SimProject
Simulation Experiential Exercises
Generic Exercises

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NOTES TO INSTRUCTORS

The key to the successful pedagogical use of computer simulations is to integrate them into the “fabric” of the class. The data from the simulation is a source of exercises and problems to apply the principles in the text and lecture, therefore bringing home the application of the tools and techniques of project management. This series of exercises are linked with both the text and the simulation to help you to use the simulation effectively and efficiently in your class.

You may select as many of the Simulation Experiential Exercises as you wish. Each has specific learning objectives and is tied to a specific topic (noted by the first number in the numbering scheme). Each exercise is written such that you may copy them exactly to give to your students.
SimProject Experiential Exercises

Experiential exercises for SimProject are introduced in this document. The simulation scenario will be different for every class. The use of a computer simulation, specifically SimProject, in your class is a unique method of learning both the fundamentals as well as the intricacies of project management.

Simulation is not a new pedagogy but one that has been in existence for many years. Both student and instructor may use a simulation either passively or actively. The Simulation Experiential Exercises in this section allow the use of SimProject actively by getting the student involved in the actual operation of a project from the acquisition of people to the management of a team’s process and content throughout the project.

The Simulation Experiential Exercises (SEE) that follow are designed to coordinate with the topics in the textbook. Since most textbooks cover approximately the same topics, the exercises are grouped in sets by project management topic areas. These topics should be consistent with the most popular project management texts. The SimProject computer simulation will provide specific details about the actual scenario in which you find yourself. SEE’s may give you additional information from your text and the simulation that will help you complete the experiential exercise.

There are two teams that will be referenced in the SEEs: the project team and the class team. The project team consists of the virtual set of individuals selected from the “pool” of resources available to the students in the simulation. The simulation will give descriptions. The decisions the student teams make (the class team) in the simulation are made on behalf of the project team and the simulated project. The class team will consist of real people within the class.

The instructor will select SEEs and will be specific as to whether the exercise should be completed using the project team or the class team.

After reading the text or attending the instructor’s lecture, applying the principles to the simulation project through the Simulation Experiential Exercises, and participating in SimProject, students should be prepared to apply their skills to a real world situation.
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Simulation Experiential Exercise 1-1: Defining a Project

**Purpose**
To provide the opportunity to identify how the simulation project exercise qualifies as a project.  
*Project Team*

**Instructions**
Use the description of the project provided by the simulation setup and identifies the five (5) major characteristics of this project.

**Deliverable**
Short description of your project, followed by the details of the five major characteristics of this project.

Simulation Experiential Exercise 1-2: Project Life Cycle

**Purpose**
To provide the vehicle for the team to look ahead and anticipate some of the activities in the various stages of the project life cycle (PLC).  *Project Team*

**Instructions**
Review the four stages of the Project Life Cycle. Adapt the tasks in each stage to reflect your simulation project. Identify the category of resource (i.e. engineer, programmer, carpenter) that is appropriate for each of the major activities.

**Deliverable**
The document should include the PLC stages, component activities, and the resource type that is planned.
TOPIC 2: The Project Planning

Simulation Experiential Exercise 2-1: Project Fit

Purpose
The intent of this exercise is to describe the project “fit” with the organization’s mission. {Project Team}

Instructions
Step 1: Identify the project stakeholders and describe the interests of each stakeholder group. (i.e. what are the project team members’ interests in the success of the project.)
Step 2: Use the organization’s mission provided in the description of your simulation scenario (or one you develop) and discuss the consistencies and inconsistencies between the organization’s mission and the stakeholders’ interests.

Deliverable
Short narrative including mission statement, list of stakeholders and corresponding stakeholder interests, and discussion of consistencies and inconsistencies.

Simulation Experiential Exercise 2-2: Writing Objectives

Purpose
To practice writing “good” goals. {Project Team or Class Team}

Instructions
Write three goals for either your Project Team or Class Team (as directed by your instructor). Be sure that the goals are in SMARTc3 format.

Note: Specific, Measurable, Assignable, Relevant, Timed, caveat or limitation, 3 levels
Eg. Increase sales by 10% within the next year without decreasing price. (satisfactory = 10%; good = 13%; outstanding = 15%)

Deliverable
Three goals in SMARTc3 format.

Simulation Experiential Exercise 2-3: SWOT Analysis

Purpose
To learn to do a SWOT analysis {Project or Class Team}

Instructions
Identify at least three (3) each strengths, weaknesses, opportunities, or threats for your project (Project Team or Class Team as designated by your instructor).

