

# Three-phase networks



Component

École Nationale  
Supérieure  
d'Électrotechnique  
d'Électronique  
d'Informatique  
d'Hydraulique  
et des  
Télécommunications



Semester

Printemps

## In brief

> **Amety's Code:** N6AE04C

> **Open to exchange students:** No

## Presentation

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### Objectives

Provide students with a scientific background to understand the concepts of balanced or unbalanced three-phase sinusoidal systems.

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### Description

- Determination of the connection of a three-phase load;
- Determination of the voltage drop in a transmission line;
- Determination of the current consumed by a three-phase installation;
- Calculus of the power factor of a three-phase installation and power factor correction;
- Study of harmonic pollution in an installation (filtering);
- Calculus of the current in the neutral in the case of an unbalanced load;

· Determination of the connection and the tap setting of a three-phase transformer;- Calculation of losses in a three-phase transformer.

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## Pre-requisites

Node laws / mesh laws / generalized Ohm's law;- Single-phase sinusoidal regime;- Vectorial construction; complex notation of a sinusoidal quantity; Fourier series expansion.