

CHAPTER TWO

Management History

2

In this chapter, we are going to take a trip back in time to see how the field of study called management has evolved. What you are going to find out is that today's managers still use many elements of the historical approaches to management. Focus on the following learning outcomes as you read and study this chapter.

Learning Objectives

- 2.1 Describe the historical background of management.
- 2.2 Explain the various theories in the classical approach.
- 2.3 Describe the quantitative approach.
- 2.4 Discuss the development and uses of the behavioral approach.
- 2.5 Explain the various theories in the contemporary approach.
- 2.6 Discuss administrative perspectives in the early Arab context.

Since the birth of modern management theory in the early 1900s, management experts have developed theories to help organizations and their managers coordinate and oversee work activities as effectively and efficiently as possible. In presenting the history of modern management, Chapter Two explores the evolution of management thought and practice during the twentieth century. Students discover how knowledge of management history can help us better understand current management practices while avoiding some mistakes of the past. The practice of management has always reflected historical times and societal conditions. For instance, innovation, global competition, and general competitive pressures reflect a reality of today's business world: "Innovate or lose."

As Chapter 2 opens, students read "A Manager's Dilemma" about Selma who manages a gift shop in Cairo. She is contacted by a university professor asking for an interview to help in a research study about work family conflicts. Selma worries about the time commitment as well as about confidentiality. This case study is an opportune moment for the instructor to introduce to students the topic of management research and how it contributes to our understanding of management. The history of management reflects continuous efforts to advance our understanding of managerial behavior and how organizations can become more effective and efficient. An interesting discussion should ensue regarding the importance of participation in such studies.

ANNOTATED OUTLINE

1. HISTORICAL BACKGROUND OF MANAGEMENT

Many fascinating examples from history illustrate how management has been practiced for thousands of years.

- A. Organizations and managers have existed for thousands of years. The Egyptian pyramids and the Great Wall of China were projects of tremendous scope and magnitude, requiring the efforts of tens of thousands of people. How was it possible for these projects to be completed successfully? The answer is *management*. Regardless of the titles given to managers throughout history, someone has always had to plan what needs to be accomplished, organize people and materials, lead and direct workers, and impose controls to ensure that goals are attained as planned.
- B. Examples of early management practices can also be seen by studying the Arsenal of Venice. Assembly lines, accounting systems, and personnel functions are only a few of the processes and activities used in business in the fifteenth century that are common to today's organizations as well.
- C. Adam Smith, author of the classical economics doctrine *The Wealth of Nations*, argued brilliantly for the economic advantages that he believed **division of labor** (the breakdown of jobs into narrow, repetitive tasks) would bring to organizations and society.
- D. The **Industrial Revolution** is possibly the most important pre-twentieth-century influence on management. The introduction of machine powers combined with the division of labor made large, efficient factories possible. Planning, organizing, leading, and controlling became necessary activities.
- E. **Exhibit 2-1** illustrates the development of management theories.

2. CLASSICAL APPROACH

- A. **Scientific management** is defined as the use of the scientific method to determine the "one best way" for a job to be done.
 - 1. Frederick W. Taylor is known as the "father" of scientific management. Taylor's work at the Midvale and Bethlehem Steel companies stimulated his interest in improving efficiency.
 - a. Taylor sought to create a mental revolution among both workers and managers by defining clear guidelines for improving production efficiency. He defined four principles of management (**Exhibit 2-2**).
 - b. His pig iron experiment is probably the most widely cited example of his scientific management efforts.
 - c. Using his principles of scientific management, Taylor was able to define the "one best way" for doing each job.
 - d. Frederick W. Taylor achieved consistent improvements in productivity in the range of 200 percent. He affirmed the role of managers to plan and control and the role of workers to perform as they were instructed.
 - 2. Frank and Lillian Gilbreth were inspired by Taylor's work and proceeded to study and develop their own methods of scientific management.
 - a. Frank Gilbreth is probably best known for his experiments in reducing the number of actions involved in bricklaying.
 - b. The Gilbreths were among the first to use motion picture films to study hand-and-body motions in order to eliminate wasteful motions.

- c. They also devised a classification scheme to label 17 basic hand motions called **therbligs** (Gilbreth spelled backward, with the *th* transposed).
 3. How Do Today's Managers Use Scientific Management?

