Consultant Fees: Discussion**—20 minutes

**Negotiation:** 30 minutes

**Presentation:** 20 minutes

**Assign Self-Assessment Questions 10.5:**

**Procurement of Services: Evaluation Criteria and Selection Procedures**

**Summary:** 10 minutes

**Homework**

Self-Assessment Questions 10.5, *Procurement of Services: Evaluation Criteria and Selection Procedures*

**Optional Reading**


**Class Handouts**

- Student copy of lecture visuals
- Activity 10.5.1, *Defining Quality Factors and Their Weights for the Evaluation of Proposals*, Problem and Solution
- Activity 10.5.2, *Preparing for Negotiations*, Problem and Solution

**Self-Assessment Questions**

Outline for Session 10.6
Procurement of Goods: Specifications and Evaluation Criteria

Instructional Objectives
At the end of this session, learners will be able to
1. Define these terms: technical specifications, purpose-made, off-the-shelf, discounted cash flow, present value, discount rate, bond, and guarantee.
2. List the four elements of technical specifications.
3. Describe the characteristics of well-crafted technical specifications.
4. Compare the advantages and disadvantages of purpose-made and off-the-shelf procurement of goods in terms of cost, match-to-specs, and ease of decisionmaking.
5. Explain what is meant by the problem of procurement for goods.
6. Describe at least one approach to deal with the problem of procurement that provides for economy and transparency of procurement.
7. List and describe the stages in the procurement process.
8. List three questions (that is, considerations) the client must answer when preparing the technical specifications and describe the significance of each.
9. Compare the advantages and disadvantages of life-cycle costing with those of the merit point method.
10. Describe circumstances under which it is better to use life-cycle costing compared to the merit point method (and vice versa).
11. Describe how to create and use a merit point method of evaluation of proposals.
12. Given a case study or vignettes, create or review a set of simple technical specifications and evaluation criteria.

Session Schedule
Introduction: 10 minutes
Lecture 10.6.1: Goods: Specification—15 minutes
Activity 10.6.1: Goods: Specification—1—20 minutes
Presentation and Discussion: 15 minutes
Lecture 10.6.2: Establishment of Evaluation Criteria—20 minutes
Activity 10.6.2: Goods: Specification—2—30 minutes
Presentation and Discussion: 20 minutes

Activity 10.6.3: Establishment of Evaluation Criteria—20 minutes
Presentation and Discussion: 20 minutes
Summary: 10 minutes

Optional Readings

Class Handouts
• Student copy of lecture visuals
• Activity 10.6.1, Goods: Specification—1, Problem and Solution
• Activity 10.6.2, Goods: Specification—2, Problem and Solution

Outline for Session 10.7
Procurement of Goods: Evaluation and Award

Instructional Objectives
At the end of this session, learners will be able to
1. Describe how to prepare a list of acceptable suppliers.
2. List and describe the purpose of each of the six documents that usually constitute a bid package.
3. Using a checklist, critically review draft bidding documents for goods.
4. Explain why it is helpful to compare bids using a common currency.
5. Describe how to convert currencies into a common currency.
6. Compare the advantages and disadvantages of giving preferences (for example, to local industries).
7. Identify the two places in the procurement process where security is required and explain why.
8. Name the two stages in the bid evaluation process and characterize the major activities and issues associated with each stage.
9. Using a checklist, review proposed award procedures.
10. Describe the problems that arise from shortcomings in bids and challenges to selection.
11. Describe methods for dealing with shortcomings in bids and challenges to selection.
12. Given a case study or vignettes, evaluate bids and select a bidder.
Session Schedule
Introduction and Discussion of Reading Assignment: 10 minutes
Lecture 10.7.1: Procurement of Goods: Evaluation and Award—20 minutes
Activity 10.7.1: Goods: Evaluation and Award (Technical Evaluation)—40 minutes
Presentation and Discussion: 40 minutes
Activity 10.7.2: Goods: Evaluation and Award (Commercial Evaluation)—40 minutes
Presentation and Discussion: 40 minutes
Summary of Goods, and Module Summary: 10 minutes

Prestudy

Class Handouts
- Student copy of lecture visuals
- Activity 10.7.1, Goods: Evaluation and Award (Technical Evaluation), Problem and Solution
- Activity 10.7.2, Goods: Evaluation and Award (Commercial Evaluation), Problem and Solution

Self-Assessment Questions
10.7, Procurement of Goods: Evaluation and Award, Questions and Answers

Outline for Session 10.8
Comprehensive Case Study: Bridge Construction Project Contracts for Civil Works

Instructional Objectives
Given a set of review guidelines and a case study that includes options for procurement of works, services, and goods; a proposed procurement schedule; and sample documents, learners (working in a team) will recommend a procurement strategy, schedule, and revisions to the documents that reflect best practices for each type of procurement.

