

Faculty of Applied Sciences



ELEC2310 Electromechanical converters

[30h+30h exercises] 5 credits

This course is taught in the 2nd semester

Teacher(s): Bruno Dehez (supplée N.), Francis Labrique
Language: French
Level: Second cycle

Aims

The aim of the course is to study the principles of electromechanical energy conversion, mainly in electromagnetic converters

Main themes

Identical to the contents of the course

Content and teaching methods

- Remainder on magnetic circuits and polyphase systems : application to the transformers,
- General theory of electromagnetic converters
- Principle of rotating field converters
- Use of rotating field converters as motors or generators : analysis of induction and synchronous machines connected to the mains
- Classical and brushless DC machines
- Variable reluctance machines

Other information (prerequisite, evaluation (assessment methods), course materials recommended readings, ...)

Prerequisites :

Foundations in electrical circuits and electromagnetism : Electromagnetism (ELEC2350) or Electricity : advanced topics (ELEC2755)

Assessment :

Written examination (problem solving and multiple choice questionnaire)

Support :

The course relies on the book "Electromécanique, convertisseurs d'énergie et actionneurs" (Dunod ed., 2001) and the associate website www.electromecanique.net. This site is in particular used for virtual laboratories.

Other credits in programs

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| ELEC21 | Première année du programme conduisant au grade d'ingénieur (5 credits) civil électricien | Mandatory |
| ELME21/E | Première année du programme conduisant au grade d'ingénieur (5 credits) civil électro-mécanicien (énergie) | Mandatory |
| ELME21/M | Première année du programme conduisant au grade d'ingénieur (5 credits) civil électro-mécanicien (mécatronique) | Mandatory |