Guidelines devised by Taylor and others to improve production efficiency are still used in today's organizations. However, current management practice is not restricted to scientific management practices alone. Elements of scientific management still used include:

 - a. using time and motion studies
 - b. hiring best qualified workers
 - c. designing incentive systems based on output.
- B. General Administrative Theorists. This group of writers, who focused on the entire organization, developed more general theories of what managers do and what constitutes good management practice.
 1. Henri Fayol, who was a contemporary of Frederick W. Taylor, was the managing director of a large French coal-mining company.
 - a. Fayol focused on activities common to all managers.
 - b. He described the practice of management as distinct from other typical business functions.
 - c. He stated 14 **principles of management** (fundamental or universal truths of management that can be taught in schools; see **Exhibit 2-3**).
 2. Max Weber (pronounced VAY-ber) was a German sociologist who wrote in the early twentieth century.
 - a. Weber developed a theory of authority structures and described organizational activity based on authority relations.
 - b. He described the ideal form of organization as a **bureaucracy** marked by division of labor, a clearly defined hierarchy, detailed rules and regulations, and impersonal relationships (see **Exhibit 2-4**).
 3. How Do Today's Managers Use General Administrative Theories? Some current management concepts and theories can be traced to the work of the general administrative theorists.
 - a. The functional view of a manager's job relates to Henri Fayol's concept of management.
 - b. Weber's bureaucratic characteristics are evident in many of today's large organizations—even in highly flexible organizations that employ talented professionals. Some bureaucratic mechanisms are necessary in highly innovative organizations to ensure that resources are used efficiently and effectively.
3. QUANTITATIVE APPROACH TO MANAGEMENT

The **quantitative approach** to management sometimes known as *operations research* or *management science* uses quantitative techniques to improve decision making. This approach includes applications of statistics, optimization models, information models, and computer simulations.

 - A. Important Contributions
 1. The quantitative approach originated during World War II as mathematical and statistical solutions to military problems were developed for wartime use.
 2. As often happens after wartime, methods that were developed during World War II to conduct military affairs were applied to private industry

following the war. For instance, a group of military officers—the Whiz Kids—used quantitative methods to improve decision making at Ford Motor Company in the mid-1940s.

- B. How Do Today's Managers Use the Quantitative Approach?
 - 1. The quantitative approach has contributed most directly to managerial decision making, particularly in planning and controlling.
 - 2. The availability of sophisticated computer software programs has made the use of quantitative techniques more feasible for managers.
- C. Total Quality Management(TQM)
 - 1. **Quality management** is a philosophy of management that is driven by continual improvement and response to customer needs and expectations (see **Exhibit 2-5**).
 - 2. TQM was inspired by a small group of quality experts, including W.Edwards Deming, who was one of its chief proponents.
 - 3. TQM represents a counterpoint to earlier management theorists who believed that low costs were the only road to increased productivity.
 - 4. The objective of quality management is to create an organization committed to continuous improvement in work processes.

?	Thinking Critically About Ethics	Technology and Privacy
<p>Surveillance and monitoring technology has come a long way. The ethical question explored in this exercise is how far should companies go in their pursuit of criminals and cheaters. Should technology be used to peer through someone's clothing or compare customers' faces against a database of known criminals without their knowledge? In light of recent political events, it is understandable that organizations are more security conscious, but has the use of technology exceeded what is reasonable? The basic question here is: Does the potential good of using new technology outweigh an individual's right to privacy? It should be noted that similar questions are posed when any new technology is introduced.</p> <p>Students need to discuss and/or explore this ethical issue. You may want to include topics such as the following in the class discussion: employee/customer privacy, the use of drug testing, surveillance cameras in the workplace, and computerized monitoring.</p> <p>Small group interaction might facilitate discussion, with each group giving a brief report of its discussion to the class as a whole. Encouraging the sharing of personal experiences with information sharing and results of that information sharing should enhance students' understanding of information-sharing outcomes.</p>		

- 4. **BEHAVIORAL APPROACH**

The field of study concerned with the actions (behaviors) of people at work is **organizational behavior**. Organizational behavior (OB) research has contributed much of what we know about human resources management and contemporary views of motivation, leadership, trust, teamwork, and conflict management.

 - A. **Early Advocates of Organizational Behavior**

Four individuals—Robert Owen, Hugo Munsterberg, Mary Parker Follett, and Chester Barnard—were early advocates of the OB approach. Their ideas served

as the foundation for employee selection procedures, motivation programs, work teams, and organization environment management techniques. (See **Exhibit 2-6** for a summary of the most important ideas of these early advocates.)