**Deliverable**
List of 3 strengths, 3 weaknesses, 3 opportunities, and 3 threats for your project.

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**Simulation Experiential Exercise 2-4: Project Financial Assessment**

**Purpose**
To determine the payback period and NPV of the project \{Project Team\}

**Instructions**
Identify the costs and benefits of your simulated project over the life of the project. Calculate the payback period and NPV of the project. Is this an acceptable project? What are the criteria for determining feasibility?

**Deliverable**
Costs, benefits, cash flow, payback, and NPV calculation. Includes a paragraph describing project feasibility.

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**Simulation Experiential Exercise 2-5: Project Proposals**

**Purpose**
To prepare a project proposal. \{Project Team\}

**Instructions**
Based on the information available from SimProject, prepare a Project Proposal in the format of your text or one provided by your instructor.

**Deliverable**
Project Proposal for your simulation project.

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**Simulation Experiential Exercise 2-6: Risk and Risk Response**

**Purpose**
To appropriately identify risk and develop plans for response. \{Project Team\}

**Instructions**
Identify the sources of possible risk for your simulation project. Develop a Risk Assessment Matrix and a response to Risk Matrix.

**Deliverable**
Risk Analysis Document.
TOPIC 3: Project organizations

Simulation Experiential Exercise 3-1: Project Organization Structure

*Purpose*
To analyze the project organization structure.  *{Project Team}*

*Instructions*
Based on the information available from SimProject, prepare a recommendation to management on the most appropriate organizational structure for your *project team*. Diagram your proposed structure and discuss the strengths and weaknesses and potential issues with your recommended structure.

*Deliverable*
Formal recommendation to management regarding project organization structure including cover letter, project structure diagram, and explanation.

Simulation Experiential Exercise 3-2: Project Organizational Culture

*Purpose*
To understand the elements of organizational culture in a project team. *{Class Team}*

*Instructions*
Using the primary characteristics of organizational culture described in your text, assess your *Class Team* on each of the dimensions and place your assessment on a chart. Your text may also give you ideas on how to identify these cultural characteristics. Chart the results of your cultural assessment and compare to an organization supportive of project management. Discuss the differences and potential adjustments that your team might make.

*Deliverable*
Assessment of cultural dimensions, bar chart, organizational culture diagnosis, and comparison discussion - all based on *Class Team*.
TOPIC 4: Project Description and Discussion

Simulation Experiential Exercise 4-1: Project Scope

Purpose
To write a project scope statement. \{Project Team\}

Instructions
Using the instructions and the examples in your text, write a Project Scope Statement for your simulation. As in a real project, you will need to extrapolate some of the information (i.e. requirements and limitations) and use the project scope statement to obtain clarification from the customer and pre-project approval.

Deliverable
Project Scope Statement including objectives, deliverables, milestones, technical requirements, limits and exclusions, and customer review as appropriate.

Simulation Experiential Exercise 4-2: Project Costs

Purpose
To identify the cost of project deliverables and the total project. \{Project Team\}

Instructions
Identify each of the project deliverables and develop the total cost for each one. Compute the total project cost and compare to your budget. Identify actions that you might take to correct any problems identified.

Deliverable
Budgeted vs. outlook cost comparison by deliverable. Action plan for deficiencies. (Note: Outlook costs are those that will be incurred given the current plan. This typically includes project to date plus anticipated expenses to project completion.)

Simulation Experiential Exercise 4-3: Project Responsibility Matrix

Purpose
To create a Project Responsibility Matrix. \{Class Team or Project Team\}

Instructions
Identify the project tasks for your Class Team or Project Team. Create a Responsibility Matrix for your project for the semester. Be sure to assign primary and supporting responsibilities.
**Deliverable**
Project Responsibility Matrix for your *Class Project* or SimProject.

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**Simulation Experiential Exercise 4-4: Project Priority Matrix**

**Purpose**
To understand the relative priorities of a project. *

**Instructions**
Project success in your simulated organization will be based on competing priorities. Based on the information available to you concerning your project to date, how would you rate the relative importance of time, cost, functionality, and quality (stakeholder satisfaction).

Complete a Project Priority Matrix for your simulation project. Divide 100 points between the above four competing priorities. Briefly discuss the rationale for your point assignment.

**Deliverable**
Project Priority Matrix. Also, each of the four components (time, cost, functionality, and stakeholder satisfaction) will have a point assignment and a brief statement of the reason for the assignment.
TOPIC 5: Project Financials

Simulation Experiential Exercise 5-1: Project Budget

Purpose
To create a detailed project budget and compare to the macro-level budget. {Project Team}

Instructions
Based on the information in your simulation scenario, create a detailed project budget. Compare to the deliverable from SEE 4-2 and reconcile the differences. Define your action plan to resolve the top-down vs. bottom-up approaches to project estimation. Which is better?