Session Schedule
Introduction to the Comprehensive Case Study: 5 minutes
Activity 10.8.1: Examination of ‘Instructions to Bidders’—40 minutes
Presentation: 15 minutes
Activity 10.8.2: Revision of Contract During Bidding—15 minutes
Presentation: 10 minutes
Activity 10.8.3: Bidders’ Concerns During the Bidding Period—20 minutes
Presentation: 15 minutes
Activity 10.8.4: Further Concerns/Queries of Bidders—30 minutes
Presentation: 15 minutes
Review Self-Assessment Questions 10.7: Procurement of Goods: Evaluation and Award—10 minutes
Summary: 5 minutes

Class Handouts
- Activity 10.8.1, Examination of ‘Instructions to Bidders’, Problem and Solution
- Activity 10.8.2, Revision of Contract During Bidding, Problem and Solution
- Activity 10.8.3, Bidders’ Concerns During the Bidding Period, Problem and Solution
- Activity 10.8.4, Further Concerns/Queries of Bidders, Problem and Solution

Introduction: Works, the Bidding Process in Practice
The bidding process for works may be defined as the processes commencing with prequalification of prospective bidders, if bidders are in fact to be prequalified, through to, and including, award of contract for the works and the procedure for obtaining the performance security.

The bidding documentation should be clear, unambiguous, and sufficient for the bidders to make and submit responsive bids. To recapitulate the material in session 10.3, the bid documentation should essentially comprise
- The bid package
- A blank copy of the contract documents as an indication to bidders of the document that would govern the construction of the works

The bid package, in turn, should comprise
- Information on the bidding process itself (the contents of the package, how the bidding documents
may be clarified or amended during the bidding period, and so forth)
• Instructions as to preparation of the bid (language, currencies, and securities)
• Information as to submission of the bid
• A description of the bid opening process
• The procedure for evaluation and comparison of bids (and therefore the award process).

This information is conveniently brought together and issued to the bidders as the instructions to bidders.

If the bidding documentation conforms with the foregoing and the bidders comply, in theory, no problems should arise in the bidding, evaluation, and award process. In practice this is rarely so, and the activities in this session have been designed to indicate to the learners the nature of the problems that may arise in the bidding period and how in practice they may be evaluated and addressed.

Note: This session is made up solely of activities. No lecture script is provided.

Outline for Session 10.9
Comprehensive Case Study: Bridge Construction Project Procurement of Goods and Services

Instructional Objectives

Given a set of review guidelines and a case study that includes options for procurement of works, services, and goods; a proposed procurement schedule; and sample documents, learners (working in a team) will recommend a procurement strategy, schedule, and revisions to the documents that reflect best practices for each type of procurement.

Session Schedule

Introduction to the Comprehensive Case Study:
5 minutes
Activity 10.9.1: Procurement of Services—90 minutes
Presentation: 30 minutes
Activity 10.9.2: Procurement of Goods—35 minutes
Presentation: 15 minutes
Summary: 5 minutes

Class Handouts

• Activity 10.9.1, Procurement of Services, Problem and Solution
• Activity 10.9.2, Procurement of Goods, Problem and Solution
OUTLINE FOR MODULE 11
EXECUTING AND CONTROLLING THE WORK

After issuing the order to begin work on a project, project managers must monitor progress versus plan for the key project parameters. Inevitably, project managers will face problems and challenges in managing scope, schedule, budget, and cost. This module discusses application of the tools that were introduced in the earlier modules to monitor progress versus plan and presents some typical problems and challenges a project manager can expect to face during implementation.

Instructional Objective
Given a case study with information about progress for a control period, learners will be able to

1. Identify variances and trends for key project parameters (resources, schedule, cost, or scope), determine if corrective actions are required, and adjust the project plans and schedule as needed (all four variables).
2. Develop solutions to typical procurement and contracting problems (works, goods, and services).