- B. The **Hawthorne Studies** were the most important contribution to the development of organizational behavior.
 - 1. This series of experiments conducted from 1924 to the early 1930s at the Western Electric Company Works in Cicero, Illinois, were initially devised as a scientific management experiment to assess the impact of changes in various physical environment variables on employee productivity.
 - 2. After Harvard professor Elton Mayo and his associates joined the study as consultants, other experiments were included to look at redesigning jobs, make changes in workday and work-week length, introduce rest periods, and introduce individual versus group wage plans.
 - 3. The researchers concluded that social norms or group standards were key determinants of individual work behavior.
 - 4. Although not without criticism (concerning procedures, analyses of findings, and the conclusions), the Hawthorne Studies stimulated interest in human behavior in organizational settings.
- C. How Do Today's Managers Use the Behavioral Approach?
 - 1. The behavioral approach assists managers in designing jobs that motivate workers, in working with employee teams, and in facilitating the flow of communication within organizations.
 - 2. The behavioral approach provides the foundation for current theories of motivation, leadership, and group behavior and development.

5. CONTEMPORARY APPROACH

- A. Systems Theory. During the 1960s researchers began to analyze organizations from a systems perspective based on the physical sciences. A **system** is a set of interrelated and interdependent parts arranged in a manner that produces a unified whole. The two basic types of systems are closed and open. A **closed system** is not influenced by and does not interact with its environment. An **open system** interacts with its environment (see **Exhibit 2-7**).
 - 1. Using the systems approach, managers envision an organization as a body with many interdependent parts, each of which is important to the well-being of the organization as a whole.
 - 2. Managers coordinate the work activities of the various parts of the organization, realizing that decisions and actions taken in one organizational area will affect other areas.
 - 3. The systems approach recognizes that organizations are not self-contained; they rely on and are affected by factors in their external environment.
- B. The Contingency Approach. The contingency approach recognizes that different organizations require different ways of managing.
 - 1. The contingency approach to management is a view that the organization recognizes and responds to situational variables as they arise.
 - 2. Some popular contingency variables are shown in **Exhibit 2-8**.

6. ADMINISTRATIVE PERSPECTIVES IN THE EARLY ARAB CONTEXT

- A. Early Arabs lived in relatively small communities and they had greater appreciation of trade and commerce compared to the work of craftsmen and artisans. The relationship between the employer and the employee was simple and issues of fairness and equality were not a priority at the time. With the advent of Islam in the year 622 C.E., attitudes towards certain professions were drastically changed.
- B. Prophet Muhammad developed a perspective of work and management that was radically different from the earlier perspectives (see Exhibit 2-9, Islamic managerial perspectives). The hand of the worker became "a hand loved by God and His messenger" and "whoever goes to bed exhausted because of hard work, he has thereby caused his sins to be absolved", so said Prophet Muhammad.
- C. In addition, Prophet Muhammad fundamentally changed the relationship between the employer and the employee. Under the new paradigm, the employee was supposed to get his fair share quickly: "give the worker what is due to him (even) before his sweat dries". A positive work ethic thus emerged and an action-oriented approach to work dominated.
- D. During the reign of the first four Caliphs who succeeded the Prophet, political administration got more complicated and business transactions boomed reflecting the geographic expansion of the young Muslim dynasty. This "post-prophetic" stage witnessed several significant political disturbances, but commercial activities flourished. During that era workers' associations were organized which lasted till the beginning of the nineteenth century.
- E. There is no widespread accepted Arab theory of management. The above managerial perspectives based on Islam, as idealistic and desirable as they are, cannot be presented as representing an Arab theory of management. The reason relates to the fact that such a perspective does not take into consideration the differences in theory and practice from one Arab context to another.
- F. While it would be accurate to say that Islam has impacted Arabs' managerial perspectives and behavior, it should also be acknowledged that this is only one among many other dimensions.



Managers and Technology

How Is IT Changing the Manager's Job?

To illustrate and personalize the impact of IT on the daily lives of your students, ask class members to list individually at least five ways in which they have used information technology during the past 24 hours. Ask a student to give one of the items on his/her list. One student acts as recorder and makes a list on the board. Students take turns to give different responses, which are added to the list on the board.

