MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

SIMON KUZNETS KHARKIV NATIONAL UNIVERSITY OF ECONOMICS

Guidelines
to practical studies
on the academic discipline
"OPERATIONS MANAGEMENT"

for full-time students
of training direction
6.030601 "Management"

Kharkiv
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Compiled by T. Sigaieva

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The plan for practical (seminar) studies on the academic discipline, practical tasks and guidelines for doing them, as well as questions for consolidation of knowledge are presented.

For full-time students of training direction 6.030601 "Management".

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Introduction

Operations management has been a key element in the improvement of businesses productivity around the world. Creating a competitive advantage through operations requires an understanding of how the operations function contributes to productivity growth.

Organization of the enterprise represents any productive process both in production and in service areas. Operations Management aims to provide an efficient and rational organization of this activity. If the operational functions are carried out inefficiently, the organization can never succeed. Qualitative development of operations management can improve the balance of the enterprise (organization), its flexibility to make it consistently competitive. Therefore, the study of theory and practice of operations management is always relevant in Ukraine both for industrial enterprises and enterprises that provide services.

The academic discipline "Operations Management" is designed for students of training direction "Management". It is included in the cycle of management disciplines required for managers of organizations regardless of the ownership type and legal form of management.

The purpose of the academic discipline "Operations Management" is the formation of skills in the development of operational strategies, establishment and use of operating systems as a basis for the accomplishment of the mission.

The object of the discipline is the operating system of the enterprise, its functions and purposes.

The subject is planning, development and effective utilization of resources of the operating system under the market conditions.

The task is mastering the knowledge of the theory of operating systems and formation of skills in planning and monitoring their activities to ensure effective management of the enterprise (organization).

The importance of the matters dealt with in the discipline is conditioned by the need for knowledge of basic principles, methods, the essence of effective operations, methods of the operating system operational management, the impact of the operational management on the performance and competitiveness of enterprises (organizations).

1. Qualification requirements for students

The academic discipline "Operations Management" is referred to as a normative discipline that ensures the formation of skills provided by educational qualification characteristics.

The discipline provides the basic and overall legal training of students and is based on the study of such subjects as "Systems Technology", "Information and Computer Technology", "Operations Research", "Economics".

The discipline lays the foundation for further study of the disciplines related to industry specifics of each profession and specialization.

The knowledge of this discipline will help to successfully master such subjects as "Strategic Management", "Innovation Management", "Personnel Management", and perform the course of studies and the final thesis.

In the course of studies students receive the necessary knowledge. Of great importance in the study and consolidation of knowledge is self-study of students.

The competences formed in the course of studying the academic discipline "Operations Management"

As a result of learning the discipline, students must

know:

the essence of operational management and its components as one of the main functions of effective management of the organization;

the bases and the framework of categories and concepts of operational management;

the structure of operating systems, their classification;

the essence and basic principles of operational processes;

the basis of operational processes in space and time;

the characteristics of the company (organization) infrastructure;

the forms of organization of the production process;

the essence, stages and phases of technical training;

the composition and characteristics of business units for the production stage;

the basis of comprehensive services in the operating system;

the problems of the operating strategy of the organization;

the basics of operating systems;

the content and objectives for operational planning and its role in increasing the efficiency of the operating system;

the elements of operational planning, operational activities of the various types of operating systems;

the methods of the current functioning of the operating system;

the bases of operations quality management and performance management;

be able to:

create the operating strategy of the organization;

develop a specific operating system of the organization;

evaluate the effectiveness of the operating system;

determine the type of the operating system;

justify production of the enterprise;

efficiently organize the production process according to scientific principles;

economically justify the feasibility of implementing new techniques and technologies at the enterprise;

use the tools of creation and reconstruction of production units;

choose a system of operational planning of the specific operating system;

count calendar and plan specifications for different types of operating systems;

use project management techniques in specific contexts;

evaluate and plan quality in the operating system;

count the efficiency rates of operating systems.

2. The plans of practicals (seminars)

A practical is a form of instruction where a lecturer organizes students to review some theoretical knowledge of the discipline, form the necessary skills and get experience of applying them in practice through individual performance of various tasks. Practicals include preliminary control of knowledge, skills and abilities of students, lecturer's presenting a common problem and discussing it with students, carrying out problems with their discussion, solving test problems, checking, testing.

