2011

Matt Pickard's Teaching Portfolio

Recipient of the Eller College Teaching Award for Graduate Student Instruction (Fall 2011)

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MY TEACHING PHILOSOPHY

I believe the classroom (and its extensions) should be a place of discovery – both of self and the designated topic. While living in Texas, I became acquainted with Brett Williams, a high school teacher. Williams and his students built large-scale rockets. I was quickly impressed with the initiative his students possessed. Their motivation, I found, stemmed from their desire to solve the next problem. This microcosm of the now dormant space race was problem-based learning at its finest. Why were there so many students entering the sciences during the space race? Because there were exciting problems to be solved.

By motivating learning with a problem to be solved, I believe all learning topics can be made tantalizing. As a teacher, I cultivate curiosity by harrowing up challenging problems and then provide the appropriate tools, nourishment, and encouragement to allow the curiosity to overpower the problem. Though I cannot force growth, I believe that students planted in a conducive environment will most often respond and grow in curiosity, skill, and talent sufficient to tackle larger problems. My job in the classroom is to provide this environment by, first and foremost, caring about the students, and then structuring the curriculum to be challenging but not overbearing and minimizing my lecture time to afford the students the opportunity to immerse themselves in the topic through appropriate activities, problems, and exploration. I believe the Chinese proverb "I hear I forget, I see I remember, I do I understand."

I believe that the course content should always be the servant, never the master, as it is the means, not the end of education. Content should never drive the schedule. The schedule should drive the content. There is never enough time to learn everything. In addition, learning everything in a diluted fashion does little to inspire additional learning. This does not mean that the quantity and quality of content should not challenge the students, but it should never be allowed to suffocate true learning. Content should be flexible and should be adjusted to students' interests.

I also believe that one of the most important things to teach in the classroom is accountability. I believe many of the world's present ailments are a result of people not being held accountable. By accountability, I do not mean simply that students need to learn to suffer the consequences of their choices. They also need to learn that in many instances they will not be able to do everything. Therefore, they need to learn the skill of prioritization and then be content in the context of their priorities. That means that sometimes they might show up to class unprepared. That is fine as long as two conditions are met: 1) they accept the consequences of their choice, and 2) their choice was not an outgrowth of laziness.

To inspire the love of learning, I have to love learning myself. This is best done by drinking deeply from the waters that I lead my students to.

My beliefs about students are optimistic. In general, I believe students are good and desire to learn. They simply have so many distractions in today's age that many of them have not

experienced the thrill of learning and the thrill of mastering a subject. If I can help them taste that thrill, I believe I can make a profound difference in their lives. I believe that if I relate to and care about my students that most of them will respond positively to the opportunity to learn and find deeper fulfillment in their lives. In short, I believe students are in many ways the customer. The customer does not always know what is best for them, but they do know when their needs are fulfilled.

Education is one of the root sources of a happy and fulfilling life. Education helps uncover truth, truth brings freedom, and freedom brings increased ability to act. Because of this, I believe that, in general, educated people contribute more to society. Education is not limited to books and schools. Likewise, education is not limited to the intellectual realm. I believe education is innately spiritual. Learning who we are and how we fit into the grand scheme of this world is as natural to a person as seeking out nutrition to sustain the physical body.

In conclusion, I recognize that my next grand theory as a researcher may someday be invalidated or fall out of use. But my positive impact on students will last beyond my life and hopefully beyond theirs. To me, such an impact – while not fully measureable – is real! I know this from personal experience. My life has been influenced by so many dedicated teachers and I value the opportunity to pay forward my debt to them.

An online version of my teaching philosophy *with a video* is available at:
http://matthewpickard.weebly.com/my-teaching-philosophy.html

MIS 373 INTRO TO OPERATIONS MANAGEMENT COURSE SYLLABUS

Summer II 2011

Meeting Time:	MTWRF 9:00 – 10:45 AM
Location:	McClelland Hall 134
Website:	http://blackboard.eller.arizona.edu
Instructor:	Matthew Pickard
Office:	McClelland Hall 109
Office Hours:	11:00 AM to NOON Monday and Wednesday, or by appointment
Email:	matthew.david.pickard@gmail.com

Course Materials

- Textbook, Operations Management, 10th Ed. William J. Stevenson
- Simple calculator
- Presentation Slides will be posted on Blackboard before class at http://blackboard.eller.arizona.edu

Prerequisites: MATH 115A & B, MGMT 276

Course Overview

Operations management is an area of business concerned with the production of goods and services, and involves the responsibility of ensuring that business operations are efficient in terms of using as few resources needed, and effective in terms of meeting customer requirements. It is concerned with managing the process that converts inputs (in the forms of materials, labor and energy) into outputs (in the form of goods and services). MIS 373 serves as an introduction to the field of operations management. The course will provide students with an understanding of the strategic implications of the many decisions faced by operations managers. Students will also be introduced to quantitative tools and information technology used to facilitate the decision-making process.

Course Objectives

After completion of this class, students will be able to demonstrate proficiency in accurately forecasting demand and product production needs, to identify consequences of

facility planning and layout choices, to manage inventory through material requirements planning, to experience tools and techniques used for OM, to explain principles behind quality management, ERP, MRP, and JIT, and to further an appreciation for the people and organizations responsible for the products we consume. In class, we will explore the notion of forecasting business processes, manufacturing constraints, material requirements planning (MRP), quality management, project management, product design, enterprise resource planning (ERP), just-in-time inventory (JIT) operations, and aggregate planning.

Philosophy and Course Methods

My teaching philosophy is Learner-Centered, which means that students will be integrally involved in the learning and teaching process. Students will demonstrate real world skills such as forecasting, facility planning, and other O.M. techniques. In-class simulations will aid learning complex material. Through in-class presentations, students will have the opportunity to demonstrate business communication and presentation skills.

Course Assessment

Letter Grades are awarded based on total points:
A: 900 or above, B: 800 – 899, C: 700 – 799, D: 600 – 699, E: 500 – 599

Assessment	**Due Date**	**Points Possible**	**Grade Percentage**
Attendance and Participation	16/19 classes	100	10%
Paint Your Personal Picture	July 12th	30	3%
Homework Assignments		120	12%
Quizzes (15 out of 17)		150	15%
Exam #1	July 19th	150	15%
Exam #2	July 29th	150	15%
Exam #3	Aug 9th	150	15%
Group Site Visit / Presentation	Aug 6th	150	15%
Final Exam (optional)	Aug 10th		
TOTAL		**1000**	**100%**

Attendance and Participation

Being present and participating in class will help make your experience in MIS 373 a successful and rewarding one. You may earn 10 points A&P credit during classes marked with a "*" on the course schedule by completing designated in-class activities. To earn full A&P credit, you must be present during 16 of the 19 classes offered for a total of 100 points. Please be on time, turn off your cell phones, do not text, chat, surf, etc. during class.

Homework

There will be several homework assignments throughout the term. These are opportunities for you to apply what you have learned. I will pull exam material from the homework assignments. Below are a few of the homework assignments planned for the term.

Paint Your Personal Picture

I want to get to know each of you individually. Therefore, the first assignment of the course is to complete the "Paint Your Personal Picture" survey. You will find the survey on Blackboard. It is due to the instructor by email **before 11:59 PM, Tuesday, July 12th**. As part of this assignment, would also like to meet with each of you for 10 minutes **before Tuesday, July 19th**. You can sign up for a time at http://www.supersaas.com/schedule/cmi/Let_Matt_Meet_You. Please have your "Paint Your Personal Picture" survey completed before coming in to chat with me.

How it's Made Project

In this assignment, you will find a video online related to a manufacturing company or a product being made and write 400 – 500 words about your findings. This assignment is designed to help you review for the first exam, and is related the topics at hand. Details of this assignment can be found on Blackboard and will be discussed in class.

Process Design Project

In this assignment, you will answer questions related to an in-class activity in which you will design and implement a production process as well as plan a facility layout. Details of this assignment will be discussed in class and can be found on Blackboard.

Quizzes

Because it is important that you are well-versed in the language of operations, there will be a short mini-quiz almost class related to key terms from the current chapter. There will be 17 quizzes offered, and the lowest TWO quiz grades will be dropped (for a total of 15 quizzes).

Exams 1, 2, 3, and the Optional Final

All materials from readings, project, assignments, and class discussions may be present in the exams, which will be multiple choice and short answer questions. A review will be given the day before each exam. There are four exams – three mandatory exams and one optional cumulative final exam at the end of the session. The grade you earn on the final exam, if you take it, will replace your lowest grade from exams 1, 2, and 3. The grade replacement will only take place if your final exam score is higher than one of your first three exam scores. In other words, there is no penalty for taking the final exam.