The completed list should be impressive. Next, ask students to note how many of the items on the board involve interaction with a business entity, including businesses where they are employed.

Because students are very good at keeping up with new technology, they are probably more comfortable with the implementation of the electronic scorecard at UMB Bank. Ask students what they would do if they were a manager implementing this new technology. How would they handle employees who are resistant to adopting these changes?

Below you will find a simple crossword puzzle that highlights some of the main names and concepts discussed in class. Students can work in groups or individually, in class or at home, to solve this puzzle. Ibn Khaldun's name will be introduced in a later chapter (leadership), but his could be an opportune moment to tell students that there are historic contributions of Arab thinkers to administrative thought.

Activity 2.1

Crossword puzzle

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															

- ACROSS**
- 1 (a) A management philosophy devoted to continual improvement
(b) Published the Wealth of Nations
 - 5 A field of study that researches the actions (behavior) of people at work.
 - 7 Father of Scientific management
 - 9 An Arabic word for Quality
 - 10 Systems that are influenced by and do interact with their environment
 - 12 Uniform application of rules and controls, not according to personalities
 - 14 Contributed to the Hawthorne Studies
- DOWN**
- 1 Developed the 14 Principles of Management
 - 5 German sociologist talked about bureaucracy
 - 7 Work as trust (in Arabic)
 - 10 An approach that indicates that organizations are different, face different situations, and require different ways of managing.
 - 13 An early Arab sociologist whose contributions help in understanding administrative issues relevant to Arab communities(not mentioned in the chapter)
 - 15 series of studies conducted at the Western Electric Company

Solution to crossword puzzle

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1			T	Q	M		A	D	A	M	S	M	I	T	H
2	H				A		M						B		A
3	E				X		A						N		W
4	N				W		N			C			K		T
5	R				E		A			O	B		H		H
6	I				B					N			A		O
7	F	R	E	D	E	R	I	C	K	T	A	Y	L	O	R
8	A				R					I			D		N
9	Y					I	T	Q	A	N			U		E
10	O	P	E	N						G			N		
11	L									E					
12			I	M	P	E	R	S	O	N	A	L	I	T	Y
13										C					
14			E	L	T	O	N	M	A	Y	O				

Answers to Thinking About Management Issues

1. *What kind of workplace would Henri Fayol create? How about Mary Parker Follett? How about Frederick W. Taylor?*

Fayol would probably create a workplace in which managers could perform the managerial functions of planning, organizing, coordinating, commanding, and controlling. In the workplace created by Fayol, his 14 principles of management would be adopted.

Follett would create a workplace where managers and workers view themselves as partners, as part of a common group. In such a workplace, managers would rely more on their expertise and knowledge to lead subordinates, rather than on the formal authority of their position. Empowerment and teamwork would be hallmarks of a work environment created by Follett.

Taylor would envision a workplace in which managers and workers scientifically analyzed and determined the "one best way" to accomplish each job. He would give a qualified worker the appropriate tools and equipment, would have the worker follow his instructions exactly, and would motivate the worker with a significant increase in daily wage. Consistent productivity improvements would be Taylor's goal in the workplace.

2. *Can a mathematical (quantitative) technique help a manager solve a "people" problem such as how to motivate employees or how to distribute work equitably? Explain.*

Although "people" problems can rarely be resolved using quantitative techniques exclusively, mathematical techniques can help a manager solve these types of problems. Statistical methods, information models, computer simulations, and other quantitative techniques are designed to help managers make better decisions. Accordingly, they could help a manager address people problems encountered in the workplace.

3. *How do societal trends influence the practice of management? What are the implications for someone studying management?*

Societal trends have a major impact on the practice of management. For example, the change in society's emphasis on the value of diversity has profound implications for the recruiting, hiring, training, development, and motivation programs in the human resources functions of an organization. Work-related processes must be aligned with the needs of a diverse and pluralistic workforce. The impact of these changes is a global issue; business organizations throughout the world—including Canada, Australia, South Africa, Japan, and Europe—are experiencing similar trends.

4. *Continual improvement is a cornerstone of TQM. Is continual improvement possible? What challenges do organizations face in searching for ways to continually improve? How can managers deal with those challenges?*

In discussing this issue with students, it is useful to think about a specific job such as a salesperson in a retail setting. One of the obvious ways for this employee to improve would be in the number of sales made per month. Ask students to consider the impact of improving sales by 5% over the previous month. Next, ask students to consider the ramifications of asking an employee to do this over the course of 12 months. The increase in sales would be beyond what an employee could accomplish. The challenge for managers is to think of different goals, not just continuous improvement in the same area.