Module 1. Operations strategy and managing change

Theme 1. Introduction to the field

1. Differences between services and goods.
2. Historical development of operations management (OM).
3. Current issues in operations management.

Recommended reading: main [1; 3]; additional [7; 11; 13; 15; 18; 20].

Theme 2. Operations strategy and competitiveness

1. Competitive dimensions.
2. Manufacturing.
3. Developing operations strategy in services.

Recommended reading: main [1; 3; 4]; additional [6; 7; 20; 23].

Theme 3. Project management

1. Pure project.
2. Financial project.
3. Matrix project.

Recommended reading: main [1 – 3]; additional [7; 13 – 16; 20; 23].

Theme 4. Product design

1. Quality function.
2. Value analysis.
3. Value engineering.

Recommended reading: main [2 – 4]; additional [5; 11; 16; 21].

Module 2. Process selection and design

Theme 5. Process analysis

1. Process analysis.
2. Process throughput time reduction.

Recommended reading: main [2 – 4]; additional [5; 11; 16; 21].

Theme 6. Manufacturing process selection and design

1. Types of selection.
2. Process flow structures.
3. Product process matrix.

Recommended reading: main [1 – 3]; additional [7; 12 – 15; 19; 22].

Theme 7. Service process selection and design

1. Global product design strategy.
2. The global joint venture.

Recommended reading: main [1]; additional [7; 19; 22].

Theme 8. Quality management

1. The ISO 9000 series.
2. ISO 9000 certification.
3. Continuous improvement.

Recommended reading: main [2 – 3]; additional [5; 8; 14; 17; 21].

Module 3. Supply chain strategy

Theme 1. Supply chain strategy

1. Outsourcing.
2. Value density.

Recommended reading: main [1 – 6]; additional [3; 4; 9; 17; 21].

Theme 2. Strategic capacity management

1. The rhythm.

Recommended reading: main [1 – 3]; additional [5; 7; 14; 19].

Theme 3. Lean production

1. Decisions tree.

Recommended reading: main [1; 4], additional [8; 10; 12].

Theme 4. Operations consulting and reengineering

1. Aggregative planning.
Recommended reading: main [1; 4]; additional [3; 11].

Module 4. Planning and controlling the supply chain

Theme 5. Aggregate sales and operations planning

1. Planning one-subject production line.
Recommended reading: main [2; 5]; additional [5; 11; 16].

Theme 6. Inventory control

1. Planning a multitype production line.
Recommended reading: main [1; 8]; additional [3; 6; 15].

Theme 7. Material requirements planning

1. A standard construction plan of the closed line subject area.
Recommended reading: main [1; 6]; additional [2; 5; 23].

3. Guidelines for carrying out the practical tasks

Module 1. Operations strategy and managing change

The decision tree

The aim of the task. The decision-making process is considered by a manager as a method for achieving strategic and operative purposes. The decision tree is applied in decision making under the conditions of risk or uncertainty in designing an operating system or production of goods.

$$EV = \sum_{1}^{n} P_j \times V_{ij} \ , \qquad (1)$$

where: EV is the expected value;

P_j is the probability of the decision event;

V_{ij} is the received result.

Example

The conditions of the task. The enterprise has decided to carry out capital or current reconstruction of the enterprise. There is an option not to carry out reconstruction in general. In the case of success market, reconstruction will bring profit of 80 000 UAH. If the market is a failure, the costs will total 40 000 UAH. Current reconstruction will bring 60 000 UAH net profit in the success market and 30 000 UAH of losses in the failure market. The probability of decision making totals 0.5.

The guidelines for carrying out the task

$$EV = 80\ 000 \times EV_{capital\ reconstruction} = 80\ 000 \times 0.5 + 40\ 000 \times 0.5 = 20\ 000\ \text{UAH}$$

$$EV_{capital\ reconstruction} = 60\ 000 \times 0.5 + 30\ 000 \times 0.5 = 15\ 000\ \text{UAH}$$

$$EV_{capital\ reconstruction} = 0\ \text{UAH}$$

Conclusion: It is necessary to conduct capital reconstruction.

Task 1

Before making a decision on the reconstruction, the manager decided to conduct market research which will cost 5 000 UAH. The probability of successful research totals 0.6; of the unsuccessful one it is 0.4. The probability of favorable market for successful research amounts to 0.67, for unfavorable market it totals 0.33. The probability of the favorable market for unsuccessful research totals 0.25, for unfavorable market it is 0.75. Without market research the probability of the favorable market equals the probability of the adverse one.

