

**Management  
Science  
Diploma  
2<sup>nd</sup> year**

# **PRODUCTION MANAGEMENT I**

(Dirección y Gestión de la Producción I en lengua inglesa)

**Group 5**



**Escuela Universitaria  
de Estudios Empresariales**

## **Syllabus and Norms Academic Year 05-06**

**Departamento de Economía Financiera y  
Dirección de Operaciones**  
<http://www.aloj.us.es/defdo>

Diligencia para hacer constar que el presente programa es el depositado por el Dpto. en este Centro.  
El Secretario del Centro: José Ángel Pérez López

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# PRODUCTION MANAGEMENT I

(Dirección y Gestión de la Producción I en lengua inglesa)

Academic Year 05-06

<http://www.us.es/adgp1euee>

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## DIRECTORY AND TEACHING STAFF

### Academic Year 05-06

DPTO. DE ECONOMÍA FINANCIERA Y DIRECCIÓN DE OPERACIONES			
	PHONE	E-MAIL	OFFICE
<b>Head of Department</b>			
Ruiz Jiménez, Antonio	9545 56457	anruiz@us.es	6 - FCEYE
<b>Secretary</b>			
García Gragera, Juan Antonio	9545 56168	juangar@us.es	47 - EUEE
<b>ADMINISTRATIVE OFFICE</b>			
Durán Muñoz, Francisco Javier	9545 57624	fjduran@us.es	1 - FCEYE
Zambrano García, José	9545 57624	zambrano@us.es	1 - FCEYE
<b>TEACHING STAFF ON THIS COURSE</b>			
Alfala Luque, Rafaela	9545 56456	alfalla@us.es	3 - FCEYE
García Gragera, Juan Antonio	9545 56168	juangar@us.es	47 - EUEE
García Sánchez, María Rosa	9545 51616	rosagar@us.es	48 - EUEE
Garrido Vega, Pedro	9545 56968	pgarrido@us.es	4 - FCEYE
González Zamora, M <sup>a</sup> del Mar	9545 56456	mmgonza@us.es	3 - FCEYE
Ruiz Orcaray, Victoria Eugenia	9545 51616	orcaray@us.es	48 - EUEE
Sacristán Díaz, Macarena (Course Coordinator)	9545 56968	macarena-sd@us.es	4 - FCEYE

- **FCEYE:** Facultad de Ciencias Económicas y Empresariales.
- **EUEE:** Escuela Universitaria de Estudios Empresariales.

### Distribution of teaching staff by group during the present academic year:

1<sup>st</sup>: First partial period      2<sup>nd</sup>: Second partial period      C: Full academic year

Professor	G1	G2	G3	G4	G5*	G6	G7	G8	G9
Dra. D <sup>a</sup> Rafaela Alfala Luque	-	-	-	-	-	-	-	C	C
D. Juan Antonio García Gragera	1 <sup>st</sup> , 2 <sup>nd</sup>	1 <sup>st</sup> , 2 <sup>nd</sup>	-	-	-	-	-	-	-
Dra. D <sup>a</sup> Rosa García Sánchez	-	-	-	-	-	C	1 <sup>st</sup> , 2 <sup>nd</sup>	-	-
Dr. D. Pedro Garrido Vega	2 <sup>nd</sup>	2 <sup>nd</sup>	-	-	-	-	2 <sup>nd</sup>	-	-
Dra. D <sup>a</sup> M <sup>a</sup> del Mar González Zamora	-	1 <sup>st</sup>	-	-	-	-	-	-	-
D <sup>a</sup> Victoria E. Ruiz Orcaray	-	-	-	C	-	-	-	-	-
Dra. D <sup>a</sup> Macarena Sacristán Díaz (Course Coordinator)	1 <sup>st</sup>	-	C	-	C	-	-	-	-

\* Only Group 5 classes will be held in English.

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## TEACHING PLAN

### Academic Year 05-06

To many people, the term *production* conjures up images of factories, machines, and assembly lines. Interestingly enough, the field of production management in the past focused almost exclusively on manufacturing management, with a heavy emphasis on the methods and the techniques used in operating a factory. In recent years, the scope of production management has broadened considerably. Production concepts and techniques are applied to a wide range of activities and situations *outside* manufacturing; that is, in *services* such as health care, food service, recreation, banking, hotel management, retail sales, education, transportation, and government. This broadened scope has given the field the name of *production/operations management*, or more simply, *operations management*, a term that more closely reflects the diverse nature of activities to which its concepts and techniques are applied. (Stevenson, W.J., 1999, p.4).