Sessions
Session 11.1 Managing Execution
Session 11.2 Managing Contracts
Session 11.3 Comprehensive Case Study: Bridge Construction Project

On-the-Job Tasks for the Project Manager

- Start up management information systems for control and reporting (for time, cost, resources, and scope).
- Implement processes for data collection, processing, and reporting.
- Initiate procurement of works, services, and goods.
- Monitor project parameters through reports and compare progress versus plan.
- Monitor procurement and resolve procurement issues.
- Replan and reschedule as required.
- Secure approval from management for required changes in plans (resources, schedule, cost, or scope).
- Distribute revised plans.
- Maintain teambuilding and communication activities.

Outline for Session 11.1
Managing Execution

Instructional Objectives
At the end of this session, learners, working in project teams and given a case study or vignette, will be able to

1. Describe the tasks that the project manager must normally perform once execution of work begins.
2. Interpret variance and trend reports on scope, schedule, resources, and cost data.
3. Replan and reschedule as required (schedule, cost, resources, and scope).

Session Schedule
Introduction: 5 minutes
Lecture 11.1.1: Managing Execution—15 minutes
Activity 11.1.1: Analyzing a Project Plan: Revision of Math Curriculum—30 minutes
Activity 11.1.2: Revising a Project Plan: Revision of Math Curriculum—30 minutes
Activity 11.1.3: Analyzing a Progress Report: Revision of Math Curriculum—30 minutes
Activity 11.1.4: Replanning a Project Schedule: Revision of Math Curriculum—30 minutes
Summary: 5 minutes

Class Handouts
- Student copy of lecture visuals
- Activity 11.1.1, Analyzing a Project Plan: Revision of...
Math Curriculum, Problem and Solution
- Activity 11.1.2, Revising a Project Plan: Revision of Math Curriculum, Problem and Solution
- Activity 11.1.3, Analyzing a Progress Report: Revision of Math Curriculum, Problem and Solution
- Activity 11.1.4, Replanning a Project Schedule: Revision of Math Curriculum, Problem and Solution

Outline for Session 11.2
Managing Contracts

Instructional Objectives
At the end of this session, learners, working in project teams, will be able to
1. Describe the responsibilities of the project manager for supervising procurement during execution.
2. Describe at least one best practice (for each type of procurement—works, services, and goods) that a project manager might use to keep procurement on track during the execution subphase of implementation.
3. Describe how to work with and manage the supervising consulting engineer, if there is one on the project.
4. Describe at least one typical problem for each type of procurement and contract (works, services, and goods) that a project manager might expect to encounter during the execution subphase of implementation.
5. Describe a process for monitoring the progress of contractors on a project.
6. Describe a process for resolving claims (given a case study or vignette).
7. Make determinations on claims (given a case study or vignette).
8. Analyze the impact of procurement problems on a project and adjust the critical path method (CPM) plan as necessary (given a case study or vignette).

Session Schedule
Introduction: 5 minutes
Lecture 11.2.1: Managing Contracts—20 minutes
Activity 11.2.1: Dealing with Claims: High School Construction Project—90 minutes
Activity 11.2.2: Adjusting the Plan: High School Construction Project—60 minutes
Assign Self-Assessment Questions 11.1 and 11.2: Managing Execution and Managing Contracts

Class Handouts
- Student copy of lecture visuals
- Activity 11.2.1, Dealing with Claims, Problem and Solution
- Activity 11.2.2, Adjusting the Plan, Problem and Solution
- Self-Assessment Questions 11.1 and 11.2, Questions and Answers

Self-Assessment Questions
11.1 and 11.2, Managing Execution and Managing Contracts, Questions and Answers

Outline for Session 11.3
Comprehensive Case Study: Bridge Construction Project

Instructional Objectives
At the end of this session, given a case study and updated information on progress for a control period, learners will be able to
1. Determine variances and trends for key project parameters (for example, schedule, cost, or scope).
2. Determine if corrective actions are required.
3. Adjust the project schedule and plan as needed (adjusting critical path network).

Session Schedule
Introduction: 5 minutes
Review Self-Assessment Questions 11.1 and 11.2: 15 minutes
Activity 11.3.1: Comprehensive Case Study: Bridge Construction Project—75 minutes
Team Presentations: 45 minutes
Discussion: 30 minutes
Summary of Module: 10 minutes

Class Handouts
- Activity 11.3.1, Comprehensive Case Study: Bridge Construction Project, Problem and Solution
OUTLINE FOR MODULE 12
TERMINATING THE PROJECT

This module deals with the final subphase of implementation, terminating the project. Every project, by definition, must end. Ideally, the project will have successfully accomplished its objectives on schedule, within budget, and without undue or inappropriate changes in scope. Now it is time for the project team to disband, and the responsibility for day-to-day operations to be passed on to other staff. Projects can falter at this stage if the project team and the operations team, in a joint effort, do not plan the transition adequately. This module deals with the planning steps required to make the transition from project to operations smooth and successful.

