

School of Electrical Engineering & Telecommunications

Faculty of Engineering

UNSW Sydney

Postgraduate by Coursework Programs

8338 - Master of Engineering Science (2 years)

5341 – Graduate Diploma of Engineering Science (1 year)

The School of Electrical Engineering and Telecommunications offer the following areas of Specialisations (PLANS) for each of the above programs:

Electrical Engineering
Energy Systems
Systems and Control
Telecommunications
Satellite Systems

ELECBS8338 and ELECQS5341
ELECIS8338 and ELECRS5341
ELECPS8338 only
TELEBS8338 and TELECS5341
ELECOS8338 only

Postgraduate by Coursework Academic Coordinator

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UNSW Kensington, Sydney

Postgraduate by coursework program guideline – School of Electrical Engineering & Telecommunications

Master of Engineering Science (2 years)

Program code: 8338

Specialisation: ELECBS8338 (Electrical Engineering)

Students choose		UOC
Disciplinary Courses	4 from List A	24
Advance Disciplinary	4 from List B	24
Project Report A *	Elec9771	6
Project Report B **	Elec9772	6
Research-related	Gsoe9010 or 9011 or 9220	6
ETM course	1 from List C	6
Electives (up to 4 courses)	From Lists A/B/C	24
Total UOC		96

Graduate Diploma of Engineering Science (1 year)

Program code: 5341

Specialisation: ELECQS5341 (Electrical Engineering)

Students choose		UOC
Disciplinary Courses	3 from List A	18
Advance Disciplinary	3 from List B	18
Electives (up to 2 courses)	From lists A/B/C	12
Total UOC		48

*The Project Report A must be taken after completion of 48 UOC.

**The Project Report B must be taken immediately after Project Report A.

List A - Disciplinary Courses:

MICROELECTRONICS

Elec4601 Digital & Embedded System Design
 Elec4602 Microelectronic Design and Technology
 Elec4603 Solid State Electronics
 Elec4604 RF Electronics
 Elec4605 Quantum Devices and Computers

ENERGY SYSTEMS

Elec4611 Power System Equipment
 Elec4612 Power System Analysis
 Elec4613 Electrical Drive Systems
 Elec4614 Power Electronics

SIGNAL PROCESSING

Elec4621 Advanced Digital Signal Processing
 Elec4622 Multimedia Signal Processing
 Elec4623 Biomedical Instrumentation, Measurement and Design

SYSTEMS AND CONTROL

Elec4631 Continue-Time Control Systems Design
 Elec4632 Computer Control Systems
 Elec4633 Real-Time Engineering

TELECOMMUNICATIONS

Phtn4661 Optical Circuits and Fibres
 Tele4642 Network Performance
 Tele4651 Wireless Communication Technology
 Tele4652 Mobile & Satellite Communications Systems
 Tele4653 Digital Modulation and Coding

List B – Advance Disciplinary Courses:

ENERGY SYSTEMS

Elec4617 Power System Protection
Gsoe9141 Smart Grids and Networks
Gsoe9142 Energy Efficient Lighting & Equipment

MICROELECTRONICS

Elec9701 Mixed Signal Microelectronic Design
Elec9702 Radio Frequency Integrated Circuits
Elec9703 microsystems Design and Technology
Elec9704 VLSI Technology
Elec9705 Quantum Devices (= Elec3705 Quantum Engineering)

ENERGY SYSTEMS

Elec9711 Power Electronics for Renewable Energy
Elec9712 High Voltage Systems
Elec9713 Industrial and Commercial Power
Elec9714 Electricity Industry Planning
Elec9715 Electricity Industry Operation
Elec9716 Electrical Safety
Elec9719 Real-Time Digital Simulations

SIGNAL PROCESSING

Elec9721 Digital Signal Processing Theory
Elec9722 Digital Image Processing
Elec9723 Speech Processing
Elec9741 Electrical Engineering Data Science

SYSTEMS AND CONTROL

Elec9731 Robust and Linear Control Systems
Elec9732 Analysis and Design of Non-linear
Elec9733 Real Computing and Control

TELECOMMUNICATIONS

Elec9725 Satellite Navigation
Elec9781 Special Topics in EE
Elec9782 Special Topics in EE

List C – Engineering Technical Management (ETM) courses: (no more than 24uoc of ETM courses to be taken)