5. *How can an approach in which we say "it depends on the situation" be useful to managers? Discuss.*

The answer to this question goes to the heart of theory and practice. While the theory discussed in this chapter (and future chapters) is useful in explaining and predicting behavior, it is also too simple to be used in most organizations because of all the other variables in the situation. While theory is intended to be simplistic and static, people and organizations are complex and dynamic. But this should not be an excuse for managers who attempt to use accepted theory and practices. Managers should embrace the differences in people and organizations and do their best to apply theory to the context of their organization.

Your Turn to be a Manager

- Choose two non-management classes that you are currently enrolled in or have taken previously. Describe three ideas and concepts from those subject areas that might help you be a better manager.
- Read at least one current business article from any of the popular business periodicals each week for four weeks. Take one of those articles and describe what it is about and how it relates to any (or all) of the four approaches to management.
- Choose an organization with which you are familiar and describe the job specialization used there. Is it efficient and effective? Why or why not? How could it be improved?
- Can scientific management principles help you be more efficient? Choose a task that you do regularly (such as laundry, fixing dinner, grocery shopping, studying for exams, etc.). Analyze it by writing down the steps involved in completing that task. See if there are activities that could be combined or eliminated. Find the "one best way" to do this task. And the next time you have to do the task, try the scientifically managed way and see if you become more efficient (keeping in mind that changing habits isn't easy to do).
- How do business organizations survive for many years? Obviously, they've seen a lot of historical events come and go! Choose one such company and research its history. How has the company changed over the years? From your research on this company, what did you learn that could help you be a better manager?
- Find the current top five best-selling management books. Read a review of each book, read the book covers (or even read the books). Write a short paragraph describing what each book is about. Also write about which of the historical management approaches you think the book fits with and how you think it fits into that approach.
- Choose one historical event from this century and research it. Write a paper describing the impact that this event might be having, or has had, on how workplaces are managed.
- Come on, admit it. You multitask, don't you? And if not, you probably know people who do. Multitasking is common in the workplace. But does it make employees more efficient and effective? Pretend you're the manager in charge of a loan-processing department. Describe how you would research this issue, using each of the following management approaches or theories: scientific management, general administrative theory, quantitative approach, behavioral approach, systems theory, and contingency theory.
- In your own words, write down three things you learned in this chapter about being a good manager.

Lebanese Canadian Bank (LCB)

1. *Mr. Hamdoun is a big advocate of efficiency. How might principles of scientific management be useful to LCB?*

If they have not already been done, the application of time and motion studies would be very useful in those jobs requiring repetitive motions. Get students to think about some of the jobs in the banking sector and ask them to imagine an inefficient way to handle the different activities (cashing a check, processing a loan request, withdrawing money). The instructor may want to describe how the bank teller's job has changed over the years and how it has become more efficient because of process redesign that was greatly aided by technological advancements.

2. *How might knowledge of organizational behavior help the bank's supervisors manage their employees? Would Mr. Hamdoun and other top managers need to understand OB? Why or why not?*

The results of some of the classic organizational behavior studies can be compared to the classic findings from scientific management. The best approach when dealing with employees is one that is efficient but also considers that employees are people who need to be motivated in their jobs. Effective communication, social networks, and environmental demands all play a part in getting employees to perform. Ultimately, top management must appreciate the value of employees. While they do not have to be experts in the field of organizational behavior, they need to understand that employee programs aimed at the human side of the enterprise are as important as capital outlay projects, financing, stock purchases, etc.

3. *Based on information LCB's website (www.lebcanbank.com), what values does this company embrace that might be important for successful organizations in the twenty-first century? (Hint: Look at the About Us link and read the Chairman's letter.)*

LCB has been expanding in Lebanon and in the region. The bank is also continuously considering developing the services and investment opportunities it offers to its customers. They regularly institute changes in the organizational structure, technologies used, internal processes and operational procedures. This all is done to increase effectiveness and efficiency. They are very focused on exceeding customer's satisfaction. LCB is committed to offering customers the best service available, complying with international quality standards, contributing to the well-being of the communities in which they operate. Their core values revolve around teamwork, respect, rewarding superior performance, and the welfare of their staff whom they consider to be their most valuable asset.