Instructional Objective

At the end of this module, the learners, given a vignette or case study, will be able to prepare a closedown plan that smoothly terminates a project at the end of its mission.

Sessions

Session 12.1 Terminating the Project

On-the-Job Tasks for the Project Manager

- Close out project accounts, including work orders and work packages.
- Close out contracts and settle any outstanding disputes.
- Arrange for the transfer of personnel to other assignments.
- Arrange for the preparation of as-built drawings (or the equivalent) and other project documentation.
- Transfer files and documentation archives.
- Obtain required government approvals and certification.
- Close physical facilities.
- Review the punch list to ensure that outstanding items are finished.
- Plan for maintenance.

- Plan for an ex post evaluation of the project and design of a monitoring system for operations, if required by the lender or owner.
- Plan inspection and acceptance procedures.
- Inspect and accept deliverables.
- Coordinate transition to operations.
- Train operations team.
- Conduct an end-of-project audit.

Outline for Session 12.1
Terminating the Project

Instructional Objectives

At the end of this session, learners will be able to

1. List at least five tasks a project manager must normally perform during termination.
2. Describe at least three problems commonly encountered during the handover of project responsibilities from the project team to the operations team.
3. Describe at least three best practices that may make the transition from project to operations more successful.
4. Given a vignette or case study, prepare a closedown plan that smoothly terminates a project at the end of its mission.

Session Schedule

Introduction: 5 minutes
Lecture 12.1.1: Terminating the Project—20 minutes
Comprehensive Case Study: Bridge Construction Project—60 minutes
Team Presentations: 30 minutes
Discussion: 15 minutes
Self-Assessment Questions 12.1: Terminating the Project—
20 minutes

Class Handouts
- Study copy of lecture visuals
- Activity 12.1.1, Comprehensive Case Study: Bridge Construction Project, Problem and Solution
- Course Evaluation Questionnaire

Self-Assessment Questions
12.1, Terminating the Project, Questions and Answers
Course Evaluation Questionnaire
APPENDIXES

1. Sample Course Evaluation Questionnaire
2. Sample Session Evaluation Questionnaire
3. Participant Action Plan Form
4. Sample Follow-up Letter
5. Sample Follow-up Questionnaire
Appendix 1. Sample Course Evaluation Questionnaire

Managing the Implementation of Development Projects
Location:
Dates:

Participants’ Feedback Questionnaire on the Course

GUIDELINES ON HOW TO ANSWER THE QUESTIONNAIRE
We invite you to complete this questionnaire to help us improve our activities in the future. Please be frank and open with your ratings and comments. Your opinion—no matter how positive or negative—is valuable to us and will be taken into consideration in the preparation of future activities. To keep your responses anonymous, please do not write your name on the form.

PART I:
☐ Please rate each aspect of the session listed below on a progressive scale of 1 to 5, where 1 is the minimum and 5 is the maximum. In this scale, 3 is the middle.
☐ If you feel that a question does not apply to you or that you do not have enough information to express an opinion, please circle the “no opinion” option represented by X.
☐ Indicate your answer by circling the corresponding number or the X at the end of the line.
☐ Please circle only one answer per question.
☐ If you made a mistake in marking an answer (that cannot be erased), please do the following to correct it: (1) circle your preferred answer, (2) draw an arrow to it, and (3) write the word “correct” next to the arrow.

Relevance:
1. How relevant is the course to your current work or functions? 1 2 3 4 5 X
Benefits of the course:
2. To what extent did you acquire information that was new to you? 1 2 3 4 5 X
3. How useful to you was the information that you acquired? 1 2 3 4 5 X
4. To what extent did the content of the course match the announced objectives? 1 2 3 4 5 X
5. How effective were the visual aids in reinforcing the message? 1 2 3 4 5 X
6. How useful were the training materials? 1 2 3 4 5 X
7. To what extent did you achieve your personal objectives in this course? 1 2 3 4 5 X