Exams are closed-book and closed-notes and will only be proctored on the days scheduled. If you miss one of the first three exams, the final exam will serve as your make-up exam.

Requests for Accommodations

If you anticipate issues related to the format or requirements of this course, please contact me to discuss ways to ensure your full participation in the course. If you determine that formal, disability-related accommodations are necessary, it is very important that you be registered with Disability Resources (621-3268 or http://drc.arizona.edu) and that you provide me with your Student Letter of Identification indicating your eligibility for reasonable accommodations. We can then plan how best to coordinate your accommodations.

Academic Integrity

As professional students, you are expected to abide by Eller College of Management policies regarding academic dishonesty and misconduct for ALL material submitted for grading. Cite your sources. There is zero tolerance for cheating. Please refer to the online material on ethical behavior expected from Eller students: (http://ugrad.eller.arizona.edu/etegrity/guides.aspx). Violations will be given a no credit for the assignment and possibly a failing grade for the course.

Communicating with the Instructor

I love to talk with students, especially when they express a desire to learn and gain knowledge. Feel free to contact me about any aspect of the class. Email me for alternative meeting time outside my office hours. **Please email** matthew.david.pickard@gmail.com **with questions or concerns so that I can respond to you promptly.** My office hours are listed on the first page, but I reserve the right to adjust as needed and will communicate such changes in advance on Blackboard, email, or in class.

Concerning Grade Appeals

You may appeal your grade on any assignment, including tests, but must follow this process. You have three business days after receiving your grade to submit a written appeal outlining the concern and requested redress. The written appeal must clearly identify the following:

1. The item of redress (i.e. the question you got wrong or have issue with)

2. Your argument for redress and evidence supporting your position (i.e. page number in the book, external sources, etc.)

The written appeal must be submitted electronically by email to matthew.david.pickard@gmail so that there is an unbiased timestamp and paper trail attached with the communication. You will receive a response within three business days. The response will be sent by email and may include a request to meet in person. Failure to follow the prescribed guidelines or failure to appeal your grade within the grace window will constitute your full acknowledgement and full acceptance of the grade.

Late Assignments

Assignments to be completed outside of class will be graded in the following manner if late:

1 day late:	Maximum of 80% of original grade
2 days late:	Maximum of 60% of original grade
More than 2 days late:	No credit awarded

MIS 373 COURSE SCHEDULE

Summer II 2011

#	Day	Date	Topics	Relevant Reading
		Week One		
1	M*	July 11th	Course Syllabus Course Introduction Introduction to Operations Management	Chapter 1
2	T*	July 12th	Finish Intro to Operations Management Competitiveness, Strategy, Productivity **Quiz #1**	None
3	W*	July 13th	Competitiveness, Strategy, Productivity Product and Service Design; **Quiz #2** **Groups Due to Instructor**	Chapter 2 Chapter 4
4	R*	July 14th	Reliability Strategic Capacity Planning **Quiz #3**	Ch 4 Supplement Chapter 5
5	F*	July 15th	Decision Theory **Quiz #4**	Chapter 5 Supplement
		Week Two		
6	M*	July 18th	Review **Quiz #5**	None
7	T	July 19th	**Exam #1**	None
8	W*	July 20th	Process Selection and Facility Layout **Quiz #6**	Chapter 6

#	Day	Date	Topics	Relevant Reading
9	R*	July 21st	Process Selection and Facility Layout **Quiz #7**	None
10	F*	July 22nd	Project Management **Quiz #8** **Company Tour Should be Scheduled**	Chapter 17
		Week Three		
11	M*	July 25th	Inventory Management **Quiz #9**	Chapter 12
12	T*	July 26th	Aggregate Planning **Quiz #10**	Chapter 13
13	W*	July 27th	Aggregate Planning **Quiz #11**	None
14	R*	July 28th	Review **Quiz #12**	None
15	F	July 29th	**Exam #2**	None
		Week Four		
16	M*	August 1st	MRP and ERP **Quiz #13**	Chapter 14
17	T*	August 2nd	Supply Chain Management **Quiz #14**	Chapter 11
18	W*	August 3rd	Supply Chain Management **Quiz #15**	None

#	Day	Date	Topics	Relevant Reading
19	R*	August 4th	JIT and Lean Operations **Quiz #16**	Chapter 15
20	F*	August 5th	Quality Management **Quiz #17** **How it's Made Reflective Write-ups Due**	Chapter 9
	S	August 6th	**Presentations Must be Submitted to Blackboard by 11:59 PM**	
		Week Five		
21	M*	August 8th	Presentations	None
22	T	August 9th	**Exam #3**	None
23	W	August 10th	**Optional Cumulative Final Exam**	None

Classes Marked with an "*" are opportunities for 10 points Attendance and Participation.
The Course Schedule is subject to change at the discretion of the instructor.

Chapter 6 – Process Selection and Facility Layout

Objectives

- Explain the strategic importance of process selection
- Describe the basic types of processing
- Discuss automated approaches to processing
- Describe the basic types of layouts
- List the main advantages and disadvantages of product and process layouts
- Solve simple line-balancing problems
- Develop simple process layouts

Materials Needed

- Chapter 5 Strategic Planning Slides
- Wheeled Coach Ambulance Video (from Prentice Hall Student Video Library: Disc 1)
- Arnold Palmer Hospital Video (from Prentice Hall Student Video Library: Disc 1)
- Ford: Flexible Manufacturing Video (from McGraw Hill Student CD)

