Operations and Supply Chain Management 15th edition Heizer Solutions Manual

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Instructor's Resource Manual

Operations and Supply Chain Management

Fifteenth Edition

Jay Heizer
Barry Render
Chuck Munson

Pearson

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Product Manager: Samantha Lewis
Content Producer: Yasmita Hota
Supplement Project Manager: Anu Sivakolundu

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Introduction

The Instructor's Resource Manual (IRM) is intended to help instructors obtain the maximum benefit from the Heizer/Render/Munson text and supplementary resources that accompany the text. The IRM may be particularly helpful for first-time instructors, as it contains a wealth of presentation notes and ideas for supplementing the textbook material.

Feature

Integrated Company Video and Case Summary
The text provides an outstanding set of accompanying videos, many of which feature the authors and are directly tied to the text material. These also have video case write-ups at the end of the respective chapters. Several companies appear multiple times. A grid provides a summary of these featured firms.

Chapter Sections

Each chapter, supplement, and quantitative module has a section in the IRM containing many of the features described below.

Background
An introductory section puts the chapter theme in context and suggests some areas for emphasis.

Class Discussion Ideas
In most cases, at least two different ideas for generating class discussion are provided.

Active Classroom Learning Exercises
In most cases, at least two active classroom learning exercises are described. These represent exercises, games, or group discussions designed to get all students out of their seats and engaged in the topic.

AI in the Classroom
For most chapters, a brief in-class AI activity is included. These 15- to 20-minute exercises introduce students to potential uses of AI-powered chatbots in relation to the chapter topic. The grid below provides a summary of these activities.

Company Videos
Detailed descriptions are provided for each of the company videos, followed by suggestions for possible related class discussion topics.

Cinematic Ticklers
Video clips from popular movies or television shows can inject humor into the classroom, break up a class lecture, and potentially provide a good talking point related to a course topic. Most chapters in the IRM describe at least one of these clips.

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The OM Blog by Heizer, Render, & Munson
(https://operationsmanagementblog.com/)
For several years now, the authors have provided a blog that is updated several times per week. All of the previous posts have been archived into a marvelous collection of comments on the OM ramifications of current events in the news, as well as a variety of teaching tips. Several scholars have provided intriguing guest posts as well. The blog conveniently organizes previous posts by subject as well as by chapter correlation. Here in the IRM we provide a sampling of blog references related to each chapter, including a short description and the link itself.

PowerPoint Slides
A screenshot of every one of the accompanying 1700+ PowerPoint slides is provided in the IRM, along with extensive notes.

Additional Assignment Ideas
In most cases, the IRM provides at least two additional assignment ideas for outside of the classroom. Many of these are Internet-based exercises.

Online Resources
All chapters contain a list of related Internet sites.

Other Supplementary Material
This section may contain a variety of features, including material not provided in the text, extra videos related to the topic, commercial software, descriptions of learning games with citations, full descriptions of games, etc.

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Integrated Company Video and Case Summary

	Ch. 1: Operations & Productivity	Ch. 2: Ops Strategy in a Global Environ	Ch. 3: Project Management	Ch. 4: Forecasting	Ch. 5: Design of Goods & Services	Sup. 5: Sustainability	Ch. 6: Managing Quality	Sup. 6: Statistical Process Control	Ch. 7: Process Strategies	Sup. 7: Capacity & Constraint Mgt	Ch. 8: Location Strategies	Ch. 9: Layout Strategies	Ch. 10: HR, Job Design, & Work Meas	Ch. 11: Supply Chain Management	Sup. 11: Supply Chain Mgt Analytics	Ch. 12: Inventory Management	Ch. 13: Aggregate Planning & S&OP	Ch. 14: MRP and ERP	Ch. 15: Short-Term Scheduling	Ch. 16: Lean Operations	Ch. 17: Maintenance & Reliability	Module B: Linear Programming
Videos																						
Alaska Airlines							S		S				S							S		S
Arnold Palmer Hospital			S				S		S	S		S		S						S		
Celebrity Cruises	S				S	S	S									S						
Darden Restaurants		S						S			S			S								
Frito-Lay	M					M		M								M					M	
Hard Rock Café	S	S	S	S							S		S						S			
Nautique Boat Company		M			M										M	M						
Oregon State U Stadium Rebuild			S							S		S							S			
Orlando Magic (Amway Center)				S		S											S	S	S			
Wheeled Coach Ambulance									M			M				M		M				

