A) COURSE

Course Id:	Course
5933	PRODUCTION SYSTEMS DESIGN

Class Hours per Week	Lab hours per week	Complementary practices	Credits	Total hour course
3	0	3	6	48

B) GENERAL COURSE INFORMATION:

	EE (IEA)	ME (IM)	MME (IMA)	EME (IME)	MTE (IMT)
Level:			IX		
Course Type (Required/Elective)			Required		
Prerequisite Course:			Productions Systems II		
CACEI Classification:			IA		

C) COURSE OBJECTIVE

At the end of the course, the student will be capable of:
THE STUDENT WILL INTEGRATE AND PRACTICE THE KNOWLEDGE ACQUIRED IN PREVIOUS COURSES AND IN THIS ONE, IN THE ANALYSIS AND DESIGN OF PRODUCTION SYSTEMS, INCLUDING THE PHYSICAL PART AND INFORMATION SYSTEM.

D) TOPICS (CONTENTS AND METHODOLOGY)

1 . THE PRODUCTION SYSTEMS.		9 Hours
Specific Objective:	Will analyze the types of production systems, identify their characteristics and trends of development.	
1.1 CONCEPT OF PRODUCTION SYSTEM. 1.2 THE HARDWARE AND SOFTWARE OF PRODUCTION SYSTEMS. 1.3 CLASSIFICATION AND CHARACTERISTICS OF PRODUCTION SYSTEMS. 1.4 ORGANIZATION OF PRODUCTION SYSTEMS. 1.5 CRITERIA TO EVALUATE THE ORGANIZATION OF PRODUCTION SYSTEMS. 1.6 TRENDS IN THE DESIGN OF PRODUCTION SYSTEMS. 1.7 PRODUCT MANUFACTURING CYCLE AND LOGISTICS IN A MANUFACTURING COMPANY.		
Readings and other resources	Books, Articles, Further literature, Internet Links.	
Teaching Methodologies	Exhibition themes, concept analysis, problem resolution and discussion, group work and individual.	
Learning Activities		

2.- ABOUT THE PRODUCTION SYSTEMS		14 Hours
Specific Objective:	The student will identify the activities to design systems and develop and implement a study project	
2.1 GENERALITIES OF PRODUCTION SYSTEMS DESIGN. 2.2 SIZE OF THE SYSTEM, CAPACITY, LOCATION AND DISTRIBUTION. 2.3 DETERMINATION OF EASE MANUFACTURING, TECHNOLOGY SELECTION AND PROCESS PLANNING. 2.4 PRODUCT DESIGN AND DEVELOPMENT. 2.5 GENERAL PRINCIPLES OF DESIGN FOR EASE MANUFACTURING. 2.6 DESIGN AND IMPLEMENTATION OF THE INFORMATION SYSTEM.		
Readings and other resources	Books, Articles, Further literature, Internet Links.	
Teaching Methodologies	Exhibition themes, concept analysis, problem resolution and discussion, group work and individual.	
Learning Activities		

3. - INFORMATION SYSTEM		16 Hours
Specific Objective:	The student will identify and analyze the parts comprising a production system . It will analyze applicable methods and define a system for the study project.	
3.1 DESIGN AND ESTABLISHMENT OF THE INFORMATION SYSTEM. 3.2 MANUFACTURING INSTRUCTIONS. 3.3 DATABASE FOR PRODUCTION. 3.4 COST OF PRODUCTION. 3.5 EXPLOSION OF MATERIALS. 3.6 FORECASTS. 3.7 ORDER PROCESSING. 3.8 MASTER PRODUCTION PLAN. 3.9 MATERIAL REQUIREMENTS PLANNING. 3.10 PLANNING CAPACITY SYSTEM. 3.11 ORDER RELEASE AND OPERATIONS SCHEDULING. 3.12 WORKING PROCESS CONTROL. 3.13 INDICATORS OF PRODUCTION SYSTEM PERFORMANCE. 3.14 INVENTORY CONTROL SYSTEM.		
Readings and other resources	Books, Articles, Further literature, Internet Links.	
Teaching Methodologies	Exhibition themes, concept analysis, problem resolution and discussion, group work and individual.	
Learning Activities		