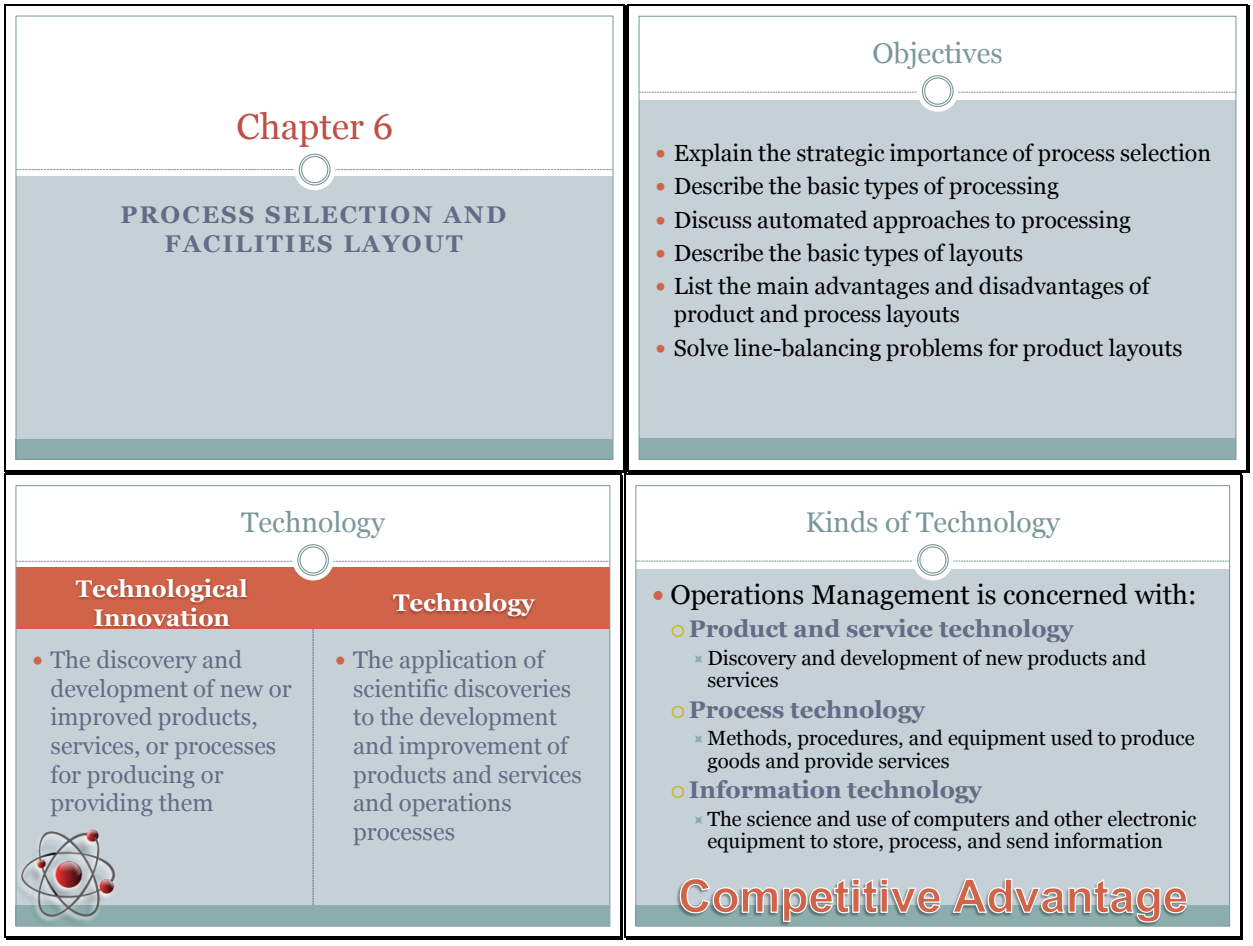
Schedule

- **Technology (12 minutes)**
  - Present slides (6 minutes)
  - Pair n' Share (6 minutes)
- **Process Selection (25 minutes)**
  - Present slides (10 minutes)
  - Pair n' Share – Morton Salt "Operations Tour" (10 minutes)
  - Discussion (5 minutes)
- **Facilities Layout (55 minutes)**
  - Present slides (6 minutes)
  - Test Your Learning (1 minute)
  - Present Slides (2 minutes)
  - Pair n' Share – Compare product and process layouts (5 minutes)
  - Video: Wheeled Coach Ambulance Layout (10 minutes)
  - Present Slides (9 minutes)
  - Video: Arnold Palmer Hospital – Service Layout (13 minutes)
  - Video: Ford Flexible Manufacturing (20 minutes)

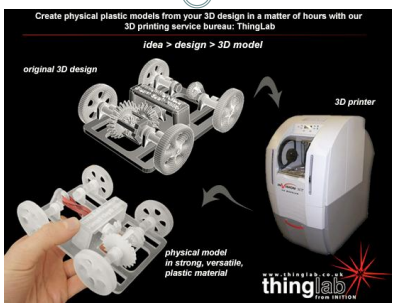
- **Assembly Line Balancing (32 minutes)**
  - Present slides (12 minutes)
  - Work supplementary line balancing problems in class (20 minutes)

TOTAL TIME REQUIRED: 2 hour and 10 minutes

EXAMPLE SLIDES USED WITH LESSON PLAN



Product & Service Technology



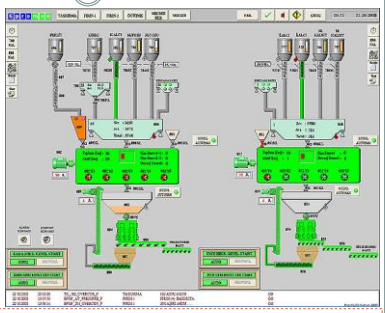
Discovery and development of new products and services

Process Technology

Flash Freezing

Computer Vision

Process Automation



Methods, procedures, and equipment used to produce goods/services

Automation

- **Automation:** Machinery that has sensing and control devices that enable it to operate automatically
  - Fixed automation
  - Programmable automation
  - Flexible automation

Questions to consider:

1. What level of automation is appropriate?
2. How would automation affect system flexibility?
3. How can automation projects be justified?
4. How should changes be managed?
5. What are the risks of automating?
6. What are the likely effects of automating on:
   - Market share
   - Costs
   - Quality
   - Customer satisfaction
   - Labor relations
   - Ongoing operations

Information Technology

Information retrieval systems

RFID Tracking Systems

The Internet

Databases

RFID Tracking Systems

Use of computers to store, process, and send information

Pair n' Share

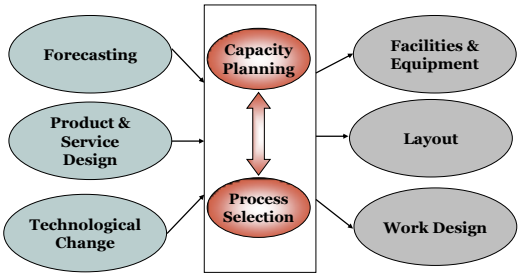
- With a partner, brainstorm **three** examples for each type of *operations-related* technology:
  - Product & Service Technology
  - Process Technology
  - Information Technology (IT)
- Also discuss how each type of technology can create a competitive advantage for an organization.

(Time Limit: 3 min)

Process Selection

PROCESS SELECTION REFERS TO THE DECISIONS ASSOCIATED WITH HOW THE PRODUCTION OF GOODS OR SERVICES WILL BE ORGANIZED

Process Selection and System Design

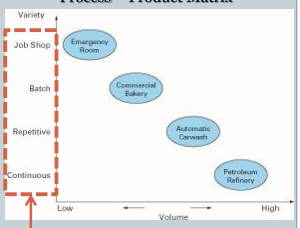


Process Selection

Questions to consider:

1. Variety
   - How much?
2. Equipment flexibility
   - To what degree?
   - What kind?
     - Product & service changes
     - Volume changes
     - Technology changes
3. Volume
   - Expected output?

Process – Product Matrix



Types of processing

Job Shop

- Small scale operation
- Highly flexible
- Utilizes general-purpose equipment
- Requires skilled workers

- **Examples:**
  - Welding shop
  - Orthodontist
  - Mechanic

Batch

- Moderate volume
- Moderately flexible
- Less variety in output
- Semi-generic equipment

- **Examples:**
  - Ice cream factory
  - Printing press
  - Concerts

Repetitive Repetitive Repetitive

- Higher volumes
- More standardized output
- Less flexible
- More specialized equipment

- **Examples:**
  - Automobile manufacturing
  - Automatic carwash
  - Cafeteria

Continuous

- Very high volumes
- Highly standardized output
- No flexibility or variety
- Associated with more *non-discrete* products
- Often expensive to shutdown

- **Examples:**
  - Salt production plant
  - Internet / Web services
  - Power plants

Summary: Types of Processing

	Job Shop	Batch	Repetitive / Assembly	Continuous
Type of goods / services best for:	Customized	Semi-standard	Standardized	Highly standardized
Advantages	Deal with a wide variety of work	Flexibility	Efficient – low unit cost, high volume	Very efficient, very high volume
Disadvantages	Slow, high unit cost, high scheduling complexity	Moderate unit cost, moderate scheduling complexity	Low flexibility, high cost of downtime	Very rigid, lack of variety, costly to change, very high cost of downtime

Process Choice Effects

TABLE 6.2 Process choice affects numerous activities/functions

Activity/ Function	Job Shop	Batch	Repetitive	Continuous	Projects
Cost estimation	Difficult	Somewhat routine	Routine	Routine	Simple to complex
Cost per unit	High	Moderate	Low	Low	Very high
Equipment used	General purpose	General purpose	Special purpose	Special purpose	Varied
Fixed costs	Low	Moderate	High	Very high	Varied
Variable costs	High	Moderate	Low	Very low	High
Labor skills	High	Moderate	Low	Low to high	Low to high
Marketing	Promote capabilities	Promote capabilities; semi-standardized goods and services	Promote standardized goods/services	Promote standardized goods/services	Promote capabilities
Scheduling	Complex	Moderately complex	Routine	Routine	Complex, subject to change
Work-in-process inventory	High	High	Low	Low	Varied

Test Your Learning

- Identify the type of processing that is associated with the following traits:
  - Very high volumes
  - Very flexible
  - Flexible enough to accommodate product variety, but can still produce moderate volume
  - Assembly line-like

A. Job Shop
B. Batch
C. Repetitive
D. Continuous

Pair n' Share

- Read the Morton Salt "Operations Tour" on page 243 in the book and discuss the following questions with a partner:
  - What types of processing does Morton leverage?
  - Why do they use multiple types of processing? Discuss how the different types of processing fits the production needs.