### Course Objectives

The general aim of the course is to help students develop a clear view of what Production/Operations Management (POM) consists of, the techniques to be used in solving problems, and alternative solutions that can be found in the production field. The course is devoted to analysing all these questions at the tactical and operational level, that is, considering medium- and short-term decisions.

During the course, students will be expected to achieve specific goals in terms of relevant knowledge and the application of relevant skills. These are defined as follows:

○ **Cognitive Objectives:**

- To develop a clear understanding and knowledge in all subjects covered.
- To achieve competence in basic POM terminology.
- To develop a global, integrated perspective of how the POM area works.
- To identify the way POM interrelates with other business functions.
- To understand the object of studying POM and the influence it has on businesses.

○ **Skill Objectives:**

- How to use specific scientific instruments (graphs, charts, tables, etc.)
- How to work with bibliographies and locate references.
- How to form, discuss and transmit one's own ideas.

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## Syllabus

### **Unit 1: Introduction to Production/Operations Management.**

- 1.1. The operations subsystem and Operations Management.
- 1.2. A historical view of Operations Management: a change of attitude.
- 1.3. Production planning and control hierarchical process.
- 1.4. Capacity planning and control process.
- 1.5. The importance of demand forecasts for the production planning and control process.

### **Unit 2: Inventory Management.**

- 2.1. Introduction.
- 2.2. Inventory review systems.
- 2.3. Deterministic dynamic models.
  - 2.3.1. Basic EOQ model.
  - 2.3.2. EOQ with simultaneous supply and usage model.
- 2.4. Advantages and inconveniences of each model.

### **Unit 3: Aggregate Production Planning (APP).**

- 3.1. Introduction to Aggregate Production Planning.
- 3.2. Aggregate Planning Strategies: Chase demand and level production.
- 3.3. The Aggregate Planning process using the trial and error technique.
- 3.4. Aggregate Planning in services.

### **Unit 4: Master Production Scheduling (MPS).**

- 4.1. Introduction to MPS: units and planning horizon.
- 4.2. The process for obtaining a feasible MPS.
- 4.3. Disaggregating the Aggregated Production Plan: Initial MPS.
- 4.4. The viability of MPS: Capacity bills.
  - 4.4.1. Determining the available capacity.
  - 4.4.2. Rough-cut capacity planning: capacity bills.
  - 4.4.3. Interpretation and correction of deviations.
- 4.5. Coordination with other functional areas in developing MPS.

### **Unit 5: MRP Systems: The original MRP.**

- 5.1. Introduction to MRP systems: an easy example.
- 5.2. Basic structure of MRP: concept and features of the system.
  - 5.2.1. MRP inputs.
  - 5.2.2. MRP computations.
  - 5.2.3. MRP outputs.
- 5.3. Lot-sizing.
- 5.4. Applicability and suitability of MRP systems.

### **Unit 6: Very short term planning and control.**

- 6.1. Introduction to execution and control activities.
- 6.2. The order revision and authorization process.
- 6.3. Introduction to operations scheduling: loading, sequencing and programming.
- 6.4. Workshop loading: Load charts.
- 6.5. Sequencing in *job-shop* environments: priority rules.
- 6.6. Detailed programming: Gantt chart.

### **Unit 7: Just in Time (JIT) Systems.**

- 7.1. Introduction to JIT.
- 7.2. Aims and elements of JIT.
- 7.3. Adjusting the Operations System to JIT.

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- 7.4. Smoothing work flows.
- 7.5. Performing and control: the *Kanban system*.
- 7.6. Relationship with suppliers and customers.
- 7.7. JIT implementation.
- 7.8. Final considerations: MRP systems compared to JIT.

#### Unit 8: Project management.

- 8.1. Introduction.
- 8.2. Basic principles of PERT.
- 8.3. Drawing a PERT diagram.
- 8.4. Project planning with PERT.
- 8.5. Project control with PERT.
- 8.6. Considering resources in project planning: scheduling with limited resources.

### Bibliography

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McGraw Hill. 1993.
- **DOMÍNGUEZ MACHUCA, J. A.; GARCÍA GONZÁLEZ, S.; DOMÍNGUEZ MACHUCA, M.A.; RUÍZ JIMÉNEZ, A.; ALVAREZ GIL, M<sup>a</sup>. J.**  
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## COURSE NORMS AND REQUIREMENTS

### 1.- INFORMATION CARDS.

- Students must hand in a duly completed information card to the lecturer in charge of the group during the first few days of class.

### 2.- CLASS AND EXAM ATTENDANCE.

- Although voluntary, class attendance is recommended as it permits a better following and understanding of course content.
- Students must sit the exam with their official group, in this case (*Dirección y Gestión de la Producción I en lengua inglesa*), Group number 5.