Build a decision tree. Choose the best solution.

Task 3

The enterprise introduced a new line of details. The sale volume will be 100 000 units. The management is considering 2 options.

Solution A. For production of 59 qualitative details per 100, the probability totals 0.9 and for production of 64 qualitative details per 100, the probability totals 0.1. Solution A will cost 1 000 000 UAH.

Solution B. For production of 64 qualitative details per 100, the probability totals 0.8 and for production of 59 qualitative details per 100, the probability totals 0.2. Solution B will cost 1 350 000 UAH.

The cost price of a detail is 75 UAH, the price of a detail is 150 UAH.

Build a decision tree. Choose the best solution.

Task 4

Before making a decision on the reconstruction, the management decided to conduct market research which costs 5 000 UAH. The probability of successful research is 0.6, of the unsuccessful one it is 0.4. The probability of a favorable market for successful research is 0.67, of the unfavorable one it is 0.33. The probability of favorable market in the unsuccessful research is 0.25, of the unfavorable one it is 0.75. Without market research the probability of a favorable market equals the probability of the adverse one.

Build a decision tree. Choose the best solution.

Task 5

The engineer is considering the creation of a new line. If the line starts, it will bring profit of 20 000 UAH. If it does not start, the loss will constitute 150 000 UAH. The probability of failure is 60 %. It is possible to conduct marketing research which costs 100 000 UAH. The probability of successful research is 50:50. If the research is successful, the probability that the new equipment will work is 90 %. If the research is unsuccessful, the probability that the new equipment will work is 20 %.

Build a decision tree. Choose the best solution.

Module 2. Process selection and design

Cumulative or aggregate planning

The aim of the task. Cumulative planning is used to determine the quantity and time of production according to demand. For the best satisfaction of demand it is possible to use such ways as: regulation of speed of the product output, change of the level of the necessary labor force, creation of stocks of the necessary level, prediction of operations, using an additional contract. The goal of such planning is minimization of costs.

Cumulative planning provides formation of a strategic plan of the enterprise for a certain period.

Task 1

The conditions of the task. According to the marketing research on the demand for electric pumps, the businessman has decided to consider a new strategy of planning. It is based on using 8 workers and overwork in all cases when the growing demand needs it. The initial data for calculations is presented in Table 1.

Table 1

The demand by months

Month	Demand	The number of the working days in a month
1	900	22
2	700	18
3	800	21
4	1200	21
5	1500	22
6	1100	20

Every day 40 pieces of electric pumps are produced. The cost of storage of 1 unit per month is 5 UAH. The production of 1 unit requires 1.6 hours of overwork. The cost of one hour overwork is 7 UAH/year. The salary of workers is 40 UAH/day.

The guidelines for carrying out the task

1. Labor costs = 40 UAH × 124 days × 8 workers = 39 680 UAH.
2. The cost of overwork = 1 240 units × 1.6 UAH × 7 UAH = 13 888 UAH.
3. The cost of storage = 80 units × 5 UAH = 400 UAH.

Task 2

The marketing department has presented the project of the expected demand for 8 months (Table 2).

Table 2

The expected demand

Month	1	2	3	4	5	6	7	8
Demand	1400	1600	1800	1800	2200	2200	1800	1400

The operations manager is considering 5 variants of the plan. Every plan begins with the stock of 200 pieces (units). The cost of storage is 20 UAH. The costs connected with losses of working hours are not considered.

Plan A – change the number of workers according to the demand. In January, 1 600 pieces are produced. The costs connected with hiring additional workers make 5 000 UAH per 100 units. The costs connected with discharge of workers amount to 7 500 UAH per 100 units.

Plan B – production conforms to the minimum demand (1 400 pieces). It is necessary to make an additional contract with the unit cost of 75 UAH.

Plan C – keep a constant number of workers and a constant production volume equal to monthly average demand and change the inventory level.

Plan D – keep the number of workers which provides production of 1 600 units per month. The minimum level overtime is 20 % (of the monthly production), with additional costs of 50 UAH for units. The maximum stock is 400 units.

Plan E – keep the number of workers which provides production of 1 600 units in a month using a subcontract.

Task 3

It is necessary to develop a plan of production for 5 months. The initial data is presented in Table 3.