(Time Limit: 10 min)

Facilities Layout

LAYOUT

the configuration of departments, work centers, and equipment, with particular emphasis on movement of work (customers or materials) through the system

The Need for Layout Planning

- Inefficient operations
  - High cost
  - Bottlenecks

- Accidents or safety hazards
- Changes in product or service design
- Introduction of new products or services
- Changes in output volume or product mix
- Changes in methods or equipment
- Morale problems

Layout Design Objectives

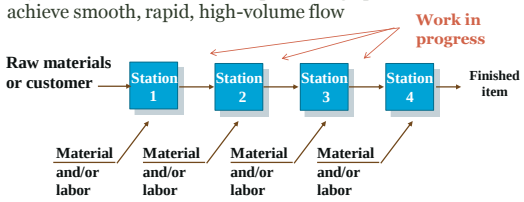
- **Basic Objective**
  - Facilitate a smooth flow of work, material, and information through the system
- **Supporting objectives**
  - Facilitate product or service quality
  - Use workers and space efficiently
  - Avoid bottlenecks
  - Minimize material handling costs
  - Eliminate unnecessary movement of workers or material
  - Minimize production time or customer service time
  - Design for safety

Basic Layout Types

- Product layouts
- Process layouts
- Fixed-Position layouts
- Combination layouts

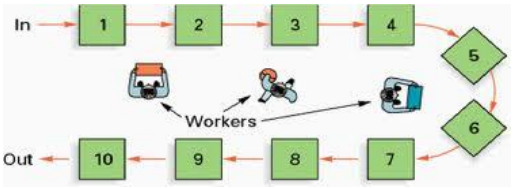
Product Layouts

- **Product layout**
  - Layout that uses standardized processing operations to achieve smooth, rapid, high-volume flow



Used for Repetitive Processing

Product Layouts



Product Layout: Advantages / Disadvantages

Advantages	Disadvantages
• High rate of output • Low unit cost • Labor specialization • Low material handling cost per unit • High utilization of labor and equipment • Established routing and scheduling • Routine accounting, purchasing, and inventory control	• Creates dull, repetitive jobs • Poorly skilled workers may not maintain equipment or quality of output • Fairly inflexible to changes in volume / product / process design • Highly susceptible to shutdowns • Preventive maintenance, capacity for quick repair and spare-parts inventories are necessary expenses • Individual incentive plans are impractical

Test Your Learning

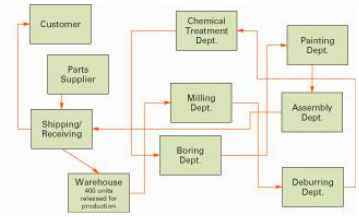
- Which of the following is NOT an advantage of a product layout:

A. High rate of output
B. High flexibility
C. High utilization of labor and equipment
D. Low unit cost
E. None of the above

Correct Answer: B

Process Layouts

- **Process layouts**
  - Layouts that can handle varied processing requirements



Used for Intermittent processing
Job Shop or Batch

Process Layout: Advantages

Advantages	Disadvantages
• Can handle a variety of processing requirements • Not particularly vulnerable to equipment failures • General-purpose equipment is often less costly than the specialized equipment used in product layouts • It is possible to use individual incentive plans	• In-process inventory costs can be high • Challenging routing and scheduling • Equipment utilization rates are low • Material handling slow and inefficient • Complexities often reduce span of supervision • Special attention for each product or customer • Accounting and purchasing are more involved

Pair n' Share

- With a partner, compare and contrast the advantages of a **product** and **process** layout.
- When would you use a product layout? When would you use a process layout? Share a specific example of a product or service for each.

(Time limit: 3 min)

Wheeled Coach Ambulance Layout Video

(7 minutes)

1. What kind of layout does Wheeled Coach employ?
2. What two things did the plant manager, Lynn Whalen, mentioned they focused on when evolving into their layout? What did they want to do with these two things?
3. What challenges does Wheeled Coach face in their process layout?
4. Does Wheeled Coach have a large or small amount of work in process?
5. List the five critical decisions of operations management named in the video.

Fixed Position Layouts

- **Fixed Position layout**
  - Layout in which the product or project remains stationary, and workers, materials, and equipment are moved as needed



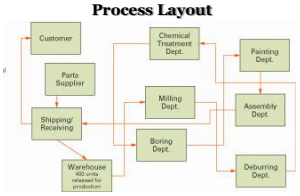
Combination Layouts

- Some operational environments use a combination of the three basic layout types:
  - Hospitals
  - Supermarket
  - Shipyards
- Some organizations are moving away from process layouts in an effort to capture the benefits of product layouts
  - Cellular manufacturing
  - Flexible manufacturing systems

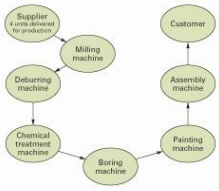
Cellular Manufacturing Layouts: Work Cells

Workstations or machines are grouped into a cell that can process items that have similar processing requirements

Process Layout



Work Cell



Process vs. Cellular Layout

Dimension	Process ~~Functional~~	Cellular
Number of moves between departments	Many	Few
Travel distances	Longer	Shorter
Travel paths	Variable	Fixed
Job waiting time	Greater	Shorter
Throughput time	Higher	Lower
Amount of work in process	Higher	Lower
Supervision difficulty	Higher	Lower
Scheduling complexity	Higher	Lower
Equipment utilization	Lower	Higher

Cellular Layout Example

(2 minutes)

Flexible Manufacturing System (FMS)

- A group of machines designed to handle intermittent processing requirements and produce a variety of similar products
  - It is a **more automated version of cellular manufacturing**

(2.5 minutes)

(1 minute)

Service Layout Video: Arnold Palmer

(10 minutes)

1. What tasks, activities, and/or analyses did Arnold Palmer use to create the design of the new hospital?
2. How far can a nurse walk in a given day while doing his/her work in the hospital?
3. How did Arnold Palmer test the layout's effectiveness?
4. Arnold Palmer chose a pod design layout. How does a pod design layout in a service environment compare to a work cell layout in a manufacturing environment?

Flexible Manufacturing: Ford

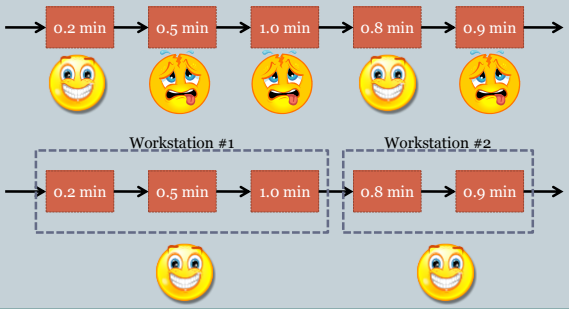
(16 minutes)

1. What are some of the benefits of the improved flexibility of Ford's new plant?
2. How long did model changeovers take in the old plant? New plant?
3. What type of processing does Ford employ in the new body shop? What type of layout do they use?
4. What type of processing and layout do they use after the body shop?

Assembly Line Balancing

The process of assigning tasks to workstations in such a way that the workstations have approximately equal time requirements

Why line balancing?



Calculating Cycle Time & Min # of Workstations

Cycle Time

- The maximum time allowed at each workstation to complete its set of tasks on a unit
- Cycle time also establishes the output rate of a line

$$\text{Cycle time} = \frac{\text{Operating time per day}}{\text{Desired output rate}}$$

$$\text{Output rate} = \frac{\text{Operating time per day}}{\text{Cycle time}}$$

Min # of Workstations

$$N_{min} = \frac{\sum t}{\text{Cycle time}}$$

where

N_{min} = theoretical minimum number of stations

$\sum t$ = Sum of task times

Line Balancing Procedure

1) Determine Cycle Time and Min # of Workstations.

2) Assign a task to the current workstation. To determine which tasks are eligible for assignment, use these two criteria:
   A) All preceding tasks have been assigned.
   B) The task time does not exceed the time remaining at the workstation.
If not tasks are eligible, move to the next workstation.

Break ties between two task with one of these rules:
   A) Assign the task with the longest task time.
   B) Assign the task with the greatest number of followers.
If there is still a tie, choose one task arbitrarily.

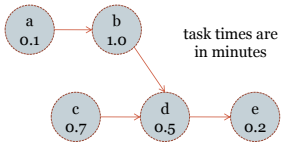
3) Determine the remaining time at the workstation (cycle time – sum of tasks assigned to that station).

4) Repeat steps 1) thru 3) until all tasks have been assigned.

5) Compute appropriate measures (percent idle time, efficiency) for the set of assignments.

Line Balancing Example

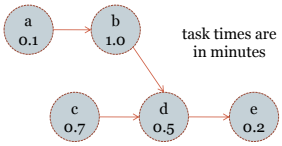
- **Precedence diagram**
  - A diagram that shows elemental tasks and their precedence requirements



Desired rate of output = 480 units/day
Assume 8-hour (480 minute) workday

Assign these tasks to a sequence of workstations so that the assembly line is maximally balanced.