Deliverable
Bottom-up project estimate and comparison to top-down approach. Action plan to resolve differences and short discussion of choice of approaches.

Simulation Experiential Exercise 5-2: Apportion Method of Allocating Project Costs

Purpose
To understand apportioning of project costs {Project Team}.

Instructions
Prepare a chart of major components of the WBS for your SimProject scenario.

Deliverable
Allocation of project costs in WBS chart.
**TOPIC 6: Project Charting**

Simulation Experiential Exercise 6-1: Project Network Analysis

**Purpose**
To prepare and analyze the project network. *{Project Team}*

**Instructions**
After assigning personnel and estimating the task times, develop and print out the project network for your simulation project. Identify areas of potential problems that you can see as a result of examining the project network.

**Deliverable**
Project network diagram and list of issues regarding the plan.

Simulation Experiential Exercise 6-2: Project Network vs. Gantt Comparison

**Purpose**
To compare the value of the Gantt chart and the project network. *{Project Team}*

**Instructions**
Prepare a Gantt chart for your simulation project. Compare it with the output from SEE 6-1 and discuss the advantages and disadvantages of each.

**Deliverable**
Gantt chart and discussion of comparison between Gantt and project network.
Simulation Experiential Exercise 7-1: Risk Management

**Purpose**
To understand and manage project risk *{Project or Class Team}.*

**Instructions**
Prepare a list of potential risk events and develop a Risk Assessment Form. Also, prepare a Risk Severity Matrix. Prepare a Failure Mode and Effects assessment to stratify the risks.

**Deliverable**
Risk Assessment, Risk Severity Matrix, and FMEA.

Simulation Experiential Exercise 7-2: Risk Response and Mitigation

**Purpose**
To understand risk response.

**Instructions**
Prepare a Risk Response Matrix.

**Deliverable**
Risk Response Matrix.

Simulation Experiential Exercise 7-3: Change Control Management

**Purpose**
To reinforce the importance of change control management. *{Project Team}*

**Instructions**
Design a process and the appropriate documentation for Change Control in your simulation project.

**Deliverable**
Procedure for Change Control including forms, screens, responsibilities, and step-by-step directions for how change is initiated, approved, and implemented.
TOPIC 8: Project Resources

Simulation Experiential Exercise 8-1: Resource Limitations

Purpose
To understand resource limitations. {Project Team}

Instructions
Once you have reviewed the Resource Pool and bid for services initially, you will find that you have accomplished the “hiring” of the resource in some cases and not “hired” them in others. Answer the following questions about the process:

1. What was your strategy for resource selection?
2. What are the implications of not achieving your hiring objectives in terms of time, cost, functionality, and stakeholder satisfaction?
3. What are your contingency plans?

Deliverable
A written evaluation of the resource selection process.

Simulation Experiential Exercise 8-2: Unplanned Time Constraints

Purpose
To evaluate how to respond to an unplanned time constraint. {Project Team}

Instructions
Your simulation has demonstrated a special event in which there is now a time constraint. Identify and implement your action plan to deal with this constraint.

Deliverable
Description of the time impact on the simulated project and a plan to address the issue.

Simulation Experiential Exercise 8-3: Unplanned Resource Constraints

Purpose
To evaluate how to respond to an unplanned resource constraint. {Project Team}

Instructions
Your simulation has demonstrated that there is a resource constraint. Identify and implement your action plan to deal with this constraint.

Deliverable
Description of the resource impact on the simulated project and a plan to address the issue.
TOPIC 9: Project Crashing

Simulation Experiential Exercise 9-1: Crashing the Project

**Purpose**
To understand the impact of “crashing”. \{Project Team\}

**Instructions**
Your simulation due date has been moved forward. Make the appropriate changes in your project plan to accomplish the required schedule reduction. Discuss the areas of the project that are most likely to be impacted by the “crashing”.

**Deliverable**
New project plan and list of actions to be taken. Assessment of the potential results of actions.

Simulation Experiential Exercise 9-2: Results of Project Crashing

**Purpose**
To evaluate the results of project crashing. \{Project Team\}

**Instructions**
As a result of the time reduction in SEE 9-1, there have been several outcomes. Evaluate the various project issues that have arisen as a result of your actions. Include time, cost, money, team cohesiveness, stakeholder satisfaction, and functionality.

