



connect[®]

Operations & Supply Chain Management Application-Based Activities

Included in McGraw Hill Connect



Bridge the gap between classroom theory and real-world application with Application-Based Activities that engage students and put them in the decision-making seat. Students practice their problem-solving and critical thinking skills as they immerse themselves in real-life business scenarios that require them to apply the course concepts they have learned. Each branching simulation is designed to take 10-30 minutes to complete.

ABA Topic - Name	Quantitative	Qualitative
Facility Layout-Assembly Line Balancing-The “Longest Task Time” Rule	Static	
Facility Layout-Assembly Line Balancing- the “Most Followers” Rule	Static	
Facility Layout-Assembly Line or Repetitive Process Characteristics		✓
Facility Layout-Job Shop Process Characteristics		✓
Inventory Management- Inventory Costs		✓
Job Scheduling-Johnson’s Rule	Static	
Lean Supply Chain Management- Kanban Pull System	Algo	
Lean Supply Chain Management-Just In Time/Lean Terms		✓
Location Planning and Analysis-Gravity or Centroid Method	Algo	

ABA Topic - Name	Quantitative	Qualitative
Location Planning and Analysis- Gravity/Centroid Method, Rating Factors Method and Distance Measurement	Algo	
Product and Service Design - Product Design Terms		✓
Productivity Measurement - Labor Productivity	Algo	
Productivity Measurement - Multifactor Productivity	Algo	
Project Management-Project vs Ongoing Operations		✓
Quality Management- Six Sigma- Measuring Defects Per Million Opportunities (DPMO)	Algo	
Quality Management-Cause and Effect (Fishbone) Diagram		✓
Quality Management-Cost of Quality (COQ)		✓
Quality Management-Dimensions of Quality		✓
Quality Management-Total Quality Management (TQM) Terms		✓
Reliability and Layout Selection	Static	
Strategic Capacity Management- Capacity Planning	Algo	
Supply Chain Management- Logistics & Supply Chain Management Terms		✓
Supply Chain Management- Outsource vs Insource		✓
Supply Chain Management- Supplier Selection Analysis- Rating Factors Method	Algo	

These Operations & Supply Chain Management Application-Based Activities are available for the following titles:

- *Jacobs, Operations and Supply Chain Management: The Core*
- *Jacobs, Operations and Supply Chain Management*
- *Cachon, Operations Management*
- *Cachon, Matching Supply with Demand*
- *Swink, Managing Operations Across the Supply Chain*
- *Stevenson, Operations Management*
- *Bordoloi, Service Management*
- *Simchi, Designing and Managing the Supply Chain*
- *Bowersox, Supply Chain Logistics Management*
- *Johnson, Purchasing and Supply Management*
- *Stock, Supply Chain Management*

Facility Layout-Assembly Line Balancing- The “Longest

Task Time” Rule: This activity is a tour of Sandy Device manufacturing company. The player is given a scenario to play the role of a visitor of this manufacturing company to visit the production assembly lines (product layout). The player needs to choose the best options that match the characteristics of an assembly line (product layout) and help the production manager to select the products to produce in the assembly lines.

Facility Layout-Assembly Line Balancing- The “Most

Followers” Rule: Cecilia toy cars company is a toy manufacturing system that has several automated and manual final assembly lines to assemble different toy cars such as minicars, pull back cars, fire trucks, etc. This company received an order to assemble a toy car, Model-G324 , on one of the final assembly lines-FX21. The player is given a scenario to help Liliana, the industrial engineer at Cecilia company , to balance the assembly line by using the “Most Followers” rule.

Facility Layout-Assembly Line or Repetitive Process

Characteristics: Soojay is an electronic company with multiple manufacturing buildings. There are 12 assembly lines in one of the buildings to assemble different types of electronic boards and accessories. This company received a new product, and the player is given a scenario to help David, the industrial engineer , to balance the assembly line by using the “Longest Task Time” rule for the new product.

Facility Layout-Job Shop Process Characteristics:

This activity is about a tour of a machine shop in Theta manufacturing company. The player is given a scenario to play the role of a visitor of this manufacturing company to visit the “Job Shop Process (Process Layout)”. The player needs to choose the best options that match the characteristics of the job shop process (process layout) and help the industrial engineer to select the products to produce in the machine shop.