Example: Step 1 – Cycle Time & # Stations



$$\text{Cycle time} = \frac{\text{Operating time per day}}{\text{Desired output rate}}$$

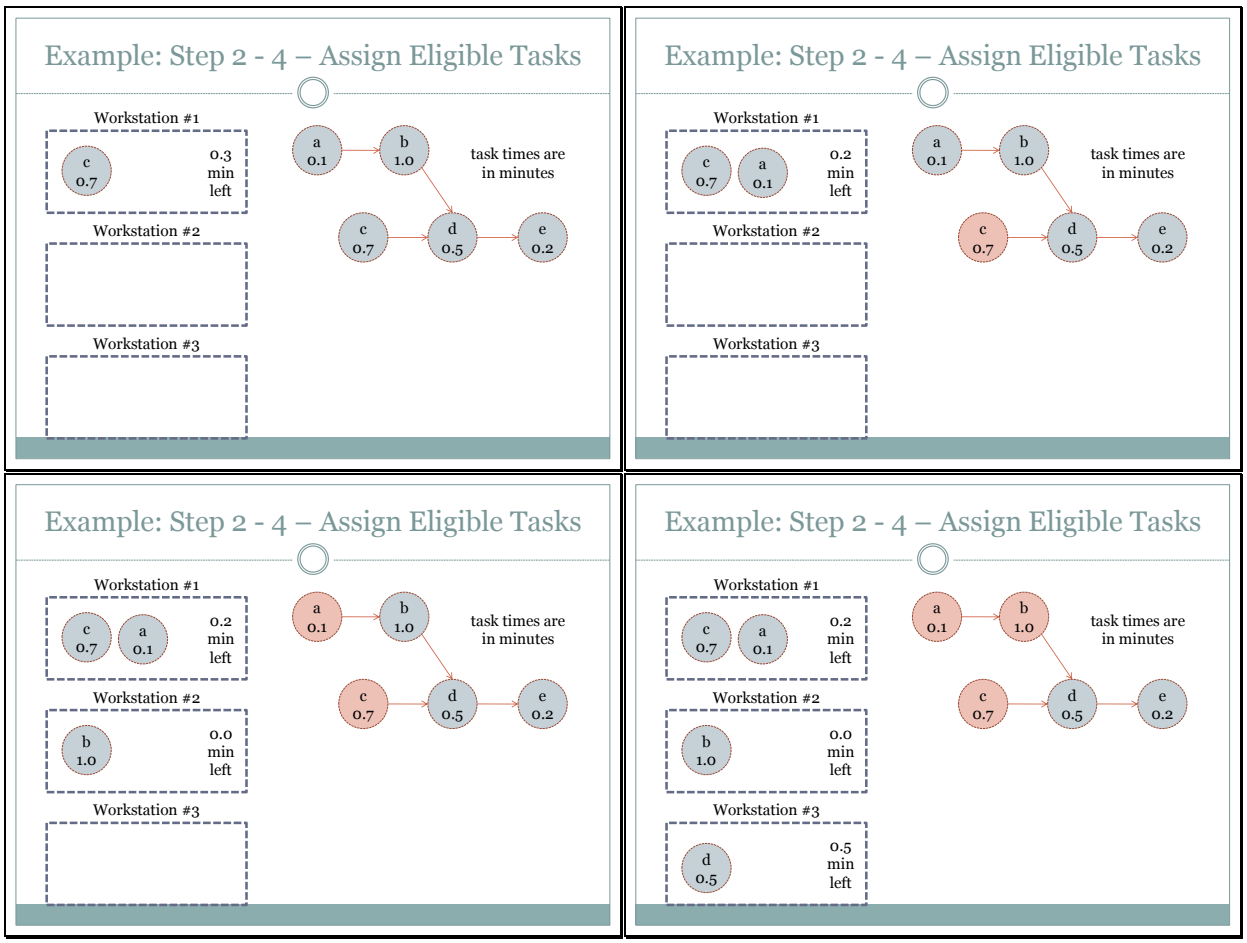
Cycle Time = 1 min

$$N_{min} = \frac{\sum t}{\text{Cycle time}}$$

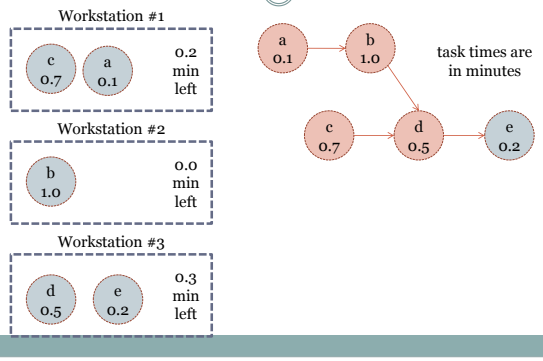
N_{min} = 2.5 min / 1 min

N_{min} = 2.5 = 3

Desired rate of output = 480 units/day
8-hour (480 minute) workday


Example: Step 2 - 4 – Assign Eligible Tasks
Workstation #1
c 0.7
0.3 min left
Workstation #2
Workstation #3
a 0.1
b 1.0
c 0.7
d 0.5
e 0.2
task times are in minutes
Example: Step 2 - 4 – Assign Eligible Tasks
Workstation #1
c 0.7
a 0.1
0.2 min left
Workstation #2
Workstation #3
a 0.1
b 1.0
c 0.7
d 0.5
e 0.2
task times are in minutes
Example: Step 2 - 4 – Assign Eligible Tasks
Workstation #1
c 0.7
a 0.1
0.2 min left
Workstation #2
b 1.0
0.0 min left
Workstation #3
a 0.1
b 1.0
c 0.7
d 0.5
e 0.2
task times are in minutes
Example: Step 2 - 4 – Assign Eligible Tasks
Workstation #1
c 0.7
a 0.1
0.2 min left
Workstation #2
b 1.0
0.0 min left
Workstation #3
d 0.5
0.5 min left
a 0.1
b 1.0
c 0.7
d 0.5
e 0.2
task times are in minutes

Example: Step 2 - 4 – Assign Eligible Tasks



Example: Step 5 – Measuring Effectiveness

- **Balance delay** (% of idle time)
  - Percentage of idle time of a line

$$\text{Balance Delay} = \frac{\text{Idle time per cycle}}{N_{actual} \times \text{Cycle time}}$$

where

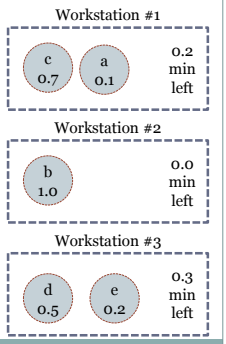
N_{actual} = Actual number of stations

Balance Delay = 16.7%

- **Efficiency**
  - Percentage of busy time of a line

$$\text{Efficiency} = 100\% - \text{Balance Delay}$$

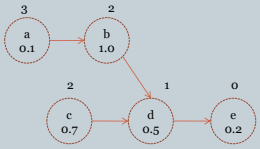
Efficiency= 83.3%



Two Criteria for Assigning Tasks to Workstations

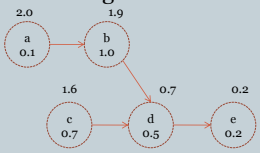
Most Following Tasks

- Count the number of tasks that follow



Greatest Positional Weight

- Positional weight is the sum of each task's time and the times of all following tasks.



John Deere Video

(10 minutes)

- While watching the video on John Deere's layout design, answer the following questions:

1. What problems and issues was John Deere facing?
2. Describe "demand flow technology."
3. What is a "sequence of events?"
4. What was the purpose of a "sequence sheet?"
5. How did they change their pay (wage) program?
6. What was the purpose of the "operational methods sheets?"

MIS 373 – Summer II – Exam 2
Monday, August 1st, 2011
(150 Points)

Name (printed): _____

INSTRUCTIONS: You may use a one-sided, one-page sheet of notes. You have the entire class period to complete this exam (roughly 1 hour and 40 minutes). All exams must be handed in at the end of the class.

I agree to adhere to the guidelines outlined in the Eller Policy on Academic Dishonesty and Misconduct and certify that the work contained in this exam is my own.

Signature _____

IMPORTANT: This exam has **TWO** parts:

Part 1: True-False and Multiple Choice (40 points) – administered on Blackboard under Content >> Exams >> Exam #2.

Part 2: Short Answer (110 points) – administered by paper (the stack you now have in your hand). Please show your work for the short answer, so I can give partial credit.

Do not turn this page until instructed to do so.

Exam 2 – Part 2: Short answer questions

DIRECTIONS: Partial credit will be given for your short answer questions if you provide legible and clear work showing how you arrived at the answer.

1) **(25 points)** Prepare a master schedule based on the following information:

Week	1	2	3	4	5	6	7	8
Forecast	100	100	120	120	150	150	180	180
Orders	106	94	65	40	21	9	2	0

Currently there are 145 units in inventory. Policy calls for a fixed order quantity of 250 units.

