

ELEC 3005 ELECTRICAL DRIVES

Credit Points 10

Legacy Code 300070

Coordinator Jamal Rizk ([https://directory.westernsydney.edu.au/search/name/Jamal Rizk/](https://directory.westernsydney.edu.au/search/name/Jamal%20Rizk/))

Description Through practical laboratory exercises students will analyse and evaluate electrical machines and drives. They will examine various types of electrical motors and drive systems, their applications and control. They will also study various types of speed control, starting and braking systems and dynamics.

School Eng, Design & Built Env

Discipline Electrical And Electronic Engineering And Technology

Student Contribution Band HECS Band 2 10cp

Check your HECS Band contribution amount via the Fees (https://www.westernsydney.edu.au/currentstudents/current_students/fees/) page.

Level Undergraduate Level 3 subject

Pre-requisite(s) ELEC 3006

Learning Outcomes

On successful completion of this subject, students should be able to:

1. Analyse various types of electrical drive systems.
2. Evaluate recent developments in the control of electric drive systems.
3. Apply various drive systems to different applications.

Subject Content

Introduction to machine drives. Principal characteristics and requirements. Basic Components of an Electric Drive System.
 D.C. motors. Circuit representation. Speed-torque characteristics.
 Speed Control of D.C motors
 Induction motors. Circuit representation. Speed-torque characteristics.
 Speed control of Induction Motors: voltage control, slip-energy recovery, speed control by inverters, frequency and Voltage/Frequency Control.
 Power electronic devices and basic power converters.
 Three-phase naturally commutated bridge circuit
 Braking of Electrical Motors: Regenerative, Dynamics and counter-current braking.
 Dynamics of DC and Induction Motors

Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Type	Length	Percent	Threshold	Individual/Group Task
Intra-session Exam	1.5 hours	25	N	Individual

Practical	3 hours (per practical)	20	Y	Individual
Final Exam	2 hours	55	N	Individual

Teaching Periods

Sydney City Campus - Term 1 (2022)

Sydney City

Day

Subject Contact Peter Lendrum ([https://directory.westernsydney.edu.au/search/name/Peter Lendrum/](https://directory.westernsydney.edu.au/search/name/Peter%20Lendrum/))

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ELEC3005_22-SC1_SC_D#subjects)

Sydney City Campus - Term 3 (2022)

Sydney City

Day

Subject Contact Peter Lendrum ([https://directory.westernsydney.edu.au/search/name/Peter Lendrum/](https://directory.westernsydney.edu.au/search/name/Peter%20Lendrum/))

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ELEC3005_22-SC3_SC_D#subjects)

Sydney City Campus - Term 2 (2023)

Sydney City

On-site

Subject Contact Peter Lendrum ([https://directory.westernsydney.edu.au/search/name/Peter Lendrum/](https://directory.westernsydney.edu.au/search/name/Peter%20Lendrum/))

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=ELEC3005_23-SC2_SC_1#subjects)