Key: S = service firm; M = manufacturing firm

The authors have created a completely integrated video case series, which has won numerous awards. Seven service and three manufacturing companies are featured. Instructors can use the grid provided on this page to guide them in following one or more companies over the whole semester. Details about each video are provided in the respective IRM chapters. Brief summaries are provided below.

Alaska Airlines—Alaska Airlines has consistently received the JD Power & Associates Award for the highest customer satisfaction in the industry. Alaska is a medium-sized airline that continues to expand, including numerous daily flights to Alaska, Hawaii, Mexico, and more and more destinations in the eastern half of the United States. Via the video series, we see Alaska's very metric-based approach to quality control; how it is able to provide a 20-minute luggage guarantee; how it manages and trains its workers to provide outstanding customer service; how it practices lean concepts and continuous improvement throughout the company; and how it schedules its many planes, flights, pilots, and flight crews.

Arnold Palmer Hospital—The hospital for women and babies needed to expand, so a brand-new building was constructed across the street. Via the video set, we see various angles of that expansion, including project management, capacity choices, process design, quality management, hospital layout issues, supply chain management, and just-in-time delivery of operating room supplies.

Celebrity Cruises—As one of the world's premier cruise lines, a look around a Celebrity ship is a view of luxury at its finest. A cruise ship is truly a "city on the sea," implying that operations applications are abundant. Via the videos, we witness applications of all 10 OM decisions; peek at the virtual reality ship design facility; examine the many environmental initiatives aimed at "saving the waves;" understand Celebrity's never-ending commitment to quality; and see how the cruise line loads the ship with food at the start, hoping to just run out as the ship returns to port.

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Darden Restaurants—As the parent company of Red Lobster, Olive Garden, and others, Darden must purchase a tremendous amount of fish, which it procures from overseas. Via the videos, we see how quality is maintained in this process, as well as the firm's supply chain management and outsourcing activities. The Chapter 8 video has a fascinating look at the high-tech methods used to select sites for new restaurants.

Frito-Lay—This manufacturer dominates the snack market. Via the videos, we see how the firm addresses all 10 of the major OM decisions described in the text, with specific videos covering statistical process control, inventory management, and maintenance policies. The Chapter 7 video addresses the remarkable steps that Frito-Lay is taking to move towards an environmentally friendly manufacturing system.

Hard Rock Cafe—This unique restaurant chain has thrived where similar themed restaurants have disappeared. Via the videos, we get introduced to the firm's unique strategies in creating a full customer "experience," how managers use forecasting methods discussed in the book, how they determine new restaurant locations around the world, how their human resource strategies lead to such low turnover and great customer service, how they schedule, and how they use project management to put on annual "Rockfest" concerts.

Nautique Boat Company—This company manufactures high-end boats in a large assembly area. Via the videos, we learn about Nautique's *market-driving* differentiation strategy, and we sneak a peek at their state-of-the-art design studio. We also learn about their rigorous supplier selection process, including the firm's involvement in the American Boatbuilders Association purchasing group, and we see the results of their tight inventory control.

Oregon State University's Stadium Rebuild Project—Oregon State University imploded and then rebuilt the entire west side of its football stadium. The $161 million project took 20 months to complete. Via four videos, we learn how they managed to complete the project on time despite various obstacles. We see how survey feedback led them to actually *reduce* capacity in the new stadium, substituting highly priced *premium* seats for regular seating. The new west side is highlighted by Beaver Street, which is a New Orleans-style area for food and socializing, with views of the game in progress. We also learn about the many behind-the-scenes activities that occur to pull off a successful game-day experience for 37,000 fans.