Week	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Forecast	**100**	**100**	**120**	**120**	**150**	**150**	**180**	**180**
Orders	**106**	**94**	**65**	**40**	**21**	**9**	**2**	**0**
Projected On-hand Inventory	**39**	**189**	**69**	**199**	**49**	**149**	**219**	**39**
MPS		**250**		**250**		**250**	**250**	
ATP	**39**	**91**		**189**		**241**	**248**	

2) **(5 points)** A bakery's use of corn sweetener is normally distributed with a mean of 80 gallons per day and a standard deviation of four gallons per day. Lead time for delivery of the corn sweetener is normal with a mean of six days and a standard deviation of two days. If the manager wants a service level of 99 percent, what reorder point should be used? Be sure an specify the appropriate ROP equation for this scenario.

For a 99 percent service level, the appropriate z-value is 2.33. Given this, the reorder point should be:

$$\text{ROP} = \bar{d}LT + z\sqrt{LT\sigma_d^2 + \bar{d}^2\sigma_{LT}^2} = (80 \cdot 6) + 2.33\sqrt{(6 \cdot 4^2) + (80^2 \cdot 2^2)} = 853.50 \text{ gallons}$$

3) **(25 points)** Management wants to design an assembly line that will turn out 800 videotapes per day. There will be eight working hours in each day. The industrial engineering staff has assembled the information below:

Task	Time (min.)	Immediate Predecessor
a	.2	none
b	.2	a
c	.4	none
d	.1	none
e	.3	c, d
f	.2	b, e
g	.1	none
h	.2	f, g
I	.6	h

(A) (3 points) Determine the maximum and minimum cycle times.

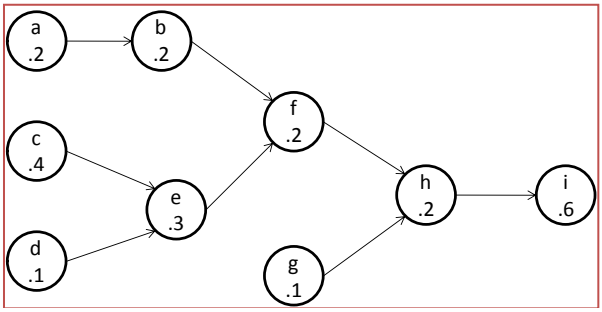
Maximum cycle time is 2.3 minutes (add them all together); minimum cycle time is .6 minutes (time of longest task).

(B) (2 points) Determine the optimum cycle time.
(C) (2 points) What is the minimum number of stations needed?

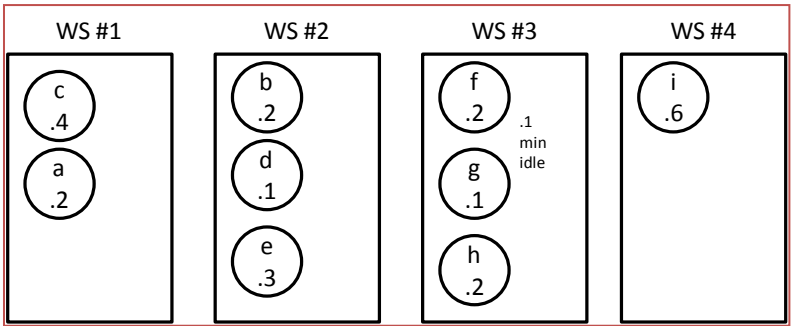
B) $CT = \frac{\text{operating time}}{\text{desired output}} = \frac{480 \text{ minutes per day}}{800 \text{ units per day}} = \frac{.6 \text{ minutes per}}{\text{cycle}}$

C) $N = \frac{\text{desired output}}{\text{operating time}} = \frac{800\,(2.3)}{480} = 3.83$, which becomes 4

(D) (5 points) Draw the precedence diagram.



(E) (8 points) Assign the tasks to stations in order of most following tasks first. Draw a diagram illustrating the final workstation assignments.



(F) (3 points) Calculate the Percentage Idle Time for the balanced line.

% of idle time = 0.1 / (4 * 0.6) = 4.167%

(G) (2 points) What is the Efficiency of the balanced line.

Efficiency = 1 – Idle Time = 1 – 4.167% = 95.83%

4) **(25 points)** Given the projected demands for the next six months, prepare an aggregate plan that uses inventory, regular time and overtime, and backorders. The plan must wind up with no units in ending inventory in Period 6. Regular time capacity is 150 units per month. Overtime capacity is 20 units per month. Overtime cost is $30 per unit, backorder cost is $20 per unit, inventory holding cost is $5 per unit, regular time cost of $20 per unit, and beginning inventory is zero. What is the total cost of the prepared plan?

Month	Forecast
1	180
2	170
3	140
4	150
5	130
6	150

The aggregate plan should look like this:

Period	**1**	**2**	**3**	**4**	**5**	**6**	**Total**
Forecast	**180**	**170**	**140**	**150**	**130**	**150**	
Beginning Inventory	**0**	**-10**	**-30**	**-20**	**-20**	**0**	
Regular-time Prod	**150**	**150**	**150**	**150**	**150**	**150**	
Overtime Production	**20**						
Ending Inventory	**-10**	**-30**	**-20**	**-20**			
Costs							
Regular-time Prod	**3000**	**3000**	**3000**	**3000**	**3000**	**3000**	**18000**
Overtime Production	**600**						**600**
Holding							
Backorder	**200**	**600**	**400**	**400**			**1600**
Total	**3800**	**3600**	**3400**	**3400**	**3000**	**3000**	**20,200**

Total cost of this plan is $20,200.

5) **(10 points)** A service garage uses 120 boxes of cleaning cloths a year. The boxes cost $6 each. Ordering cost is $3 and holding cost is 10 percent of purchase cost per unit on an annual basis. Determine:

D = 120 boxes per year
S = $3
H = .10($6) = $.60 per box-year

(A) (4 points) The economic order quantity

$$Q_0 = \sqrt{\frac{2DS}{H}} = \sqrt{\frac{2(120)(3)}{0.6}} = 34.6 \approx 35 \; boxes \; per \; order$$

(B) (4 points) The total cost of carrying the cloths (i.e. inventory holding costs)

$$\frac{Q_0}{2}H = \frac{35}{2}0.6 = \$10.5$$

(C) (2 points) The average inventory

$$\text{Avg. Inventory} = \frac{Qo}{2} = \frac{35}{2} = 17.5 \text{ boxes}$$

6) **(5 points)** A shop that makes candles offers a scented candle, which has a monthly demand of 360 boxes. Candles can be produced at a rate of 36 boxes per day. The shop operates 20 days a month. Assume that demand is uniform throughout the month. Setup cost is $60 for a run, and holding cost is $2 per box on a monthly basis. Determine the following:

(A) (2 points) the economic run size

$$Qo = \sqrt{2DS/H}\sqrt{p/(p-u)} = \sqrt{2 \cdot 360 \cdot 60/2}\sqrt{36/(36-18)} \approx 208 \text{ boxes}$$

(B) (1 points) the maximum inventory

$$I_{max} = \frac{Qo}{p}(p-u) = \frac{208}{36}(36-18) = 104 \text{ boxes}$$

(C) (2 points) the number of days in a run

$$\text{Days per run} = \frac{Qo}{p} = \frac{208}{36} = 5.8 \text{ days}$$

7) **(5 points)** Suppose that usage of cooking oil at Harry's Fish Fry is normally distributed with an average of 15 gallons/day and a standard deviation of two gallons/day. Harry has just fired the manager and taken over operating the restaurant himself. Harry has asked you to help him decide how to reorder cooking oil in order to achieve a service level which is seven times the risk of stockout (7/8). Lead time is eight days.

$\bar{d}$ = 15 gallons per day;
σ_d = 2 gallons per day
LT = 8 days
SL = 7/8 = 87.5 percent (Z = 1.15)

If cooking oil can be ordered as needed, what reorder point should be used?

$$ROP = \left[\bar{d} \cdot LT\right] + \left[z\sigma_d \sqrt{LT}\right] = \left[15 \cdot 8\right] + \left[1.15 \cdot 2 \cdot \sqrt{8}\right] = 126.50 \text{ gallons}$$

8) **(10 points)** A company can produce a part it uses in an assembly operation at the rate of 50 an hour. The company operates eight hours a day, 300 days a year. Daily usage of the part is 300 parts. The company uses the part every day. The run size is 6,000 parts. The annual holding cost is $2 per unit, and setup cost is $100.

p = 50 parts/hr x 8 hr/day = 400 parts/day
u = 300 parts/day
300 days/yr.
Run quantity = 6,000 parts.