Inventory Management- Inventory Costs: This activity is a simulation of a TV quiz show in business. Steve is the host of this show, and all participants are in contact with him through electronic devices such as smart phones, computers, laptops, etc. The topic of the quiz is “Inventory Costs.” The player is given a scenario as a participant to answer questions and compete with others. Twenty questions are provided, each having 5 points.

Job Scheduling-Johnson’s Rule: Garden Decors company is a manufacturing company that produces varieties of garden decors stakes in the two machine shops I and II. The company receives different variety of orders all the time, but all orders follow the same sequence in the two machine shops. That means a batch of each order must be completed in the first machine shop, then proceeds to the second machine shop. Monica, the scheduler at this company, is assigned to sequence the eight new orders, and the player is given a scenario to help Monica sequence the orders, using “Johnson’s Rule” to minimize the make-span.

Lean Supply Chain Management- Kanban Pull System: This activity is a simulation of a TV quiz show in business. Steve is the host of this show, and all participants are in contact with him through electronic devices such as smart phones, computers, laptops, etc. The topic of the quiz is “Just-In-Time/Lean Terms.” The player is given a scenario as a participant to answer questions and compete with others. Ten questions are provided, each having 10 points.

Lean Supply Chain Management-Just In Time/Lean Terms:

Garden Decors Company is a manufacturing company that produces a variety of decorative garden stakes. Currently , the production system is using a “Push System.” Due to the high inventory of parts and products in the production process and the warehouse, the CEO has decided to re-engineer the production process and implement a “Kanban Pull System.” In this simulation, the player is given a scenario to help the manager of process improvement project calculate the number of required kanban cards and the maximum authorized inventory to be stored at each machine shop.

Location Planning and Analysis- Gravity or Centroid Method:

A company has 32 branches around the country, and eight branches are located in one city. It is announced that there is a plan to have an employee training on Enterprise Resources Planning (ERP) software for eight branches in one location, which begins in January. It is decided to have all training sessions in a conference room of a hotel. The player is given a scenario to help the company determine a potential central location for their training sessions.

Location Planning and Analysis- Gravity/Centroid Method, Rating Factors Method, and Distance Measurement: McDino chain restaurants are located in three different locations offering American, Italian, Greek, and Chinese foods. Currently, ingredients are purchased in bulk from three food suppliers. It is decided to construct a new central cross-dock distribution center to break down large shipments from suppliers into smaller ones to pack and ship to the restaurants. The player is given a scenario to help the owner of McDino chain restaurants to determine the location for the new central cross-dock distribution center between suppliers and restaurants.

Product and Service Design - Product Design Terms: This activity is a simulation of a TV quiz show in business. Steve is the host of this show, and all participants are in contact with him through electronic devices such as smart phones, computers, laptops, etc. The topic of the quiz is “Product/Service Design Terms.” The player is given a scenario to be a participant to answer the questions and compete with others. Ten questions are provided, each having 10 points.

Productivity Measurement - Labor Productivity: Red Plum is a clothing company working on ladies’ fashion designs and manufacturing different women’s styles such as elegant, classic, modern, and creative clothes. Julia, the owner, and Judi, her assistant, are thinking about measuring the labor productivity for their production process to find out how well their clothing company uses its labor. They also want to find the impact of using the new CAD equipment on labor productivity for the design department and measure productivity growth. The player is given a scenario to help Judi in measuring labor productivity, average labor productivity, and labor productivity growth.

Productivity Measurement - Multifactor Productivity: Red Plum clothing company’s new designs were published in “Fashion” magazine recently. Consequently, this company received a large order for a specific design in different colors and sizes. Julia, the owner of the company, and Judi, her assistant, decided to measure “Multifactor Productivity” based on labor, machine, materials, and overhead costs for this new product which was produced in the past three weeks. The player is given a scenario to help Judi to measure multi-factor productivity per unit and multi-factor productivity (dollar output per dollar input) for this new product.

Project Management-Project vs. Ongoing Operations: This activity is a simulation of a TV quiz show in business. Steve is the host of this show, and all participants are in contact with him through electronic devices such as smart phones, computers, laptops, etc. The topic of the quiz is “Project vs. Ongoing Operations.” The player is given a scenario as a participant to answer the questions and compete with others. Ten questions are provided, each having 10 points.