Design of the activities:
8. How relevant to your needs were the activities’ announced objectives? 1 2 3 4 5 X
9. To what extent did the content of the activities match the announced objectives? 1 2 3 4 5 X
10. How effective were the activities in maintaining your interest during their full duration? 1 2 3 4 5 X
11. How useful were the presentations for you? 1 2 3 4 5 X
12. How useful for you were the question and answer sessions with all the participants? 1 2 3 4 5 X
13. How useful for you were discussions organized in small groups? 1 2 3 4 5 X
14. How useful for you were the case studies? 1 2 3 4 5 X
15. How useful for you were the practice exercises? 1 2 3 4 5 X
16. How effective were the visual aids in reinforcing the message? 1 2 3 4 5 X
17. How useful have the training materials been for you up to now? 1 2 3 4 5 X
18. Was the balance of time between topics adequate? 1 2 3 4 5 X
19. Were the presentations of the issues objective? 1 2 3 4 5 X
20. Was the progression from one topic to the next logical? 1 2 3 4 5 X
21. To what extent did you achieve your personal objectives in the activities? 1 2 3 4 5 X

Overall:
22. What was the overall usefulness of the course? 1 2 3 4 5 X
PART II:

Now, please tell us what you felt about the proportion of each aspect of the course listed below.

For this, please refer to the following new scale:

A = insufficient  B = somewhat insufficient  C = adequate
D = somewhat excessive  E=excessive  X = no opinion

If you feel that a question does not apply to you or that you do not have enough information to express an opinion, please circle the “no opinion” option represented by X.

Indicate your answer by circling the corresponding number or the X at the end of the line.

Please circle only one answer per question.

Rate each aspect below with respect to quantity or intensity?

<table>
<thead>
<tr>
<th>Aspect</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>X</th>
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<td>23. Depth of treatment of the issue</td>
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<td>25. Amount of information covered in the activity</td>
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<td>26. Amount of work to do between sessions</td>
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<td>27. Length of the activity</td>
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<td>28. Variety of the training methods used</td>
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PART III:

Please answer the remaining questions in writing.

29. What did you find most useful in the course? (Please justify your answer.)

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30. What did you find least useful in the course? (Please justify your answer.)

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31. On what topics, if any, would you rather have spent more time, whether or not they were addressed in the course?

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32. On what topics, if any, would you rather have spent less time?

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33. What advice can you give us to improve courses of this kind in the future?

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34. Would you recommend this course to your colleagues? (Please circle your answer.) YES NO
Please justify your answer:

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35. Please list three things that you intend to do as a result of your participation in the course.
1. ...............................................................................................................................................................................................................
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3. ...............................................................................................................................................................................................................

36. How might you apply what you learned in the course? (If possible, please give examples.)

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37. Please list any other comments or suggestions.

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Thank you for completing this questionnaire. Please put it in the Questionnaire Box by the door before leaving.
Appendix 2. Sample Session Evaluation Questionnaire

Managing the Implementation of Development Projects
Location:
Dates:
Session Title:

Participants’ Feedback Questionnaire on the Session

GUIDELINES ON HOW TO ANSWER THE QUESTIONNAIRE
We invite you to complete this questionnaire to help us improve our activities in the future. Please be frank and open with your ratings and comments. Your opinion—no matter how positive or negative—is valuable to us and will be taken into consideration in the preparation of future activities. To keep your responses anonymous, please do not write your name on the form.

PART I:

☐ Please rate each aspect of the session listed below on a progressive scale of 1 to 5, where 1 is the minimum and 5 is the maximum. In this scale, 3 is the middle.
☐ If you feel that a question does not apply to you or that you do not have enough information to express an opinion, please circle the “no opinion” option represented by X.
☐ Indicate your answer by circling the corresponding number or the X at the end of the line.
☐ Please circle only one answer per question.
☐ If you made a mistake in marking an answer (that cannot be erased), please do the following to correct it: (1) circle your preferred answer, (2) draw an arrow to it, and (3) write the word “correct” next to the arrow.

Relevance:
1. How relevant was the session to your current work/functions? 1 2 3 4 5 X
2. How would you rate the presenter’s knowledge of the subject(s) covered? 1 2 3 4 5 X
3. To what extent did the presenter communicate information clearly? 1 2 3 4 5 X
4. To what extent did the presenter answer questions adequately? 1 2 3 4 5 X
5. How well organized was the session? 1 2 3 4 5 X

Benefits of the session:
6. To what extent did you acquire information that was new to you? 1 2 3 4 5 X
7. How useful for you was the information that you acquired? 1 2 3 4 5 X
8. To what extent did the content of the session match the announced objectives? 1 2 3 4 5 X
9. How effective were the visual aids in reinforcing the message? 1 2 3 4 5 X
10. How useful have the training materials been for you up to now? 1 2 3 4 5 X
11. What is the overall usefulness of the session? 1 2 3 4 5 X

PART II:

Please answer the remaining questions in writing.