(A) (3 points) How many runs per year will there be?

Annual demand = (300 parts/day) x (300 days/yr.) = 90,000 parts/yr.
Annual demand/Run quantity = 90000/6000 = 15 runs/yr.

(B) (2 points) While production is occurring, how many parts per day are being added to inventory?

Inventory buildup = p – u = 400 – 300 = 100 parts/day

(C) (2 points) Assuming that production begins when there are no parts on hand, what is the maximum number of parts in inventory?

Production takes 15 days: 6000 parts/400 parts/day = 15 days.
Buildup is 100 parts/day x 15 days = 1500 parts.

(D) (3 points) The machine is dedicated to this product. Every so often, preventive maintenance, which requires six working days, must be performed on it. Does this interrupt production cycles, or is there enough time between cycles to perform the maintenance? Explain.

Usage is 300 parts/day for 6 days = 1800 parts, but maximum inventory is only 1500 parts. Yes, it would interrupt production.

Standard Normal Cumulative Probability Table

Cumulative probabilities for POSITIVE z-values are shown in the following table:

z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.5000	0.5040	0.5080	0.5120	0.5160	0.5199	0.5239	0.5279	0.5319	0.5359
0.1	0.5398	0.5438	0.5478	0.5517	0.5557	0.5596	0.5636	0.5675	0.5714	0.5753
0.2	0.5793	0.5832	0.5871	0.5910	0.5948	0.5987	0.6026	0.6064	0.6103	0.6141
0.3	0.6179	0.6217	0.6255	0.6293	0.6331	0.6368	0.6406	0.6443	0.6480	0.6517
0.4	0.6554	0.6591	0.6628	0.6664	0.6700	0.6736	0.6772	0.6808	0.6844	0.6879
0.5	0.6915	0.6950	0.6985	0.7019	0.7054	0.7088	0.7123	0.7157	0.7190	0.7224
0.6	0.7257	0.7291	0.7324	0.7357	0.7389	0.7422	0.7454	0.7486	0.7517	0.7549
0.7	0.7580	0.7611	0.7642	0.7673	0.7704	0.7734	0.7764	0.7794	0.7823	0.7852
0.8	0.7881	0.7910	0.7939	0.7967	0.7995	0.8023	0.8051	0.8078	0.8106	0.8133
0.9	0.8159	0.8186	0.8212	0.8238	0.8264	0.8289	0.8315	0.8340	0.8365	0.8389
1.0	0.8413	0.8438	0.8461	0.8485	0.8508	0.8531	0.8554	0.8577	0.8599	0.8621
1.1	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770	0.8790	0.8810	0.8830
1.2	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962	0.8980	0.8997	0.9015
1.3	0.9032	0.9049	0.9066	0.9082	0.9099	0.9115	0.9131	0.9147	0.9162	0.9177
1.4	0.9192	0.9207	0.9222	0.9236	0.9251	0.9265	0.9279	0.9292	0.9306	0.9319
1.5	0.9332	0.9345	0.9357	0.9370	0.9382	0.9394	0.9406	0.9418	0.9429	0.9441
1.6	0.9452	0.9463	0.9474	0.9484	0.9495	0.9505	0.9515	0.9525	0.9535	0.9545
1.7	0.9554	0.9564	0.9573	0.9582	0.9591	0.9599	0.9608	0.9616	0.9625	0.9633
1.8	0.9641	0.9649	0.9656	0.9664	0.9671	0.9678	0.9686	0.9693	0.9699	0.9706
1.9	0.9713	0.9719	0.9726	0.9732	0.9738	0.9744	0.9750	0.9756	0.9761	0.9767
2.0	0.9772	0.9778	0.9783	0.9788	0.9793	0.9798	0.9803	0.9808	0.9812	0.9817
2.1	0.9821	0.9826	0.9830	0.9834	0.9838	0.9842	0.9846	0.9850	0.9854	0.9857
2.2	0.9861	0.9864	0.9868	0.9871	0.9875	0.9878	0.9881	0.9884	0.9887	0.9890
2.3	0.9893	0.9896	0.9898	0.9901	0.9904	0.9906	0.9909	0.9911	0.9913	0.9916
2.4	0.9918	0.9920	0.9922	0.9925	0.9927	0.9929	0.9931	0.9932	0.9934	0.9936
2.5	0.9938	0.9940	0.9941	0.9943	0.9945	0.9946	0.9948	0.9949	0.9951	0.9952
2.6	0.9953	0.9955	0.9956	0.9957	0.9959	0.9960	0.9961	0.9962	0.9963	0.9964
2.7	0.9965	0.9966	0.9967	0.9968	0.9969	0.9970	0.9971	0.9972	0.9973	0.9974
2.8	0.9974	0.9975	0.9976	0.9977	0.9977	0.9978	0.9979	0.9979	0.9980	0.9981
2.9	0.9981	0.9982	0.9982	0.9983	0.9984	0.9984	0.9985	0.9985	0.9986	0.9986
3.0	0.9987	0.9987	0.9987	0.9988	0.9988	0.9989	0.9989	0.9989	0.9990	0.9990
3.1	0.9990	0.9991	0.9991	0.9991	0.9992	0.9992	0.9992	0.9992	0.9993	0.9993
3.2	0.9993	0.9993	0.9994	0.9994	0.9994	0.9994	0.9994	0.9995	0.9995	0.9995
3.3	0.9995	0.9995	0.9995	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9997
3.4	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9998

EXAMPLE HOMEWORK ASSIGNMENT WITH GRADING RUBRIC

How Its Made Homework Assignments

Introduction:

The purpose of this assignment is to give you deepen your understanding of the operations concepts taught in this course. The interesting thing about operations is you often do not understand it until you see in motion.

Your Task:

You will watch **three** Discovery Channel *How Its Made* videos (available online) of your choice and write a short reflection on what you learned. Each video clip shows how a specific product is manufactured. The video clips are available on Youtube.com. Search for "How Its Made" or alternatively navigate to http://www.vidly.net/collection-how-its-made.html that lists numerous *How Its Made* videos. The videos are approximately 5 minutes each. After watching a video, the student will write a one-page summary (double-spaced, 12 point font) and include: the URL of the video, a description of the product, relevant operation management principles mentioned or used, student's reflection and thoughts on the topic (what impressed you, and what processes you noticed). A grading rubric is provided. Each student is responsible for writing his or her own reflection, although you may watch the video clips together. **The summary should not exceed one double-spaced page**.

Here is a list of some of the video the others have enjoyed: Jeans; Kayaks, Frozen pizza, Pre-cooked bacon, Compass, Toothpaste in a push tube, CO2 cartridges, Marshmallow cookie, Potato chips, Duct tape, Aluminum foil, Soy sauce, Footballs, Guitar, Grand piano, Albion sword, and Suit of armor.

Deliverables:

Submit each one of your three reflections to Blackboard as a Microsoft Word attachment.
60 Points (3 reflections @ 20 points each)

Due Date:

Your reflections should be submitted to **Blackboard** by **Friday, August 5th, 2011**.

Grading Rubric

The following rubric illustrates how your each of your reflections will be graded:

Category	Criteria	Points Possible
Basic Information	[ ] URL link to the video at the top of the page [ ] Product and process description	1 2
Application of Operations principles	[ ] At least two operation principles or concepts identified and thoughtfully analyzed based on the information presented in video [ ] Reflection on what was learned	10 5
Writing quality	[ ] Logically formatted, cleanly presented	2

TEACHING EVALUATION FROM A COLLEAGUE

July 17, 2011

From: Dr. Sean Humpherys

Subject: Observation of Matthew Pickard's class

I had the pleasure of performing a professional teaching review of Matthew Pickard's Operation Management class on Monday, July 17, 2011. This class is for undergraduates in the business college. It is evident that Matthew uses learner centered techniques to facilitate learning in his classroom. He does not just lecture to the students, but rather engages the students in the learning process using a variety of techniques and approaches.

Matthew uses learning objectives that range the span of Blooms taxonomy of learning, including the higher-cognitive abilities of calculating, demonstrating, and analyzing. He frequently asks questions of the students as a teaching tool, including using the Socratic method of asking questions to learn inductively. He frequently uses questions to assess whether students are learning the material or not. If not, he immediately adapts his presentation to rectify the learning gaps.

