



**NATIONAL UNIVERSITY OF ENGINEERING
COLLEGE OF MECHANICAL ENGINEERING
MECHATRONICS ENGINEERING PROGRAM**

MT736 – RECONFIGURABLE MANUFACTURING SYSTEMS

I. GENERAL INFORMATION

CODE	: MT 736 Reconfigurable Manufacturing Systems
CYCLE	: 8
CREDITS	: 3
HOURS PER WEEK	: 5(Theory - Practice - Laboratories)
PREREQUISITES	: MC216 - Manufacturing processes
CONDITION	: Mandatory

II. SUMMARY OF COURSE

Conventional Manufacturing Systems and Advanced Systems. Operation and Programming CNC lathes. Operation and programming of CNC milling machines. CAD CAM technology. Reconfigurable Manufacturing Systems.

III. COURSE OUTCOMES

The student:

1. Understand and apply the concepts and techniques related to the Conventional Manufacturing and Computer Aided Manufacturing CAD CAM.
2. Using specialized software correctly and apply CAD-CAM technology.
3. Reconfigurable Manufacturing Systems know, like FMS Systems, FMC, Transfer Lines, CIM systems.
4. Develop methods that can be used to create competitive manufacturing systems.

IV. TEACHING UNITS

1. INTRODUCTION TO SYSTEMS MANUF. CAD CAM / 5 HOURS
Introduction to Advanced Manufacturing Systems / Technical features of a CNC machine
2. PROGRAMMING FUNDAMENTALS CNC / 5 HOURS
Fundamentals of Programming / Structure of a program / software programming Example NANJING educational SWANSOFT / functions
Operation CNC machines.

3. PROGRAMMING AND SIMULATION CNC / 10 HOURS

Practice programming, software NANJING educational SWANSOFT / functions Operation CNC / Practice programming machines with software NANJING educational SWANSOFT / Practice CNC machine operation / First qualified practice

4. MILLING CNC PROGRAMMING WITH CAD-CAM / 5 HOURS

CAM programming functions with Mastercam CAD / Practice programming and operation

5. Visit to Laboratory CAD / CAM UNT / 5 HOURS

Qualified third practice

6. MANUFACTURING SYSTEMS RECONFIGURABLE / 5 HOURS

Types of Advanced Manufacturing Systems.

7. TRANSFER LINES AND TRANSFER FLEXIBLE / 5 HOURS

Technology and Applications

8. FLEXIBLE MANUFACTURING SYSTEMS / 5 HOURS

Design Technology and Applications
Flexible Manufacturing Cells

9. EXHIBITIONS MANUFACTURING SYSTEMS RECONFIGURABLE / 5 HOURS

10. THE COMPUTER INTEGRATED MANUFACTURING CIM / 5 HOURS

Development of a CIM system

11. VISIT TO LABORATORY CIM / 10 HOURS

Applications of Computer Integrated Manufacturing.
Plants Modern design.
final exhibition

12. FOURTH QUALIFIED PRACTICE / 5 HOURS

V. LABORATORIES AND PRACTICAL EXPERIENCES

Lab 1: Making piece in the CNC Laboratory IV

VI. METHODOLOGY

theoretical presentation by the teacher at blackboard, with the help of teaching materials, including multimedia projector and computers Computer Center.

Exhibitions practices occur in the Laboratory IV using the Mastercam software and CNC lathe.

It is induced leaving group work and simulation programming jobs outside the classroom.

VII. FORMULA EVALUATION

Evaluation System "D".

VIII. BIBLIOGRAPHY

1. Mikell P. Groover "FOUNDATIONS OF MODERN MANUFACTURING". Materials, Processes and Systems. Prentice Hall Hispano, SA Mexico 1997
2. Masip Ferre, Rafael "MAKING COMPUTER-ASSISTED CAM" Alfaomega
3. Krar / Check "Technology of Machine Tools" Alfaomega 5th. Edition
4. Schey, John A. "MANUFACTURING PROCESSES" Mc Graw Hill, American Editores SA de CV
5. Sule, DR "manufacturing facilities, LOCATION, DESIGN AND PLANNING" Thompson Editores SA
6. Daniel Rodriguez "MANUFACTURING SYSTEMS RECONFIGURABLE" Edic. 2011.

* Include preferably two text (no more than three) and possibly global reference books.