Table 3

The initial data

	Month				
	1	2	3	4	5
Demand	300	320	260	400	420
Capacity					
The main time	300	300	300	300	300
Overtime	40	40	20	20	20

The subcontract allows for production of 200 units throughout 5 months. The starting stock is 0 units. At the end of the period it is 20 units. The cost per unit in the main time is 100 UAH. The cost per unit in the overtime is 125 UAH. The costs of the additional contract are 135 UAH. The storage costs a unit per month are 3 UAH.

Module 3. Supply chain design

Rhythm

The aim of the task. Rhythm is a strict accomplishment of the plan in terms of quantity, quality, terms and nomenclature.

Task 1

The conditions of the task. The mechanic shop should deliver 120 units of equipment a day. The actual production per each day is presented in Table 1. Draw a conclusion after each method. Use Table 2 to exclude the working days in Table 1.

Table 1

The actual production per day

Decade	Working days	Actual production	Decade	Working days	Actual production	Decade	Working days	Actual production
1	1	110	2	11	130	3	21	135
	2	100		12	120		22	130
	3	140		13	120		23	110
	4	130		14	130		24	100
	5	110		15	125		25	100
	6	120		16	140		26	130
	7	130		17	110		27	120
	8	100		18	135		28	140
	9	115		19	110		29	140
	10	110		20	120		30	140

Table 2

Variant	Exclude the working days from Table 1
0	1, 2, 8, 9, 15, 16, 22, 23, 29
1	2, 3, 9, 10, 16, 17, 23, 24, 30
2	3, 4, 10, 11, 17, 18, 24, 25
3	4, 5, 11, 12, 18, 19, 25, 26, 27
4	5, 6, 12, 13, 19, 20, 26, 27, 28,
5	6, 7, 13, 14, 20, 21, 22, 27, 28, 29
6	1, 7, 8, 14, 15, 21, 22, 28, 29
7	2, 8, 9, 15, 16, 22, 23, 30
8	3, 9, 10, 16, 17, 23, 29, 30
9	4, 10, 16, 17, 18, 22, 23, 27, 28

Method 1 (every ten days or every month)

The planned coefficient of rhythm is the ratio of the number of working days per decade and the number of working days per month.

The actual or real coefficient of rhythm is the ratio of the actual production per decade and the actual production per month.

Method 2

Table 3

Calculation of the daily average production percent

The number of working days				The daily average production percent			
per month	per decade			planned	actual per decade		
	1	2	3		1	2	3

The planned average daily output is calculated as 100 % divided by the number of working days per month.

Method 3

Table 4

The coefficient of the rhythm of the program implementation

Production						The coefficient of the rhythm of accomplishment of the program	
planned		actual				per day	from the beginning of the month
per day	from the beginning of the month	all		for the rhythm of calculation			
		per day	from the beginning of the month	per day	from the beginning of the month		

Method 4

Calculation of the coefficient of rhythm using the variation coefficient:

$$K_r = 100\ \% - V$$

where: V is the variation coefficient.

Method 5

The schedule of actual and planned production.

The guidelines for carrying out the task

Method 1

Table 1

The actual production per day

Decade	Working days	Actual production	Decade	Working days	Actual production	Decade	Working days	Actual production
1	1	110	2	11	130	3	21	135
	2	100		12	120		22	130
				13	120			
	4	130		14	130		24	100
	5	110		15	125		25	100
	6	120					26	130
	7	130					27	120
	8	100		18	135		28	140
				19	110			
				20	120			
∑	7	800		8	990		7	855

1. The planned coefficient of rhythm = 7/22×100 % = 31.8 %.
2. The planned coefficient of rhythm = 8/22×100 % = 36.3 %.
3. The planned coefficient of rhythm = 7/22×100 % = 31.8 %.

1. The actual or real coefficient of rhythm = 800/2 645 = 30.2 %.
2. The actual or real coefficient of rhythm = 960/2 645 = 37.4 %.
3. The actual or real coefficient of rhythm = 800/2 645 = 30.2 %.