4.- PRODUCTIVITY MANAGEMENT.		14 Hours
Specific Objective:	The student will identify and analyze the approaches and techniques for improving productivity , its advantages , disadvantages and applications.	
4.1 EXISTING APPROACHES FOR IMPROVING PRODUCTIVITY. 4.2 TECHNIQUES BASIC PRODUCTIVITY IMPROVEMENT. 4.3 ANALYTICAL MODEL FOR PRODUCTIVITY IMPROVEMENT. 4.4 PRINCIPLES OF PRODUCTIVITY IMPROVEMENT		
Readings and other resources	Books, Articles, Further literature, Internet Links.	
Teaching Methodologies	Exhibition themes, concept analysis, problem resolution and discussion, group work and individual.	
Learning Activities		

E) TEACHING AND LEARNING METHODOLOGIES

THE COURSE IS TAUGHT IN SESSIONS OF THREE HOURS PER WEEK. THE PRESENTATION OF THE THEORETICAL TOPICS IS COMPLEMENTED WITH PRACTICAL APPLICATIONS. IN ADDITION, STUDENTS SHOULD RESEARCH THE TOPICS COVERED IN CLASS AND IMPLEMENT SOME OF THESE IN THE COMPANY IN WHICH THEY WILL DO THEIR RESEARCH PROJECT.
THE STUDENT WILL DO RESEARCH ON THE TOPICS SEEN IN CLASS AND DESIGN SYSTEMS THAT PROVIDE A SOLUTION TO SPECIFIC PROBLEMS.
THE STUDENT WILL SIMULATE PRODUCTION SYSTEMS WITH REAL CHARACTERISTICS, PROPOSE/SUGGEST SIMPLE AND SMALL IMPROVEMENTS AND IMPLEMENT THESE WITH EXISTING ENFORCEMENT TOOLS.

F) EVALUATION CRITERIA:

Evaluation:	Schedule	Suggested Form of Evaluation and weighing	Topics
1er. Evaluation Partial	Session 11	Exam 80% , Homework 10%, Presentations 10%	Unity 1.1 - 2.1 Unity 4.1 - 4.2
2º Evaluation Partial	Session 16	Exam 80% , Homework 10%, Presentations 10%	Unity 2.2 – 3.1 Unity 4.2 - 4.4
3er. Evaluation Partial	Session 16	Exam 80% , Homework 10%, Presentations 10%	Unity 3.2 - 3.14 Unity 4.1 - 4.4
Evaluation Final Ordinary		100% Average partial evaluations	
Other Activity:			
Exam Extraordinary	Week 17 of the semester in progress	100% Exam	100% Program
Exam of title	According to schedule school secretary	100% Exam	100% Program
Exam regularization	According to schedule school secretary	100% Exam	100% Program

G) BIBLIOGRAPHY AND ELECTRONIC RESOURCES

RENDER, B. & HEAZER, J. ADMINISTRACIÓN DE OPERACIONES. MÉXICO,: PHH D.F.

JACK R. MEREDITH, THE MANAGEMENT OF OPERATIONS: A CONCEPTUAL EMPHASIS. E. U., JOHN WILEY & SONS INC.

CHASE/JACOBS/AQUILANO, OPERATION MANAGEMENT FOR COMPETITIVE ADVANTAGE WITH GLOBAL CASES, E.U., MC GRAW-HILL
HOPEMAN RICHARD J., ADMINISTRACIÓN DE PRODUCCIÓN Y OPERACIONES. MÉXICO, D.F., CECSA

NARASIMHAN, S. Y MC LEAVEY, D.W. Y BILLINGTON, P. PLANEACIÓN DE LA PRODUCCIÓN Y CONTROL DE INVENTARIOS. MÉXICO, D.F. :PHH
RIGGS JAMES, JOHNSON LYNWOOD , OPERATING RESEARCH IN PRODUCTION PLANNING, SCHEDULING AND INVENTORY CONTROL., WILEY & SONS

SIPPER DANIEL Y BULFIN ROBERT JR.
PLANEACIÓN Y CONTROL DE LA PRODUCCIÓN.
MC. GRAW HILL, 1998

SOFTWARE:

MICROSOFT OFFICE (For the development and presentation of tasks and jobs).

DEMONSTRATION SOFTWARE AVAILABLE ON THE INTERNET NETWORK MANAGEMENT APPLICATION SYSTEMS INVOLVED IN THE INDUSTRY.
WEB PAGES
VARIOUS RELATED TO PRODUCTION SYSTEMS OF NATIONAL AND FOREIGN COMPANIES.