GSOE9210 Engineering Decision Structures
GSOE9830 Engineering Economics OR CVEN9701 Engineering Economics
and Financial Management OR CEIC8204 Topics in Business Management in Chemical Engineering
GSOE9712 Engineering Statistics and Experimental Design
CVEN9888 Environmental Management
GSOE9510 Ethics & Leadership in Engineering
MANF9400 Industrial Management
GSOE9445 Entrepreneurial Engineering
MATH5846 Introduction to Probability and Stochastic Processes
GSOE9340 Life Cycle Engineering OR SOLA9015 Life Cycle Assessment
GSOE9017 Managing Energy Efficiency OR GSOE9121 Operational Energy Efficiency
MATH3156 Optimization
COMP9021 Principles of Programming
MANF9472 Production Planning and Control

GSOE9360 Professional Discourse in Engineering
GSOE9820 Project Management OR CVEN9731 Project Management Framework
GSOE9810 Quality in Engineering
SOLA9103 RE System Modelling & Analysis
MANF6860 Strategic Manufacturing Management
SOLA9004 Sustainable and Renewable Energy
CVEN9892 Sustainability Assessment
GSOE9143 Sustainable Electrical Energy Technology Assessment
SOLA5056 Sustainable Energy in Developing Countries
GSOE9997 Engineering Work Related Learning for Postgraduates

Notes:

Each course worth 6 units of credit (6 uoc).

Not all courses are offered in both sessions. You need to view the timetable website to find out each course's availability in each session:

<https://www.engineering.unsw.edu.au/electrical-engineering/timetables>

Courses exemption: Students may apply for some courses exemptions. Students with a four year honours degree (for example in Electrical Engineering) may obtain a maximum of 48 UOC of exemptions.

Postgraduate by coursework program guideline – School of Electrical Engineering & Telecommunications

Master of Engineering Science (2 years)

Program code: 8338

Specialisation: ELECS8338 (Energy Systems)

Students choose		UOC
Disciplinary Courses	4 from List A	24
Advance Disciplinary	4 from List B	24
Project Report A *	Elec9771	6
Project Report B **	Elec9772	6
Research-related	Gsoe9010 or 9011 or 9220	6
ETM course	1 from List C	6
Electives (up to 4 courses)	From Lists A/ B/ C	24
Total UOC		96

Graduate Diploma of Engineering Science (1 year)

Program code: 5341

Specialisation: ELECRS5341 (Energy Systems)

Students choose		UOC
Disciplinary Courses	3 from List A	18
Advance Disciplinary	3 from List B	18
Electives (up to 2 courses)	From Lists A/ B/ C	12
Total UOC		48

*The Project Report A must be taken after completion of 48 UOC.

**The Project Report B must be taken immediately after Project Report A.

List A - Disciplinary Courses:

Elec4602 Microelectronic Design and Technology
 Elec4611 Power System Equipment
 Elec4612 Power System Analysis
 Elec4613 Electrical Drive Systems
 Elec4614 Power Electronics
 Elec4621 Advanced Digital Signal Processing
 Elec4631 Continue-Time Control Systems Design
 Phn4661 Optical Circuits and Fibres
 Tele4652 Mobile & Satellite Communications Systems

List B – Advance Disciplinary Courses:

Elec4617 Power System Protection
 Elec9711 Power Electronics for Renewable Energy
 Elec9712 High Voltage Systems
 Elec9713 Industrial and Commercial Power
 Elec9714 Electricity Industry Planning
 Elec9715 Electricity Industry Operation
 Elec9716 Electrical Safety
 Elec9719 Real-Time Digital simulations
 Elec9741 Electrical Engineering Data Science
 Gsoe9141 Smart Grids and Networks
 Gsoe9142 Energy Efficient Lighting & Equipment

List C – Engineering Technical Management (ETM) courses: (no more than 24uoc of ETM courses to be taken)

GSOE9210 Engineering Decision Structures
 GSOE9830 Engineering Economics OR CVEN9701 Engineering Economics
 and Financial Management OR CEIC8204 Topics in Business Management in Chemical Engineering
 GSOE9712 Engineering Statistics and Experimental Design
 CVEN9888 Environmental Management
 GSOE9510 Ethics & Leadership in Engineering
 MANF9400 Industrial Management

