ESIROI
ÉCOLE D'INGÉNIEURS
UNIVERSITÉ DE LA RÉUNION

DEPARTMENT : *AA*
SEMESTER : *S6*

IDENTIFICATION

Course code : E3AG6PR3
ECTS : 1.5

DURATION

Lectures :	6
Tutorial classes :	14
Labs :	4
Total :	24

Project :
Personnal work :

ASSESSMENT

Continuous assessments and lab work grades

TEACHING MATERIALS

Course materials, tutorials, and lab work made available

LANGUAGE

English

CONTACT

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UE : UE6-PROD

COURSE : Control of Systems and Maintenance Management 1

SCOPE OF THE COURSE

OBJECTIVES

Course objectives To provide students with the fundamental knowledge necessary for implementing control of a process in the agri-food sector. Intended learning outcomes This course on system control and maintenance management is taught over the first two years of the engineering cycle. It aims to enable future agri-food engineers to : 1. Analyze in detail offers related to the automation of processes in the agri-food sector 2. Draft a specification sheet for the automation of an agri-food process 3. Establish and propose choices in terms of process control in the agri-food sector 4. Understand the basics of metrology and the different types of sensors useful for process control.

This first module includes : 8 hours (Lectures), 8 hours (Tutorials) for the control systems part and 4 hours (Lectures), 4 hours (Lab work) for the maintenance management part

COMPETENCE AND SKILLS

Conducting a test and verifying the proper operation of the production line

PROGRAM

For the Control of Systems 1 part, the proposed syllabus is as follows : - Introduction to system control - Examples of control in the Agri-Food sector - Metrology and sensors – Components of a control loop - Principles of open-loop and closed-loop control - Tools for system analysis. Transfer functions of systems - Study of first-order and second-order systems - Implementation of a first proportional correction

For the Maintenance Management 1 part, the proposed syllabus is as follows : - Discovering the scope of maintenance in an industrial plant - Discovering the energy sources used to operate a plant - Introduction to the most commonly used equipment for each type of energy - Introduction to different types of maintenance (preventive, corrective, predictive, etc.) - Studying the operation of a machine and analyzing the data required to create a maintenance plan - Studying the operation of a machine and drafting a first-level preventive maintenance plan

BIBLIOGRAPHY

— *Automatismes et procédés industriels agroalimentaires*, G. Trystram, Techniques de l'ingénieur.
— *Automatique*, C. Foulard, J.M. Flaus, M. Jacomino. Hermes, Paris, 1997.
— *Cours d'automatique*, M. Rivoire, J.L. Ferrier, Eyrolles, 1992.

REQUIREMENTS

Basic knowledge of systems, signals, and transfer functions from the integrated preparatory cycle