Orlando Magic (Amway Center)—A brand-new 875,000 square-foot sports and entertainment complex called the Amway Center was recently built in Orlando, Florida. Via the videos, we gain insight into the tremendous challenges faced in managing such a facility. We see forecasting for NBA basketball games, dynamic pricing (revenue management) applied to different NBA games, scheduling to switch over from a rock concert to a basketball game, the state-of-the-art environmental techniques applied to this award-winning building, and the planning behind cooking dinner for 18,500 guests. And the NBA highlights throughout the series help keep the sports fans entertained.

Wheeled Coach Ambulance—This company manufactures custom ambulances on an assembly line, which is fed by work cells. An ambulance combines a vehicle with a health clinic into the same product. Different aspects of the production process and the firm's inventory management are highlighted in these four videos.

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AI in the Classroom

AI Activity Format	Ch. 1: Operations & Productivity	Ch. 2: Ops Strategy in a Global Environ	Ch. 3: Project Management	Ch. 4: Forecasting	Ch. 6: Managing Quality	Sup. 6: Statistical Process Control	Ch. 7: Process Strategies	Sup. 7: Capacity & Constraint Mgt	Ch. 8: Location Strategies	Ch. 11: Supply Chain Management	Sup. 11: Supply Chain Mgt Analytics	Ch. 12: Inventory Management	Ch. 15: Short-Term Scheduling	Ch. 16: Lean Operations	Module A: Decision-Making Tools	Module B: Linear Programming
Applying Topics to New Industries	✓		✓			✓		✓						✓		
Assessing and Improving AI				✓							✓					✓
Identifying Appropriate Tools/Approaches		✓			✓		✓					✓			✓	
Developing Debate Arguments									✓	✓			✓			

The authors have created a set of in-class AI activities. Instructors can use the grid provided on this page to guide them in using one or more of the activities over the whole semester. Details about each AI activity are provided in the respective IRM chapters. Brief summaries are provided below for each of the four AI activity formats.

Applying Topics to New Industries—Students use AI to apply an Operations Management (OM) concept to a different industry (e.g., accounting, finance, retail, restaurants, manufacturing).

Assessing and Improving AI Explanations—Students ask AI to explain a complex OM topic, then evaluate the response and collaborate with the chatbot to refine and improve it.

Identifying Appropriate Tools/Approaches—Students use AI to compare multiple problem-solving tools/methods, helping them identify the most suitable approach and understand the pros and cons of each.

Developing Debate Arguments—Students use AI to construct arguments on one side of a question with no clear "right" answer, then engage in a debate with peers. *Extra Opportunities*: This format can also be applied to the "Ethical Dilemma" presented at the end of each chapter.

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Sample Syllabi

By its nature, Operations Management is a topic-based field of study. While there is some progression from chapter to chapter, the chapters in the text are for the most part designed to stand on their own. Very little referencing to other chapters appears in the book. Furthermore, the book contains much more material than could typically be covered in a single course. As such, when we look around the world we see huge differences in coverage in Operations Management and Supply Chain Management courses. And some instructors make heavy use of MyLab Operations Management, while others do not use it at all. There certainly is no single *right way* to teach this subject.

The OM Blog by Heizer, Render, & Munson contains a collection of more than 30 syllabi, many of which are quite different from each other. The samples may be found here:

https://operationsmanagementblog.com/tag/om-syllabus/

Below we provide six sample syllabi for courses with a variety of emphasis: (1) Operations Management with a Quantitative Orientation, (2) Case-Oriented Operations Management, (3) Supply Chain Management, (4) Introductory Undergraduate Survey Course, (5) Quantitative Decision Models in Management, and (6) Service-Oriented Operations Management.

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COURSE SYLLABUS

OPERATIONS MANAGEMENT COURSE WITH A QUANTITATIVE ORIENTATION

This course is intended to give the student a greater understanding of the details of Operations Management, particularly the quantitative techniques.

We suggest in this outline, the use of our "Ten Strategic Operations Management Decisions" as a structure for the course. It is also beneficial to show, each week, one of the company videos that we provide with the text. There are over 50 to choose from.