GSOE9445 Entrepreneurial Engineering
MATH5846 Introduction to Probability and Stochastic Processes
GSOE9340 Life Cycle Engineering OR SOLA9015 Life Cycle Assessment
GSOE9017 Managing Energy Efficiency OR GSOE9121 Operational Energy Efficiency
MATH3156 Optimization
COMP9021 Principles of Programming
MANF9472 Production Planning and Control
GSOE9360 Professional Discourse in Engineering
GSOE9820 Project Management OR CVEN9731 Project Management Framework
GSOE9810 Quality in Engineering
SOLA9103 RE System Modelling & Analysis
MANF6860 Strategic Manufacturing Management
SOLA9004 Sustainable and Renewable Energy
CVEN9892 Sustainability Assessment
GSOE9143 Sustainable Electrical Energy Technology Assessment
SOLA5056 Sustainable Energy in Developing Countries
GSOE9997 Engineering Work Related Learning for Postgraduates

Notes:

Each course worth 6 units of credit (6 uoc).

Not all courses are offered in both sessions. You need to view the timetable website to find out each course's availability in each session:

<https://www.engineering.unsw.edu.au/electrical-engineering/timetables>

Courses exemption: Students program may apply for some courses exemptions. Students with a four year honours degree (for example in Electrical Engineering) may obtain a maximum of 48 UOC of exemptions.

Postgraduate by coursework program guideline – School of Electrical Engineering & Telecommunications

Master of Engineering Science (2 years)

Program code: 8338

Specialisation: ELECP8338 (Systems & Control)

Students choose		UOC
Disciplinary Courses	4 from List A	24
Advance Disciplinary	4 from List B	24
Project Report A *	Elec9771	6
Project Report B **	Elec9772	6
Research-related	Gsoe9010 or 9011 or 9220	6
ETM course	1 from List C	6
Electives (up to 4 courses)	From Lists A/ B/ C	24
Total UOC		96

Graduate Diploma of Engineering Science (1 year)

Program code: 5341

Specialisation: ELECT5341 (Systems & Control)

Not Available in 5341		UOC
Please note this	Students should not	
ELECT5341	Enrol in this diploma	
Specialisation is	Plan.	
Inactive at the		
Moment.		

*The Project Report A must be taken after completion of 48 UOC.

**The Project Report B must be taken immediately after Project Report A.

List A - Disciplinary Courses:

Elec4631 Continue-Time Control Systems Design (*core course*)

Elec4632 Computer Control Systems (*core course*)

Elec4633 Real-time Engineering (*core course*)

Elec4601 Digital & Embedded Systems Design

Elec4602 Microelectronic Design and Technology

Elec4603 Solid State Electronics

Elec4604 RF Electronics

Elec4605 Quantum Devices and Computers

Elec4611 Power System Equipment

Elec4612 Power System Analysis

Elec4613 Electrical Drive Systems

Elec4614 Power Electronics

Elec4621 Advanced Digital Signal Processing

Elec4622 Multimedia Signal Processing

Elec4623 Biomedical Instrumentation, Measurement & Design

Phtn4661 Optical Circuits and Fibres

Tele4642 Network Performance

Tele4651 Wireless Communication Technology

Tele4652 Mobile & Satellite Communications Systems

List B – Advance Disciplinary Courses:

Elec9731 Robust and Linear Control Systems (*core course*)

Elec9732 Analysis and Design of Non-linear Control (*core course*)

Elec9733 Real Computing and Control

Gsoe9141 Smart Grids and Networks

Gsoe9142 Energy Efficient Lighting and Equipment

Elec9716 Electrical Safety

Elec9719 Real-Time Digital Simulations

Elec9721 Digital Signal Processing Theory

Elec9741 Electrical Engineering Data Science

Ceic8102 Advanced Process Control

Comp9517 Computer Vision

Comp9814 Ext Artificial Intelligence

List C – Engineering Technical Management (ETM) courses: (no more than 24uoc of ETM courses to be taken)

