

**Product Name :**  
Electrical Machines Lab**Product Code :**  
NEE -18-06-18-0029**Description :**

Electrical Machines Lab

**Technical Specification :**

The Lab Comprising the following:

The Lab should cover Like or better than the following Training objectives DC Motor:

- Motor connection
- Comparison of various machines
- Typical machine data
- Open-loop speed control with starter and field regulator
- Reversing the rotation direction
- Load characteristics at constant input voltage
- Measurement evaluations

DC Generator:

- Generator connection
- Armature voltage as a function of the exciter current
- Function and application of a field regulator
- Voltage control, self-excitation and separate excitation
- Armature current and armature voltage at constant speed and constant exciter current
- Load diagram for generator

AC machines

- Motor connection
- Reversing rotation direction
- Typical characteristics

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- Load and run-up characteristics
  - Measurement evaluations

#### Asynchronous machines

- Motor connection
- Reversing rotation direction
- Manual switching
- Machine-specific values and characteristics
- Measurement evaluation

#### Synchronous motor

- Motor connection
- Starting
- Reversing rotation direction
- Excitation and load angle
- Synchronous compensator operation
- Power factor and exciter current
- Load characteristics in motor operation

#### V characteristics

- Stability limits
- Under- and over excitation
- Measurement evaluation

#### Synchronous Generator

- Generator connection
- Voltage setting via the exciter current
- Load characteristics in generator operation
- Measurement evaluation

#### Mains synchronisation

- Design and connection of the synchronising circuit
- Comparison of bright, dark and three-lamp synchronising circuit
- Mains synchronisation with double frequency meter, double voltage meter, synchronoscope and zero-voltage meter

#### Reluctance motor

- Machine connection
- Starting
- Reversing rotation direction
- Load characteristics
- Measurement evaluation

#### Energy Saving Motor

- Design and operation of energy-saving motors
- Classes of energy-efficient motor
- Comparing energy-efficient motors to standard motors
- Operating characteristics of energy-saving motors
- Determining the potential for energy-savings

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