School of Electrical Engineering and 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	**ELECBS8338 and ELECQS5341**
Energy Systems	**ELECIS8338 and ELECRS5341**
Systems and Control	**ELECPS8338 only**
Telecommunications	**TELEBS8338 and TELECS5341**
Satellite Systems	**ELECOS8338 only**

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Updated on 12 November 2019

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
Research project A	Elec9771	6
Research project 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

List A - Disciplinary Courses:

Elec4601 Digital & Embedded System 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 and Design
Elec4631 Continue-Time Control Systems Design
Elec4632 Computer Control Systems
Elec4633 Real-Time Engineering
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:

Elec4617 Power System Protection
Gsoe9141 Smart Grids and Networks
Gsoe9142 Energy Efficient Lighting & Equipment
Elec9701 Mixed Signal Microelectronic Design
Elec9702 Radio Frequency Integrated Circuits
Elec9703 microsystems Design and Technology
Elec9704 VLSI Technology
Elec9705 Quantum Devices (= elec3705 Quantum Engineering)
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
Elec9721 Digital Signal Processing Theory
Elec9722 Digital Image Processing
Elec9723 Speech Processing
Elec9725 Satellite Navigation
Elec9731 Robust and Linear Control Systems
Elec9732 Analysis and Design of Non-linear
Elec9733 Real Computing and Control
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

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: ELECIS8338 (Energy Systems)

Students choose		UOC
Disciplinary Courses	4 from List A	24
Advance Disciplinary	4 from List B	24
Research project A	Elec9771	6
Research project 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

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
Phtn4661 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
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

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:

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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: ELECPS8338 (Systems & Control)

Students choose		UOC
Disciplinary Courses	4 from List A	24
Advance Disciplinary	4 from List B	24
Research project A	Elec9771	6
Research project 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: ELECTS5341 (Systems & Control)

Not Available in 5341		UOC
Please note this	Students should not	
ELECTS5341	Enrol in this diploma	
Specialisation is	Plan.	
Inactive at the		
Moment.		

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
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

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
Research project A	Elec9771	6
Research project 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

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
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

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:

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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
Research project A	Elec9768	12
Research project 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		

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
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
GSOE9360 Professional Discourse in Engineering
GSOE9820 Project Management OR CVEN9731 Project Management Framework

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SOLA5056 Sustainable Energy in Developing Countries

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:

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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.