### 3.- PREPARING THE SUBJECT.

- The fundamental elements for the preparation of subject content are: explanations given in class, published materials and basic recommended reading (although it is also recommended that other reading sources be consulted in order to broaden or contrast ideas and points-of-view). It goes without saying that it would be almost impossible to prepare all the subjects during exam week and that any attempt to do so would almost certainly meet with failure.
- The presentation of the Units in class will not necessarily be exhaustive and students may be referred to the recommended reading, especially with regard to topics or areas of the syllabus that are less difficult. Nevertheless, the lecturer will always go through the main points of the Unit being studied in general terms, whilst going into more complex topics in greater detail.

### 4.- OFFICE HOURS (See Directory and Teaching Staff).

- As a supplementary aid for the preparation of the subject, there are mandatory times set aside for student tutoring or consultations. The corresponding schedule and any future modifications made to same will be posted on the *Departamento de Economía Financiera y Dirección de Operaciones* noticeboard (FCEYE, 1<sup>st</sup> floor), on the subject's noticeboard in the EUEE (Main Building, 2<sup>nd</sup> floor, left wing when entering the building), and also on the subject website (<http://www.us.es/adgp1euee>).
- Students are asked to observe these times as the presence of the lecturer cannot be guaranteed outside these times nor his/her availability to attend to consultations. For their part, the teaching staff will undertake to keep to this schedule, although it must be borne in mind that on occasion this may not be possible, due to tutorials being held at the same time as other tasks or responsibilities. Should this be the case, in accordance with the Rectoral Decision of 4<sup>th</sup> June, 1993 dealing with student attendance, the member of staff in question will do his/her best to attend to students who would otherwise have attended at the earliest available time.
- Students are required to have at least some knowledge of the topic that they wish to consult on and to not regard tutorials as private classes. It is likewise especially advised that students should not leave consultation on all the points they are unsure about until the last few days before an upcoming examination.
- The e-mail addresses afforded to students are meant to serve as a broader means of communication between the students and teaching staff. They can be used to provide comments and/or suggestions on any topic related to the subject that might help to improve advancement. These addresses may also be used for consultations although, as far as is possible, these will be attended to during the times set aside for tutorials. It must be remembered that all e-mails must obligatorily include name, surnames, subject referred to, and group attended. Any message which does not include this information in full will be ignored and/or left unanswered.

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## 5.- EXAMINATIONS.

- **Dates for corresponding examination sittings** are set in accordance with Art. 28.1.g) of the Statutes of the University of Seville (hereafter, the *EUS*) by agreement between staff lecturing in the subject and Student Representatives. In accordance with Art. 15 of the University of Seville Norms for Exam Regulation, Evaluation and Marking, **students must present their ID Card or Passport at each separate examination.**
- **As a result of the agreement arrived at by the Governing Body (J. G.) of 21/03/01** which determines the process by which the dates for examinations and tests are set before the commencement of the academic year, **the dates approved by the Faculty Committee in accordance with Art. 28.1.g) of the EUS for the various sittings for the subject during the year 2005-2006 are as follows:**

Sitting	Date
3rd Ordinary (December)	13/12/05
1 <sup>st</sup> Partial	16/02/06
February Extraordinary	16/02/06
2nd Partial	09/06/06
1st Ordinary (June)	04/07/06
2nd Ordinary (September)	13/09/06

- **No examinations will be held other than on these dates** agreed with Student Representatives, except in compliance with what is set forth in the University of Seville Norms for Exam Regulation, Evaluation and Marking and Directives on Procedures to be followed when Examinations Coincide, as dictated by the E.U.E.E. executive. According to this latter, there will only be an alternative sitting when an examination coincides with another examination in a subject from a previous year. If for any reason an examination has to be held on a date other than the aforementioned, **this may take the form of an oral examination.**
- The subject contents are set out in the official published programme and **the complete programme will be considered as material that students can be examined on unless the teaching staff expressly indicates the contrary.**
- **Structure of examinations.** These will have at least two distinct parts:
  1. **Theoretical:** This may consist of an objective multiple-choice test (closed or open, with 20 or 30 questions and 4 or 5 options), short questions and/or subject questions "to be elaborated upon".
  2. **Practical:** May include a number of problems related to the material taught throughout the course, as well as commentaries and case analyses.