GSOE9210 Engineering Decision Structures
GSOE9830 Engineering Economics OR CVEN9701 Engineering Economics
and Financial Management OR CEIC8204 Topics in Business Management in Chemical Engineering
GSOE9712 Engineering Statistics and Experimental Design
CVEN9888 Environmental Management
GSOE9510 Ethics & Leadership in Engineering
MANF9400 Industrial Management
GSOE9445 Entrepreneurial Engineering
MATH5846 Introduction to Probability and Stochastic Processes
GSOE9340 Life Cycle Engineering OR SOLA9015 Life Cycle Assessment
GSOE9017 Managing Energy Efficiency OR GSOE9121 Operational Energy Efficiency
MATH3156 Optimization
COMP9021 Principles of Programming
MANF9472 Production Planning and Control
GSOE9360 Professional Discourse in Engineering
GSOE9820 Project Management OR CVEN9731 Project Management Framework
GSOE9810 Quality in Engineering
SOLA9103 RE System Modelling & Analysis
MANF6860 Strategic Manufacturing Management
SOLA9004 Sustainable and Renewable Energy
CVEN9892 Sustainability Assessment
GSOE9143 Sustainable Electrical Energy Technology Assessment
SOLA5056 Sustainable Energy in Developing Countries
GSOE9997 Engineering Work Related Learning for Postgraduates

Notes:

Each course worth 6 units of credit (6 uoc).

Not all courses are offered in both sessions. You need to view the timetable website to find out each course's availability in each session:

<https://www.engineering.unsw.edu.au/electrical-engineering/timetables>

Courses exemption: Students may apply for some courses exemptions. Students with a four year honours degree (for example in Electrical Engineering) may obtain a maximum of 48 UOC of exemptions.

Postgraduate by coursework program guideline – School of Electrical Engineering & Telecommunications

Master of Engineering Science (2 years)

Program code: 8338

Specialisation: TELEBS8338 (Telecommunications)

Students choose		UOC
Disciplinary Courses	4 from List A	24
Advance Disciplinary	4 from List B	24
Project Report A *	Elec9771	6
Project Report B **	Elec9772	6
Research-related	Gsoe9010 or 9011 or 9220	6
ETM course	1 from List C	6
Electives (up to 4 courses)	From Lists A/ B/ C	24
Total UOC		96

Graduate Diploma of Engineering Science (1 year)

Program code: 5341

Specialisation: TELECS5341 (Telecommunications)

Students choose		UOC
Disciplinary Courses	3 from List A	18
Advance Disciplinary	3 from List B	18
Electives (up to 2 courses)	From Lists A/ B/ C	12
Total UOC		48

*The Project Report A must be taken after completion of 48 UOC.

**The Project Report B must be taken immediately after Project Report A.

List A - Disciplinary Courses:

Elec4602 Microelectronic Design and Technology
 Elec4612 Power System Analysis
 Elec4621 Advanced Digital Signal Processing
 Elec4631 Continue-Time Control Systems Design
 Phtn4661 Optical Circuits and Fibres
 Phtn4662 Photonic Networks
 Tele4642 Network Performance
 Tele4651 Wireless Communication Technology
 Tele4652 Mobile & Satellite Communications Systems
 Tele4653 Digital Modulation & Coding

List B – Advance Disciplinary Courses:

Gsoe9758 Network Systems Architecture
 Tele9751 Switching Systems Architecture
 Tele9752 Network Operations and Control
 Tele9753 Advanced Wireless Communications
 Tele9754 Coding and Information Theory
 Tele9755 Microwave Circuits, Theory and
 Tele9756 Advanced Networking
 Tele9757 Quantum Communications
 Elec9725 Satellite Navigation
 Elec9762 Space Mission development
 Elec9764 The Ground segment and Space Operations
 Elec9741 Electrical Engineering Data Science
 Gmat9205 Fundamentals of Geo-Positioning

List C – Engineering Technical Management (ETM) courses: (no more than 24uoc of ETM courses to be taken)

GSOE9210 Engineering Decision Structures
 GSOE9830 Engineering Economics OR CVEN9701 Engineering Economics
 and Financial Management OR CEIC8204 Topics in Business Management in Chemical Engineering