We also provide five classroom simulations: Project Management (Chapter 3), Forecasting (Chapter 4), Quality Management (Chapter 6), Supply Chain Management (Chapter 11), and Inventory Management (Chapter 12). We recommend you incorporate one or two of these into your course.

Week	Text	Assignment
1	Chapter 1: Operations and Productivity Chapter 2: Operations Strategy in a Global Environment	Read Chs. 1 & 2 Assign MyLab HW problems
2	Chapter 3: Project Management	Read Ch. 3 Assign MyLab HW problems
3	Chapter 4: Forecasting	Read Ch. 4 Assign MyLab HW problems
4	Chapter 5: Design of Goods and Services Supplement 5: Sustainability in Supply Chain	Read Ch. 5, Supp. 5 Assign MyLab HW problems
5	Exam I	Review Chs. 1–5, Supp. 5
6	Chapter 6: Managing Quality Supplement 6: Statistical Process Control	Read Ch. 6, Supp. 6 Assign MyLab HW problems Show Frito-Lay video on S.P.C.
7	Chapter 7: Process Strategies Chapter 8: Location Strategies	Read Chs. 7–8 Assign Arnold Palmer Hospital case study
8	Chapter 9: Layout Strategies Module A: Decision-Making Tools	Read Ch. 9, Mod. A Assign MyLab HW problems
9	Exam II	Review Chs. 6–9, Mod. A

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Week	Text	Assignment
10	Chapter 11: Supply Chain Management Supplement 11: Supply Chain Analytics	Read Ch. 11, Supp. 11 Assign MyLab HW problems
11	Chapter 12: Inventory Management	Read Ch. 12 Assign MyLab HW problems Show Frito-Lay video in class and assign for analysis
12	Chapter 13: Aggregate Planning and S & OP Chapter 14: Material Requirements, Planning, and ERP	Read Chs. 13–14 Assign MyLab HW problems
13	Chapter 15: Short-Term Scheduling Module B: Linear Programming	Read Ch. 15, Mod. B Assign MyLab HW problems Show Alaska Air LP video
14	Chapter 16: Lean Operations Module D: Waiting-Line Models	Read Ch. 16, Mod. D Assign MyLab HW problems
15	Exam III	Review Chs. 11–16, Mods. B, D

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COURSE SYLLABUS

OPERATIONS MANAGEMENT CASE-ORIENTED COURSE

This course attempts to cover both the forest and the trees: material in the text provides the content while the cases help the students tie things together and place them in a larger organizational context. We provide a range of cases for each topic: selecting from the 50+ company video/written cases we have developed to tie specifically to our text. All were chosen because they illustrate problems and issues of interest in today's business environment. Class participation is an important component of case presentation/analysis and works best with small teams tackling each case. One-two-page write-ups should be submitted to you from each team for each case.

WEEK	TEXT	ASSIGNMENT
1	Chapter 1: Operations and Productivity Chapter 2: Operations Strategy in a Global Environment	Read Chs. 1–2 Assign Frito-Lay and Hard Rock video cases from Ch. 1. Compare and contrast these 2 firms.
2	Chapter 3: Project Management	Read Ch. 3 Assign O.S.U. video case
3	Chapter 4: Forecasting	Read Ch. 4 Assign Orlando Magic video case
4	Chapter 5: Design of Goods and Services Supp. 5: Sustainability	Read Ch. 5, Supp. 5 Assign Nautique Boat and Frito-Lay video cases.
5	Chapter 6: Managing Quality Supplement 6: S.P.C.	Read Ch. 6, Supp. 6 Assign Alaska Air and Frito-Lay cases.
6	Chapter 7: Process Strategies Supplement 7: Capacity Planning	Read Ch. 7, Supp. 7 Assign Alaska Air and Arnold Palmer Hospital case studies
7	Chapter 8: Location Strategies Chapter 9: Layout Strategies	Read Chs. 8–9 Assign Red Lobster and Arnold Palmer Hospital cases
8	Midterm Exam	Review Chs. 1–9
9	Chapter 11: Supply Chain Management Supplement 11: S.C.M. Analytics	Read Ch. 11, Supp 11 Assign Darden and Nautique case studies

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