

Manufacturing Management

Data science

IDENTIFICATION

CODE : GI-5-S1-EC-DSC
ECTS : 1.0

HOURS

Lectures : 2.0 h
Seminars : 22.0 h
Laboratory : 0.0 h
Project : 0.0 h
Teacher-student
contact : 24.0 h
Personal work : 0.0 h
Total : 24.0 h

ASSESSMENT METHOD

Final exam 1h50.
Plus 1 ECTS for exchange students

TEACHING AIDS

To be determined.

TEACHING LANGUAGE

English

CONTACT

M. MONCLA Ludovic
ludovic.moncla@insa-lyon.fr

AIMS

This teaching unit [EC] contributes to the following INSA engineering skills:
[2] Process data

as well as the following IEM-specific skills:

- [2] Observe, measure, analyze and interpret an activity or a system from data
- [1] Model and design an information, decision and production system for goods and services
- [2] Take into account the technological and methodological innovations

CONTENT

The engineering student will work and be assessed on the following knowledge and skills :

- Know the basis of data mining and knowledge discovery processes
- Know several techniques of supervised classification [ADB, Random Forests], boosting), non-supervised and pattern extraction.

Three 4-hour lab sessions aim at applying these techniques on actual data, related to industrial engineering and especially production and transportation problems.

BIBLIOGRAPHY

Michael Berthold et al. Guide to Intelligent Data Analysis. Springer, 2010.
Antoine Cornuéjols et Laurent Miclet. Apprentissage Artificiel. Concepts et Algorithmes. 2d edition. Eyrolles, 2010.
Trevor Hastie, Robert Tibshirani et Jerome Friedman. The Elements of Statistical Learning. 2013.
Pang-Ning Tan, Michael Steinbach et Vipin Kumar. Introduction to Data Mining. Pearson, 2006.

PRE-REQUISITE

Probability theory : GI-3-PRS-S1
Data analysis : GI-4-ADD-S1, GI-3-PEX-S1
Programming: GI-3-ALP-S1, GI-3-MOC-S1