Nevertheless, the definitive structure of each examination (whether partial or final) **will be defined at the appropriate time when the examination in question is officially announced.**

Finally, students should be aware that, whatever the structure of an examination in the subject, **its total length is usually a minimum of 3 hours.**

## 6.- EVALUATION CRITERIA AND MARKING.

- Evaluation criteria will depend upon the structure of the examination determined for each particular case. Said criteria will therefore be defined when official notice is given of the sitting. Nevertheless, the following can be stated as guidance:

**A minimum mark will be established for both theoretical and practical examinations that must be achieved in order for an average mark to be obtained from the different parts**

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of the examination. Should said minimum not be achieved, the student is considered to have failed the examination. It is normal practice in this subject for the minimum mark to be set at three (3) for each part of the examination. The minimum mark required for each part of the examination will nevertheless be clearly announced when official notice of the examinations in question is given.

For the minimum mark to be considered to have been attained in the practical part of the examination it is also required that no problem be left unanswered or to receive a mark equating to zero (0). Should this be the case, it will be deemed that the minimum mark in the practical part of the exam has not been achieved for an average mark to be found with the theoretical part of the examination and, as such, the student will be considered to have failed the examination.

**These minimum requirements must be achieved with absolutely no exception in order to pass the subject.**

- A student must receive a minimum mark of five points for him/her to be considered to have passed the examination. As far as Student Records are concerned, according to Art. 5.4 of Rectoral Decision 1125 of 5<sup>th</sup> September 2003, marks that can appear in the official examination records are:

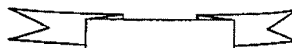
Fail (Suspendo, <i>SS</i> ):	0-4.9 points
Pass (Aprobado, <i>AP</i> ):	5-6.9 points
Pass with merit (Notable, <i>NT</i> ):	7-8.9 points
Pass with distinction (Sobresaliente, <i>SB</i> ):	9-10 points

- In accordance with *EUS* Art. 55.1, when awarding students' final marks, participation in class, seminars and other supplementary activities organised during the course can be taken into account, along with the examinations that have been taken.
- The examination papers of students who are caught copying or talking by any of the invigilators during any of the tests will not be corrected. In any case of this type, the lecturer will sign the exam paper of the student(s) involved and add a reference to the incident in order that the exam not be corrected and receive a mark of zero (0), without precluding the commencement of the required procedures to apply the Academic Disciplinary Regulations currently in force to infractors.
- Official notice shall be given of provisional results within the time-frame established under Art.26 of the University of Seville Norms for Exam Regulation, Evaluation and Marking and said results will become final four working days after said notice is given; for this reason it is recommended that students check both provisional and final results in order to detect and correct any possible mistake.
- Marks will be made public per group except for the examination sittings in December and February. Each lecturer will solely and exclusively correct the exams of students who are officially enrolled in his/her groups. As a result, any examination paper with an incorrectly indicated Group reference number may lead to a delay in notice being given of examination results, or to a given student not appearing on any of the lists, or to a student appearing as not having attended an examination because his/her examination paper was not located until after his/her group's marks were given out.
- In accordance with present regulations, before provisional results become final, students have the right look over the exam he/she has done at a time and place set aside to this end. With regard to this checking of exams, students are reminded that, according to said regulations, the objective is to inform the student of how his/her mark was arrived at and what evaluation criteria were applied. Other channels exist for any issues other than these, many of which figure in the *EUS* and in the Norms for Examination Regulation.

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- **Partial examinations do not compensate each other.** It is necessary to pass both partial examinations, which means that it is a requirement to obtain a minimum of five (5) points in each in order to pass the subject.
- Upon notice being given of provisional Final Marks for the subject, students receiving a Pass with Distinction who wish to opt for **Magna cum Laude** (Matrícula de Honor) shall convey this to a lecturer in the subject within a maximum period of 5 working days from the date said marks are posted. The procedure to be followed in order to gain this qualification will be decided by the lecturers responsible and may consist of either the **preparation of a paper** (which must be concluded and handed in in writing within a period of time that will be determined at the appropriate time), or through the sitting of a **special examination**. Students that have passed the subject through sitting partial examinations who wish to **improve their average mark** may sit the final examination that includes the part of the examination that they wish to improve in the knowledge that **the mark they attained in the initial partial examination will be observed**. Students wishing to opt for this possibility must convey this to the lecturer in charge of his/her official group.
- The mark of "Absent" or "Did not Attend" (No Presentado) shall in no case be entered into the official examination records for any student who has sat any of the final examinations, **whatever the number of sittings he/she has used up**. To conclude, it must be reminded that the mere fact that a student enters into an examination room in order to do a duly-called examination evidently implies that he/she has sat said examination, **even though he/she leaves the examination room as soon as this starts**. This will be counted as a final examination sitting that has **been used up** for the purpose of determining the number of examination sittings the student has remaining, both with regards to the Academic Year and to the total reckoning for the subject.



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4. 1. 1991. *Journal of the American Statistical Association*, 86, 4, 400-421.