12. What did you find most useful in the session? (Please justify your answer.)

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13. What did you find least useful in the session? (Please justify your answer.)
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14. What advice can you give us to improve sessions of this kind in the future?
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15. Please list three things that you intend to do as a result of your participation in the session.
1. ...............................................................................................................................................................................................................
2. ...............................................................................................................................................................................................................
3. ...............................................................................................................................................................................................................

16. Please list any other comments or suggestions.
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Thank you for completing this questionnaire. Please put it in the Questionnaire Box by the door before leaving.
Appendix 3. Sample Action Plan Form

Course Title: ____________________________  Your Name: ____________________________
Date of Course: ________________________  Country: ________________________________
Module: ________________________________

<table>
<thead>
<tr>
<th>Implementing Action Items</th>
<th>Check Here if Tried</th>
<th>Results Achieved</th>
<th>Comments If not achieved, why not?</th>
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Appendix 4. Sample Follow-up Letter

[Date]

Dear [Participant Name]

Several months ago you attended [Name of Course] at [Institution]. During the course, you developed an action plan with some action items to try when you returned to your job. At that time, I said that I would contact you to find out about your success in implementing your action plan.

Enclosed is a copy of your end-of-course action plan, a general questionnaire, and a preaddressed envelope. For our follow-up evaluation of this course, we would like to you to answer some questions about your action items and the usefulness of the course to your job.

As you were told in class, your privacy will be protected if your questionnaire is used in any way. Our report will cover the class as a whole, and no names will be used.

May I ask you to kindly take a few minutes of your busy schedule to fill out the questionnaire and return it to me in the enclosed preaddressed envelope? We will send a copy of our report to all who complete the questionnaire. Thank you for your cooperation.

Sincerely yours,

[Name]
Appendix 5. Sample Questionnaire

Course Title: ________________________ Your Name: ________________________
Date of Course: ________________________ Country: ________________________

1. Put a check on your action plan next to those action items that you tried to implement. Describe what happened when you tried to implement the items.
   • What happened as a result?
   • How do you feel about what happened? (Was it positive, negative, partly positive and partly negative, or do you not know yet?)

2. What prevented you from trying the unchecked items on your action plan?

3. Did you try anything that you learned in class that was not on your action plan? If so, describe what you tried and what happened when you tried it.

<table>
<thead>
<tr>
<th>I tried to implement these things that I learned in class that were NOT on my action plan:</th>
<th>These were the results:</th>
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System Requirements and Installing the Resource Kit

These instructions also appear on a Read Me file on the CD-ROM. At the Command line type: D:\README.TXT (assuming D: is your CD-ROM drive and letter)

Hardware
1. IBM compatible PC
2. Intel Pentium II 300 MHz or higher processor, or equivalent
3. 64 MB of RAM minimum
4. Screen resolution 800 x 600 pixels minimum
5. Pointing device (mouse)

Software
1. Adobe Acrobat Reader is required to display and print the basic documents. Adobe Acrobat Reader is included on the CD-ROM.
2. Microsoft Office 1997 (2nd edition) or more recent

Operating System:
1. Adobe Acrobat versions 4 or higher
2. Windows 98 or more recent

Installing Adobe Acrobat Reader
1. Insert the Resource Kit CD into your CD-ROM drive
2. Double click on My Computer
3. Double click on your CD-ROM drive
4. Double click on the Acrobat folder
5. Double click on SETUP.EXE
6. Follow the setup instructions

Installing the Resource Kit

Run the CD
The CD should run automatically when inserted in the CD-ROM drive. If Autorun is disabled,

1. Insert the Resource Kit CD into your CD-ROM drive
2. Double click on My Computer
3. Double click on your CD-ROM drive
4. Double click on RunCD.EXE

Technical Support
Dohatec New Media
Website: www.dohatec.com
Email: support@dohatec.com
Phone: (301) 840–1072

This twelve-module CD-ROM resource kit contains some 2,000 pages of carefully designed learning materials for classroom instruction.

Each module includes:
- Performance-based objectives that are specific, measurable, and observable
- On-the-job project management tasks that the module addresses
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- Module and session outlines
- Scanned lectures, including corresponding visuals
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