4. *Using Exhibit 2–7, describe LCB as a system.*

Get students to think about recent changes in the banking industry. There have been technological changes, security concerns, mega mergers, a world financial crisis etc. What would happen if LCB were to treat their business as a Closed System? Compare this to how they actually operate. Businesses have to respond to changes in the environment and the impact on the process of turning inputs into outputs.

5. *What do you think Mr. Hamdoun means when he says, "Personal reading and focused training on new technology is also a source of inspiration for changes"? Is success dependent mainly on the people dimension? Explain.*

Companies often fail because they do not give sufficient importance and attention to people. Although the people dimension is very important, but it is not sufficient. A good manager balances his or her attention on processes, technologies, structure, and people.

ADDITIONAL CHAPTER INFORMATION

You may want to use the following information to generate class discussion. If so, be prepared to defend the point that students nonetheless need to know how management thought has evolved.

Real Time: Preparing for the Age of the Never Satisfied Customer, a book by Regis McKenna, argues that companies will have to reorganize in order to conduct their business in real time because "the competitive environment will no longer tolerate slow response or delayed decision making." The assumption from decades of scientific management theories and from control proponents like Frederick W. Taylor has led managers to believe that the future can be predicted and controlled. Managers must realize that "continuous discontinuous change" is now necessary for success and that planning beyond the next quarter will be futile.

Studying the major theories and theorists can be challenging to some students. One approach to learning this material that has been used in a classroom is to play a trivia game for points. The instructor develops questions in the format used in "Jeopardy" about management history, early theories, and early theorists. The class is divided into teams for competition. One team selects a category, and the instructor reads the appropriate question. If the team successfully answers the question, the team is awarded 10 points; if the team answers incorrectly, 10 points are deducted from the team's score, and the next team in rotation is given the opportunity to answer the question. If this team successfully answers the question, it receives the 10 points. Teams select and attempt to answer questions in a rotating manner, with all teams having the same number of "turns." At the end of the class period, the team with the most points is declared the winner, and each member of the winning team is awarded a bonus of 10 points as an in-class participation score. Negative team scores are simply recorded as a 10-point participation grade.

Students who have played this game have found it to be fun and helpful in studying the history, theories, and theorists of management yesterday and today.

The interviews conducted under "Role Models from the Arab World" do not pertain to a specific chapter. The attached grid gives general guidelines as to the topics are most relevant to particular chapters. All interviews are relevant to Chapter 1 and, because those interviews represent leadership models, they are also relevant to Chapter 16 (Leadership). The interviews also are relevant to many of the other chapters as shown in the grid. The instructor could suggest these interviews as background readings for each section of the textbook. The interviews would also be useful for generating class discussion. The instructor can of course refer to these interviews while covering different chapters. While the interviews do not highlight in detail the daily managerial tasks done by managers, they do serve as excellent examples of how some managers can develop their businesses through attention paid to planning, organizing, leading, and controlling. The interviews also show the importance that contemporary Arab managers place on such things as social responsibility, strategic management, organizational communication, and human resource development. The instructor can also encourage students to research and discover other examples of successful Arab managers that can be used as a class project or for class discussions.

Management Role Models – Interview Key

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Introduction to management and organizations	Management History	Organizational Culture and Environment	Managing in a Global Environment	Social Responsibility and Managerial Ethics	Managers as Decision Makers	Foundations of Planning	Strategic Management	Organizational Structure and Design	Managing Human Resources	Managing Teams	Managing Change and Innovation	Understanding Individual Behavior	Managers and Communication	Motivating Employees	Managers as Leaders	Introduction to Controlling	Managing Operations
ABDULSALAM HAYKAL	✓		✓							✓		✓			✓	✓		
FADI GHANDOUR	✓				✓			✓	✓			✓				✓		✓
IBRAHIM DABDOUB	✓		✓		✓					✓				✓		✓		
KHALAF AL HABTOOR	✓		✓		✓					✓	✓		✓		✓	✓	✓	
OSSAMA HASSANEIN	✓			✓	✓							✓				✓		
RAJA AL GURG	✓		✓			✓				✓		✓				✓		
RAYMOND AUDI	✓				✓		✓	✓					✓			✓		
SAMI BAROUM	✓		✓		✓		✓	✓								✓		