GSOE9712 Engineering Statistics and Experimental Design
CVEN9888 Environmental Management
GSOE9510 Ethics & Leadership in Engineering
MANF9400 Industrial Management
GSOE9445 Entrepreneurial Engineering
MATH5846 Introduction to Probability and Stochastic Processes
GSOE9340 Life Cycle Engineering OR SOLA9015 Life Cycle Assessment
GSOE9017 Managing Energy Efficiency OR GSOE9121 Operational Energy Efficiency
MATH3156 Optimization
COMP9021 Principles of Programming
MANF9472 Production Planning and Control
GSOE9360 Professional Discourse in Engineering
GSOE9820 Project Management OR CVEN9731 Project Management Framework
GSOE9810 Quality in Engineering
SOLA9103 RE System Modelling & Analysis
MANF6860 Strategic Manufacturing Management
SOLA9004 Sustainable and Renewable Energy
CVEN9892 Sustainability Assessment
GSOE9143 Sustainable Electrical Energy Technology Assessment
SOLA5056 Sustainable Energy in Developing Countries
GSOE9997 Engineering Work Related Learning for Postgraduates

Notes:

Each course worth 6 units of credit (6 uoc).

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Courses exemption: Students may apply for some courses exemptions. Students with a four year honours degree (for example in Electrical Engineering) may obtain a maximum of 48 UOC of exemptions.

Postgraduate by coursework program guideline – School of Electrical Engineering & Telecommunications

Master of Engineering Science (2 years)

Program code: 8338

Specialisation: ELECOS8338 (Satellite Systems Eng.)

Students choose		UOC
Disciplinary Courses	5 from List A	30
Advance Disciplinary	5 from List B	30
Project Report A *	Elec9768	12
Project Report B **	Elec9769	12
Research-related	Gsoe9010 or 9011 or 9220	6
ETM course	1 from List C	6
Total UOC		96

Graduate Diploma of Engineering Science (1 year)

Program code: 5341

Specialisation: No Graduate Diploma in Satellite Sys.

Not available in 5341		

*The Project Report A must be taken after completion of 48 UOC.

**The Project Report B must be taken immediately after Project Report A.

List A - Disciplinary Courses:

Aero9500 Satellite Systems (*core course*)
 Elec9762 Space Mission Development (*core course*)
 Zeit8012 Space Systems Engineering (*core course*)
 Elec9765 Space Law and Radio Regulations (*core course*)
 Aero4410 Advance Aerospace Structures & Vibrations
 Gmat9205 Fundamentals of Geo-Positioning
 Tele4652 Mobile & Satellite Communications Systems

List B – Advance Disciplinary Courses:

Elec9764 The Ground Segment & Space o (*core course*)
 Aero9610 The Space Segment (*core course*)
 Zeit8013 Space Applicatins 1 (*core course*)
 Gmat9765 Satellite Applications 2 (*core course*)
 Elec9722 Digital Image Processing
 GEOS9012 Remote Sensing Applications
 Elec9725 Satellite Navigation
 Elec9741 Electrical Engineering Data Science
 Zeit8230 Requirements Engineering

List C – Engineering Technical Management (ETM) courses: (no more than 24uoc of ETM courses to be taken)

GSOE9210 Engineering Decision Structures
 GSOE9830 Engineering Economics OR CVEN9701 Engineering Economics
 and Financial Management OR CEIC8204 Topics in Business Management in Chemical Engineering
 GSOE9712 Engineering Statistics and Experimental Design
 CVEN9888 Environmental Management
 GSOE9510 Ethics & Leadership in Engineering
 MANF9400 Industrial Management
 GSOE9445 Entrepreneurial Engineering
 MATH5846 Introduction to Probability and Stochastic Processes
 GSOE9340 Life Cycle Engineering OR SOLA9015 Life Cycle Assessment
 GSOE9017 Managing Energy Efficiency OR GSOE9121 Operational Energy Efficiency
 MATH3156 Optimization
 COMP9021 Principles of Programming
 MANF9472 Production Planning and Control

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GSOE9820 Project Management OR CVEN9731 Project Management Framework
GSOE9810 Quality in Engineering
SOLA9103 RE System Modelling & Analysis
MANF6860 Strategic Manufacturing Management
SOLA9004 Sustainable and Renewable Energy
CVEN9892 Sustainability Assessment
GSOE9143 Sustainable Electrical Energy Technology Assessment
SOLA5056 Sustainable Energy in Developing Countries
GSOE9997 Engineering Work Related Learning for Postgraduates

Notes:

Each course worth 6 units of credit (6 uoc).

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