Matthew uses pair-and-share activities regularly, where he asks a question, students pair with a partner and discusses it, than the class discusses the answers collectively. This engages the students and keeps them mentally involved in the learning. Student participation is high in his class. He uses multiple sample questions that support the higher-cognitive skills that he wants his students to demonstrate. Students can used these multiple sample questions to insure they master the skill. He knows his students names and has an informal get-to-know-you meeting with each of his students outside of class. He makes use of multiple classroom technologies to facilitate learning. Matthew's learning objectives are clear and his evaluation techniques match the learning objectives.

As demonstrated by his teaching, Matthew clearly has a learner-centered focus and uses creative tools and technique to facilitate learning in his classroom. Having his students learn the material and demonstrate mastery of the learning objectives is important to him. I enjoyed reviewing his class and recommend his teaching style, philosophies, and techniques to others.

Sincerely,

Dr. Sean Humpherys
University of Arizona
Eller College of Management

OFFICIAL UNIVERSITY TEACHING EVALUATIONS

SummerII-11

TCE COMPARISON REPORT

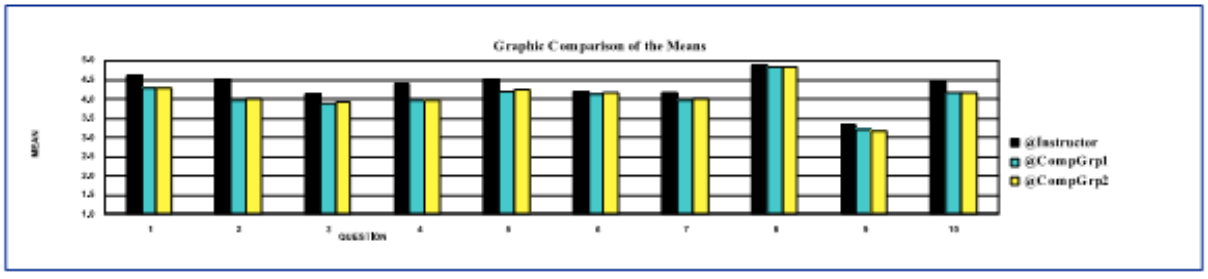
9/27/2011

Matthew D Pickard MIS 373 -001 LEC Basic Operations Manage 27583-01

Comparison Group Descriptions

MIS Summer and Winter
Upper Division Undergraduate

Question	Instructor Enrolled : 24 Responded: 24 Pct. Response: 100%			Comparison Group 1 5 or more enrolled Sections: 43 Enrollment: 1,272 MIS_SLUb		Comparison Group 2 Sections: 25 Enrollment: 728	
	Mean	St. Dev.	95% CI	Mean	95% CI	Mean	95% CI
1. Overall rating of teaching effectiveness [almost always effective (5)–almost never effective	4.6	0.58	4.34 - 4.82	4.3	4.13 - 4.40	4.3	4- 4
2. Overall rating of the course [one of the best (5)–one of the worst (1)]	4.5	0.59	4.30 - 4.78	4.0	3.82 - 4.11	4.0	4- 4
3. Amount learned [an exceptional amount (5)–almost nothing (1)]	4.1	0.61	3.87 - 4.38	3.9	3.76 - 4.02	3.9	4- 4
4. Overall instructor comparison [one of the most effective (5)–least effective (1)]	4.4	0.78	4.10 - 4.73	3.9	3.79 - 4.10	4.0	4- 4
5. Usefulness of the in-class activities [almost always useful (5)–almost never useful (1)]	4.5	0.59	4.30 - 4.78	4.2	4.09 - 4.34	4.2	4- 4
6. Usefulness of the outside assignments [almost always useful (5)–almost never useful (1)]	4.2	0.72	3.91 - 4.50	4.1	4.01 - 4.23	4.2	4- 4
7. Usefulness of course materials (new question) [almost always useful (5)–almost never useful (1)]	4.2	0.96	3.77 - 4.56	4.0	3.84 - 4.08	4.0	4- 4
8. Students treated with respect [strongly agree (5)–strongly disagree (1)]	4.9	0.45	4.69 - 5.00	4.8	4.79 - 4.87	4.8	5- 5
9. Difficulty level of the course (new order) [extremely difficult (5)–extremely easy (1)]	3.3	0.64	3.07 - 3.59	3.2	3.15 - 3.29	3.2	3- 3
10. Value of time spent on course [almost all valuable (5)–almost none valuable (1)]	4.5	0.66	4.19 - 4.73	4.2	4.05 - 4.29	4.2	4- 4



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QUALITATIVE COMMENTS FROM STUDENTS REGARDING MY TEACHING

Academia

Comments from MIS 373 – Intro to Operations Management

- In response to ***What did you like about this course?***
    - Matt was awesome! He made the course better than it really was.
    - I was treated with great respect. The class was very intriguing and our teach was excellent! By far one of my favorite classes.
    - Matt was awesome and extremely understanding. He was such a good teacher and his games and videos really helped.
    - Professor Pickard made a good effort to get to know each student. Overall, loved this class.
    - Great course! Thanks!
    - I liked the course overall and the teacher was awesome.
    - Very helpful professor, he really cared about his students.
    - I loved the pair and share, videos, interaction. He was the best teacher I have ever had at Eller! By far!
    - The amount of in-class activities.
    - Pickard was great!
    - The activities and hands-on approach.
    - Cool teacher, nice guy.
    - The instructor obviously cared a great deal about all of his students. He made such an effort to ensure we all understood the material.
    - Nice teacher, caring teacher.
    - I like that the course is interactive at times. It makes it easier to understand the material.
    - I love the teacher and how he is very interactive.
    - I like the structure and close personal interactions we have with the professor.
    - Great teacher with great techniques to get points across and help learn the material.

- In response to ***What did you like about the instructor?***
    - Everything! He was clear, and very informative. Used good teaching aids like videos.
    - I think Matt made the class interesting. He was able to engage the students and was willing to answer any questions we had.

- Very helpful and probably the best teacher I have had at the university. He cares so much about his students and he is always available to help. He is interactive, he plays videos, and I love the Pair and Share…this leaves no room for students to check out in class because we always have to be talking and participating.
- he puts a lot of effort into getting to know the students / he is very personable and willing to help with any questions / he takes feedback very well / his slides are very clear
- Gives an extra effort to explain things to student. Replies to students answers and he is ready to receive students in his office.
- Friendly and cares about his students.
- Easygoing, funny.
- He understood when we had problems on the quizzes and was willing to help and work with us to make things right. He makes sure we understand everything before moving on.
- I like his concern for the students. He wants to make sure that the entire class understands something before moving on. It shows a level of care for the class not found in other professors.
- You could tell he was passionate about what he was teaching and it made the subject fun to learn.
- Very open, interactive, easy to talk to and question. Great teacher with great methods and truly cares about his students. Would take him 10 times over.
- Very accommodating and understands students' struggles and efforts they put forth.

Church

Comments from students in various classes

- My experience with Matthew Pickard as an instructor was a very positive one. I was continually impressed at his depth of understanding and his preparation. He did not just present the material at face value but always found a way to share a deeper meaning and understanding of the subject matter. His teaching style was captivating and allowed my mind to explore and ponder on the matters allowing me to better internalize the subject. Matt encouraged class participation and created an atmosphere that made each class member feel comfortable when asking a question or expressing their feelings. When teaching Matt displayed his intelligence in a humble and very welcoming way. He always taught at the appropriate level for the

class and did not overwhelm them with more than they were ready. He was a great instructor.

- Matt was a religious instructor in the church at which we attended. He was always organized and well prepared. The material presented was thought provoking and inspiring. He was able to bring the topics taught into real life situations and was successful in teaching with a great degree of knowledge and expertise. I was impressed with his ability to ask appropriate questions and illicit thoughtful answers from the participants. Many times at the close of his lessons I felt a desire to further study the topic and deepen my understanding of the material that was so well presented. I appreciated the way that Matt was able to lead a discussion in such a way to involve some who may not have felt comfortable participating with another instructor. He had a great sense of humor that was felt and appreciated by all in the group. I can say without hesitation that Matt is a capable, enriching instructor and I was glad to have had the opportunity to be a part of his class.

- Matt consistently formatted the presentation of the lessons in such a way that they flowed logically from one point to the other. He often presented his lesson objective at the outset and then followed with information that substantiated and achieved the objective. Matt's lessons were always articulate and concise. While there were times I knew (by virtue of having read the lesson in advance) that he was unable to cover all the material from the reading assignment due to the sheer volume of the material and/or the amount of comments and questions posed by the students, I never felt Matt's lessons were rushed or ended abruptly. He always drew to a reasonable conclusion that left me satisfied we had covered the material well.