Method 2

Table 2

Calculation of the daily average production percent

The number of working days				The daily average production percent			
per month	per decade			planned	actual per decade		
	1	2	3		1	2	3
22	7	8	7	100 % / 22 = 4.5	30.2 / 7 = 4.3	37.4 / 8 = 4.6	32.3 / 7 = 4.6

Method 3

Table 3

The coefficient of rhythm of the program implementation

Production						The coefficient of the rhythm	
planned		actual					
per day	from the beginning of the month	all		For the rhythm of calculation		per day	from the beginning of the month
		per day	from the beginning of the month	per day	from the beginning of the month		
120	120	110	110	110	110	0.1	0.91
120	240	100	210	100	210	0.83	0.875
120	360	130	340	120	330	1	0.91
120	480	110	450	110	440	0.91	0.91
120	600	120	570	120	560	1	0.93
120	720	130	700	120	680	1	0.94
120	840	100	800	100	780	0.83	0.92
120	960	130	930	120	900	1	0.93

Planning of a one-item line

The aim of the task. On one-item lines they produce items of one name and each workplace specializes in the production of one-part operation.

Task 1

The conditions of the task. In the mechanical shop of the mass production type, it has been proposed to organize a production line. The initial data is given in Table 1.

It is necessary:

to calculate the tact of the line;

to calculate the number of workplaces, their loading;

to choose the period of operation;

to make a schedule (standard plan) of work of the line;

to calculate the technological, transport, reserve and turnaround stocks.

Table 1

The initial data

	The rate of time per operation, min								Daily requirement	Shifts	The part characteristic
	01	02	03	04	05	06	07	08			
1	2	3	4	5	6	7	8	9	10	11	12
1	10.0	5.0	20.0	15.0	11.0	18.0	13.0	9.0	150	2	big
2	5.0	2.5	10.0	7.5	5.5	9.0	6.5	4.5	350	2	average
3	1.3	2.1	3.4	4.3	3.5	3.6	2.7	2.8	450	2	small
4	2.6	4.2	6.8	8.6	7.0	7.2	5.4	5.6	800	3	average
5	2.2	3.1	1.3	4.0	4.5	5.6	2.7	1.8	480	2	average

1. The tact of the line is calculated as

$$r = \frac{F_{ef} - T}{N}, \quad (1)$$

where: F is the effective time;

T is the time of breaks = 0 min;

N is the start program of the line = daily requirement.

2. The number of work places for each operation is calculated as

$$N1 = \frac{T}{r}, \quad (2)$$

where: T is the rate of time per operation;

r is the tact of the line.

3. The load factor is calculated as

$$K = \frac{C1}{C2}, \tag{3}$$

where: *C1* is the calculated number of work places;
C2 is the accepted number of work places.

To determine the operating time of the line it is necessary to choose the period of work of the line:

60 min for a big part;
120 min for a medium part;
480 min for a small part.

The guideline for carrying out the task

Table 2

Operation N_o.	Rate of time per operation, min	C1	C2	K	The operating time of the line
1	4	1.66	2	0.66	80.4
2	4.8	2	2	–	–
3	7.2	3	3	–	–
4	6.4	2.66	3	0.66	80.4
5	6.8	2.83	3	0.83	99.6
6	5.2	2.16	3	0.16	20.4
7	4.8	2	2	–	–
8	6.0	2.5	3	0.5	60

1. The technological stock is calculated as

$$Z = (C1 \times n.w.p.) + n.c., \tag{1}$$

where: *n.w.p.* is the number of processed parts in a workplace;
n.c. is the number of parts at the controller place.

2. The transport stock is calculated as

$$Z = p \times (m - 1), \tag{2}$$

where: *p* is the transfer part;
m is the number of operations.

3. The insurance stock is calculated as

$$Z = \frac{Tf}{r}, \tag{3}$$

where: *Tf* is the time of faults in the operations (10 – 15 min);

r is the tact of the line.

Module 4. Planning and controlling the supply chain

Task 1

The conditions of the task. On the production line, 5 parts are processed. The line works 20 days, 2 shifts lasting 8 hours. The time spent on the retooling of equipment is 5 %. The labor intensity and the program of production are presented in Table 1.

