



## Course Presentation

Smart Grid	
Engineering School of Gafsa	Electromechanical
FOCAL AREA	Industry 4.0
Level	3 <sup>d</sup> year
Semester	S5
Semester hourly volume	Integrated course: (21,5h=15h lecture + 7,5h tutorials)
Teacher	Mr Hatem Tljejini

### Objectives

The aim of the module is to present an overview of smart grid (SG) which relies heavily on the most recent technologies in terms of very innovative new production tools.

The main objectives of smart grids are:

- Reduce your costs with smart planning.
- Get network overview, profitability calculations and target network planning.
- Design smart grids that meet the different expectations of users.
- Apply the SG technique to practical examples of medium and low voltage
- Seek to apply SG technology to the various connections and operations of charging stations

## **INTENDED LEARNING OUTCOMES**

To develop the capacity of students, future engineers to integrate the techniques of Smart Grid Industry into their different designs of production sites.

## **PREREQUISITES/ASSUMED KNOWLEDGE**

- Electrical systems
- Electrical networks
- Electricity production and distribution

## **Outline of the lecture (15h)**

Chapter 1 (2h): Modelling and Dispatch of Smart Power

Chapter 2 (3h): Design and Control of Dynamic Systems

Chapter 3 (3h): Economy and Smart Energy

Chapter 4 (2h): Computer Sciences

Chapter 5 (2h): Professional Skills Support

Chapter 6 (3h): Innovative Components for Smart Grids

## **References**

- Smart Grids : les réseaux électriques intelligents (2012), Nouredine Hadjsaïd, Jean-Claude Sabonnadière.
- Smart Grid Systems: Modeling and Control (2018), N. Ramesh Babu
- Smart Grid: Fundamentals of Design and Analysis (2012), James A. Momoh
- Smart Grid: Technology and Applications (2012), Akihiko Yokoyama, Kithsiri Liyanage, Jianzhong Wu, Janaka Ekanayake, Nick Jenkins