Quality Management- Six Sigma- Measuring Defects Per Million Opportunities (DPMO): A local airport in a city is overcrowded these days, and some passengers encounter two issues. These issues are reported on TV news today. The first issue is about changes made to the departure flight schedules, and the second is the lost luggage for arriving passengers. In this simulation, the player is given a scenario to play the role of a team member of a Six Sigma consultant company to measure Defects Per Million Opportunities (DPMO) and find the level of sigma for each issue at the airport.

Quality Management-Cause and Effect (Fishbone) Diagram: An electronic manufacturing company has encountered almost 10% percent reduction in daily production rate in assembly line TX. A quality improvement team is assigned to analyze and improve the issue. The team members had a meeting in a brainstorming method, they were asked to write any possible causes of this problem, and the team leader drew a fishbone skeleton on the board. The player is given a scenario to play the role of a quality improvement team member to use cause and effect (fishbone) diagram and assign the possible causes of a quality problem into different categories.

Quality Management-Cost of Quality (COQ): This activity is a simulation of a TV quiz show in business. Steve is the host of this show, and all participants are in contact with him through electronic devices such as smart phones, computers, laptops, etc. The topic of the quiz is “Cost of Quality (COQ).” The quiz has two parts: matching the definitions and the examples. The player is given a scenario to be participant to answer the questions and compete with others. This quiz has four definition questions, each having 1 point, and 12 example questions, each having 8 points.

Quality Management-Dimensions of Quality: The CEO of a supply management company assigned an employee to work on requisition to purchase high-quality smartphones for managers and supervisors. The employee is required to search and to identify the dimensions and the quality of different types of smartphones available in the market. He is to provide a report based on the comparison of different aspects of quality of products. The player is given a scenario to play the role of a colleague helping that employee identify the dimensions of quality of a good and service and classify the different aspects of a smartphone into eight dimensions of quality of good.

Quality Management-Total Quality Management (TQM) Terms: This activity is a simulation of a TV quiz show in business. Steve is the host, and all participants are in contact with him through electronic devices such as smart phones, computers, laptops, etc. The topic of the quiz is “Total Quality Management (TQM) Terms.” The player is given a scenario to be a participant to answer the questions and compete with others. Ten questions are provided, each having 10 points.

Reliability and Layout Selection: A manufacturing company has been working for 50 years and has had two identical plants on the West and East. Since there was a need to decrease the cost, the western plant was closed recently. Due to high demand for their products, they decided to increase the reliability of their production sections by transferring some used machines from the western plant to the eastern one. The player is given a scenario to help them determine the reliability of each eastern production section and to decide whether to transfer some used machines from the western plant to the eastern one.

Strategic Capacity Management- Capacity Planning:

A manufacturing company has been working for 50 years and has had two identical plants on the West and East. Since there was a need to decrease the cost, the western plant was closed. Currently, there is a high demand for their products, and the company decided to increase the capacity for each production section in the eastern plant by transferring the used machinery from the western plant to fulfill the forecasted demand. In this simulation, the player is given a scenario to play the role of a team member in a manufacturing company to measure capacity utilization and to calculate the capacity requirements.

Supply Chain Management- Logistics & Supply Chain

Management Terms: This activity is a simulation of a TV quiz show in business. Steve is the host of this show, and all participants are in contact with him through electronic devices such as smart phones, computers, laptops, etc. The topic of the quiz is “Logistics & Supply Chain Management Terms.” The player is given a scenario to be a participant to answer questions and compete with others. Ten questions are provided, each having 10 points.

Supply Chain Management- Outsource vs. Insource: This activity is a simulation of a TV quiz show in business. Steve is the host, and all participants are in contact with him through electronic devices such as smart phones, computers, laptops, etc. The topic of the quiz is “Outsource (Buy) vs. Insource (Make).” The player is given a scenario to be a participant to answer the questions and compete with others. Ten questions are provided, each having 10 points.

Supply Chain Management- Supplier Selection Analysis- Rating Factors Method: Alfredo chain grocery stores has 46 stores around the country. According to findings derived from a new study, the average waiting time for customers to check out through the cashier counter is high. Due to the high labor costs and limited available space in some stores, it has been decided to purchase 228 self-checkout equipment for their stores. In this activity, the player is given a scenario to play the role of a colleague in Alfredo chain grocery stores to help the vice president use the factor rating method for the supplier selection decision.