Table 1

The initial data

Variant	Part									
	A		B		C		D		F	
	N_i	T_i	N_i	T_i	N_i	T_i	N_i	T_i	N_i	T_i
1	1000	80	1500	60	200	30	200	25	300	20
2	4000	18	5000	16	4000	12	6000	8	5000	14
3	2000	40	3000	30	4000	15	4500	12	6000	10
4	1200	35	1800	25	2500	6	6800	12	3600	8
5	2600	11	4800	24	3600	8	2500	12	3800	17
6	3600	12	2400	18	3800	34	5600	24	2800	32
7	6800	8	6200	4	4600	11	5300	18	4200	9
8	500	24	950	18	670	65	340	75	770	52
9	900	29	1200	48	680	55	590	48	370	64

The guideline for carrying out the task

Table 2

Part	N_i, unit	T_i, min	$N_i * T_{\partial i}$	Δ_i	F_i		$r_{i,}$ min/ unit	C_1	C_2	K	n_i, unit	R_1	R_2	Kl
					min	shift								
A	600	20	12 000	0.0875	1596	3.325	2.66	7.51	8	0.93	1732	4.9	5	4
B	840	19	15960	0.116	2116	4.408	2.51	7.56	8	0.94	1835.8	4.8	5	4
C	630	69	43470	0.317	5782	12.04	9.17	7.52	8	0.94	502.4	4.8	5	4
D	380	71	26980	0.196	3575	7.44	9.4	7.55	8	0.94	490.1	4.7	5	4
F	790	49	38710	0.282	5144	10.7	6.5	7.5	8	0.94	708.8	4.8	5	4
				∑=1										

Task 2

The conditions of the task. Mechanical shop specializes in the production of a small range of parts based on a similar technological process. The production is batch-type. The line works 20 days, 2 shifts lasting 8 hours. The initial data is given in Tables 1 and 2.

It is necessary:

to calculate the number of workplaces, their loading;

to determine the normative size of the parts and their periodicity;

to schedule the work of the line.

Table 1

The initial data

Variant	Number of parts	Program, unit	The rate of time per operation, min, (*t* units)					
			01	02	03	04	05	06
1	15	280	18	17	8	25	–	–
	60	280	13	15	7	20	–	–
	90	280	28	16	6	27	–	–
	20	310	15	14	7	–	15	16
	30	310	20	23	–	13	17	13
	40	310	21	18	13	24	25	20
2	15	260	10	12	10	20	14	3
	60	260	20	22	–	30	14	18
	90	260	23	17	18	35	9	7
	20	300	16	20	–	38	12	10
	30	300	20	24	24	34	8	6
	40	300	25	29	9	29	13	11
3	15	260	26	21	22	10	15	14
	60	260	28	18	12	15	8	3
	90	260	–	25	13	–	9	–
	20	280	25	16	18	16	6	19
	30	280	32	17	23	7	17	15
	40	280	33	35	18	15	–	7
4	15	360	25	27	9	10	13	14
	60	360	10	10	14	15	18	19
	90	360	11	13	15	16	9	20
	20	280	13	15	17	18	2	–
	30	280	18	20	22	23	–	–
	40	280	19	21	23	24	20	10

Table 2

The initial data

The time for retooling of the equipment (*t1*)					
Operation 01	Operation 02	Operation 03	Operation 04	Operation 05	Operation 06
20	20	16	35	10	10

4. Independent work of students

An essential element of successful learning of the discipline is the independent work of students that includes: processing of lecture materials, work on legislative, regulatory and instructional documents, preparation for seminars and practicals, doing independent work.

The main types of students' independent work are:

1. Studying the lecture material.
2. Studying the recommended literature.
3. Learning the key terms and concepts on the topics of the discipline.
4. Preparation for practical training and testing.

Module 1. Operations strategy and managing change

Theme 1. Introduction to the field

1. What is operations management?
2. Historical development of OM.

Recommended reading: main [1; 6]; additional [7; 11; 13; 15; 18; 20].

Theme 2. Operations strategy and competitiveness

1. The corporate strategy.
2. Developing a manufacturing strategy.
3. Operations strategy in services.
4. Types of movement of the subjects of labor.

Recommended reading: main [1; 3; 4]; additional [6; 7; 20; 23].

Theme 3. Project management

1. Project management.
2. Managing resources.

Recommended reading: main [1 – 3]; additional [7; 13 – 16; 20; 23].

Theme 4. Product design

1. The product development process.
2. Measuring the product development performance.

Recommended reading: main [2 – 4]; additional [5; 11, 16; 21].

Module 2. Process selection and design

Theme 5. Process analysis

1. Process analysis.
2. Process throughput time reduction.

Recommended reading: main [2 – 4]; additional [5; 11; 16; 21].