**Deliverable**
Written review of the impact of project crashing.
TOPIC 10: Project Stakeholders and their interaction

Simulation Experiential Exercise 10-1: Project Stakeholders

Purpose
To understand the relationship between the various stakeholders on the project. \( \text{Project Team} \)

Instructions
Draw the network of stakeholders for your simulation project. Identify whether the potential impact of the stakeholder on the project success is direct or indirect.

Deliverable
Diagram of network with stakeholders identified as direct or indirect impact to the project.

Simulation Experiential Exercise 10-2: Organizational Currencies

Purpose
To identify and understand organizational currencies \( \text{Class Team} \)

Instructions
Prepare specific examples of each of the organizational currencies.

Deliverable
Organizational currency chart.

Simulation Experiential Exercise 10-3: Social Networks

Purpose
To understand how to build and use a social network \( \text{Project or Class Team} \)

Instructions
Draw a map of dependencies. Answer the questions about the dependencies as shown after the graphic. Design a plan to deal with your social network.

Deliverable
Social network diagram with discussion.
TOPIC 11: Team Dynamics

Simulation Experiential Exercise 11-1: Team Development Model

**Purpose**
To apply two models of team development. *{Class Team}*

**Instructions**
Discuss your class team within the framework of the Five-Stage Model and also the Punctuated Equilibrium Model. Be specific in identifying the characteristics and timing of each stage through which the team passed as well as the final performance of the team on the project. Discuss where improvements should have been made to facilitate the team-building process.

**Deliverable**
Written review of the Team Development.

Simulation Experiential Exercise 11-2: Conflict

**Purpose**
To debrief conflict in the team. *{Class Team}*

**Instructions**
Discuss an instance of functional and dysfunctional conflict within your team. Identify your method of dealing with each type of conflict within your team.

**Deliverable**
Short written report debriefing the conflict.

Simulation Experiential Exercise 11-3: Virtual Team Assessment

**Purpose**
To debrief the operation of a virtual class team. *{Class Team}*

**Instructions**
If your class team has been a virtual one, review the mechanisms used for effectively (or ineffectively) managing and communicating with your class team.

**Deliverable**
Short written report debriefing the operation of the virtual class team.
**TOPIC 12: Outsourcing**

Simulation Experiential Exercise 12-1: Project Outsourcing

**Purpose**
To assess potential project outsourcing. *(Class or Project Team)*

**Instructions**
Identify areas of your simulation project in which you could have outsourced to another organization. Write a formal proposal to management requesting approval for an outsourcing arrangement. Discuss the terms that you propose for the arrangement and assess the benefits and risks of your proposal.

**Deliverable**
Formal business proposal including memo to management and cost benefit analysis of the proposal.
TOPIC 13: Project Reporting

Simulation Experiential Exercise 13-1: Cost vs. Time Comparison

**Purpose**
To estimate the cost vs time expenditures. *{Project Team}*

**Instructions**
Build a graph of the budgeted cost of work scheduled (BCWS) vs the project periods. Discuss any obvious issues with the project as it is planned.

**Deliverable**
BCWS vs. time chart and short discussion of issues.

Simulation Experiential Exercise 13-2: Project Status Report

**Purpose**
To create a project status report. *{Project Team}*

**Instructions**
Develop a project status report for your simulation project. Include an earned value chart and a tracking Gantt. Be sure to include a report that reports on actual costs, variance from budget, and explanations for the variances.

**Deliverable**
Complete formal project status report.

Simulation Experiential Exercise 13-3: Monthly Status Report

**Purpose**
To learn how to do a monthly status report. *{Project Team}*

**Instructions**
Develop the monthly status report for your simulation project. Be sure to forecast remaining costs and time as well as to provide explanations and plans for getting back on budget in either time or cost or both.

**Deliverable**
Formal monthly status report including variance analysis and explanations.
TOPIC 14: Project Closure

Simulation Experiential Exercise 14-1: Project Audit Report

Purpose
To prepare a project audit report. *Class Team* or *Project Team*

Instructions
Your instructor will determine whether you will use your *class team* or the *project team* in the simulation to complete this exercise. Using the guidelines in the chapter, prepare a project audit report. Be sure to include project classification, analysis of information gathered, recommendations, and lessons learned. You may also include an appendix of appropriate documentation.

Deliverable
Final project report discussing all phases of the project.

Simulation Experiential Exercise 14-2: Individual Performance Appraisal System

Purpose
To implement a performance appraisal process. *Class Team*

Instructions
Using the process developed in SEE 2-3, conduct individual performance appraisals on all team members. Write a short debrief on the effectiveness of the process.

Deliverable
Individual performance appraisals for each team member and brief evaluation of the process.