Theme 6. Manufacturing process selection and design

1. Specific process equipment selection.
2. Manufacturing process.

Recommended reading: main [1 – 3]; additional [7; 12 – 15; 19; 22].

Theme 7. Service process selection and design

1. Service strategy: focus and advantage.
2. New service development process.

Recommended reading: main [1]; additional [7; 19; 22].

Theme 8. Quality management

1. Service quality measurement.
2. Developing quality specification.

Recommended reading: main [2 – 3]; additional [5; 8; 14; 17; 21].

Module 3. Supply chain design

Theme 1. Supply chain strategy

1. Global sourcing.
2. Mass customization.

Recommended reading: main [1 – 6]; additional [3; 4; 9; 17; 21].

Theme 2. Strategic capacity management

1. Using decision trees to evaluate capacity alternatives.
2. Planning service capacity.

Recommended reading: main [1 – 3]; additional [5; 7; 14; 19].

Theme 3. Lean production

1. The Toyota production system.
2. Lean applications for line flows.

Recommended reading: main [1; 4]; additional [8; 10; 12].

Theme 4. Operations consulting and reengineering

1. Business process reengineering (BPR).
2. The operations consulting process.

Recommended reading: main [1; 8]; additional [3; 6; 15].

Module 4. Planning and controlling the supply chain

Theme 5. Aggregate sales and operations planning

1. Aggregate planning techniques.
2. The aggregate operations plan.

Recommended reading: main [2; 5]; additional [5; 11; 16].

Theme 6. Inventory control

1. Multiperiod inventory systems.
2. Inventory planning.

Recommended reading: main [3; 5]; additional [5; 17; 21].

Theme 7. Material requirements planning

1. Demand for products.
2. Forecasting demand.

Recommended reading: main [1; 6]; additional [2; 5; 23].

5. Questions for self-assessment

Module 1. Operations strategy and managing change

1. What is operations management?
2. What factors account for resurgence of interest in OM today?
3. Differences between services and goods.
4. OM in the organizational chart.
5. Operations as a service.
6. Historical development of OM.
7. Total quality management and quality certification.
8. Current issues in operations management.
9. What is operations strategy?
10. Operations competitive dimension.
11. Attacking-through operations.
12. Productivity measurement.
13. Strategic fit – fitting operational activities into the strategy.
14. What is project management?
15. Structuring a project.
16. A project control chart.
17. Managing resources.
18. Time-cost models.
19. The marketing-operations link.
20. The corporate strategy.

Module 2. Process selection and design

21. Types of processes.
22. Process analysis examples.
23. Measuring the process performance.
24. Designing for the customer.
25. Process selection.

26. Break-even analysis.
27. Manufacturing product development performance.
28. Manufacturing process selection and design.
29. Operational classification of services.
30. Designing service organizations.
31. Total quality management.
32. Quality specification and quality costs.
33. ISO 9000 Certification.
34. Basic product layout formats.
35. Group technology.
36. Fixed-position layout.
37. Office layout.

Module 3. Supply chain design

38. The nature of services.
39. Operational classification of services.
40. Three contrasting service designs.
41. Supply chain strategy.
42. Measuring supply chain performance.
43. Outsourcing.
44. Value density.
45. Mass customization.
46. Capacity management in operations.
47. Capacity planning concepts.
48. Planning the service capacity.
49. Just-in-time logic.
50. Just-in-time service.
51. The Japanese approach to productivity.
52. An overview of operations planning activities.
53. Aggregate production planning.

Module 4. Planning and controlling the supply chain

54. Yield management.
55. The definition of inventory.
56. The purpose of inventory.
57. Inventory cost.

58. The inventory system.
59. Special purpose models.
60. JIT services.
61. The Toyota production system.
62. Capacity focus, flexibility and planning.
63. Decision trees.
64. Independent versus dependent demand.
65. The material requirement planning system.
66. The material requirement planning structure.
67. Flow manufacturing.
68. Where can MRP be used?

6. Recommended reading

Main

1. Гэлловэй Л. Операционный менеджмент. Принципы и практика / Л. Гэлловэй. – Санкт-Петербург : Питер, 2000. – 320 с.

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Additional

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Contents

НАВЧАЛЬНЕ ВИДАННЯ

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для студентів напряму підготовки 6.030601 "Менеджмент" денної форми навчання

(англ. мовою)

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