

**BE in Electrical Engineering/Master of Engineering (Program code: 3731 Plan code: ELECE13731)**

Duration: 5 years - Total 240uoc are required to the completion of this integrated degree program.

Course (each 6uoc)	Course Name	Pre-requisite course passed	
<b>Year 1/Session 1</b>			
Math1141	Higher Maths 1A		
Phys1131	Higher Physics 1A		
Elec2141	Digital Circuit Design		
Elec1112 or 1111	Electrical Circuits		
<b>Year 1/Session 2</b>			
Math1241	Higher Maths 1B	math1141	
Phys1231	Higher Physics 1B	Phys1131	
Comp1917	Computing 1		
Engg1000	Introduction to Eng Design & Innovation		
<b>Year 2/Session 1</b>			
Math2069	Maths 2A	Math1231	
Elec2117	Electrical System Design Project	(Elec1112 or Elec1111) & Elec2141 & (Comp1911 or Comp1921 or Comp1511)	
Elec2134	Circuits and Signals	Elec1112 or Elec1111	
GE course or Minor	6uoc of GE or Minor(Broadening Discipline)		
<b>Year 2/Session 2</b>			
Math2099	Maths2B	Math1231 or Math1241	
Elec2142	Embedded Systems Design	(Elec2141&Comp1921) or Com1917	
Elec2133	Analogue Electronics	Elec2134	
Minor	6uoc from Minor (Broadening Discipline)		
<b>Year 3/Session 1</b>			
Elec3115	Electromagnetic Engineering	Phys1231 and Math2069	
Minor	6uoc from Minor stream		
Elec3104	Digital Signal Process	Elec2134	
Minor	6uoc from Minor (Broadening Discipline)		
<b>Year 3/Session 2</b>			
Elec3105	Electrical Energy	Elec3115 and Elec2134	
Elec3114	Control Systems	Elec2134	
Elec3117	Electrical Engineering Design	Elec2133	
L3 elective	Choose from L3 elective list		
<b>Year 4/Session 1</b>			
Elec4120	Thesis A	Elec3117 and 120uoc passed	
Elec4123	Electrical Design Proficiency	Passed all L3 core courses	
L4 elective	6uoc from L4 elective list	pre-requisite shown in L4 elective list	
L4 elective	6uoc from L4 elective list	pre-requisite shown in L4 elective list	
<b>Year 4/Session 2</b>			
Elec4121	Thesis B	Elec4120	
Elec4122	Strategic Leadership and Ethics	Passed 120uoc	
L4 elective	6uoc from L4 elective list	pre-requisite shown in L4 elective list	
Minor	6uoc from Minor (Broadening Discipline)		
<b>Year 5/Session 1</b>			
Elec9120	ME Project A		
Gsoe9xxx	6uoc from Technical Management lists		
L5 Elective	6uoc from L5 elective list		

L5 Elective	6uoc from L5 elective list		
<b>Year 5/Session 2</b>			
Elec9121	ME Project B		
Minor	6uoc from Minor (Broadening Discipline)		
L5 Elective	6uoc from L5 elective list		
L5 Elective	6uoc from L5 elective list		

### ***L3 elective courses list***

Elec3106	Electronics	Pre-requisite: Elec2133 & Elec2141
Elec3111	Distributed Energy Generation	Pre-requisite: Elec2134
Elec3145	Real Time Instrumentation	Pre-requisite: Comp1911 & Elec2134
Elec2146	Engineering Modelling and Simulation	Pre-requisite: Comp1911 & Elec2134
Comp2041	Software Construction	Pre-requisite: Comp1921 or Comp1927
Tele3118	Network Technologies	Pre-requisite: Elec2142
Tele3113	Analogue and Digital Communications	Pre-requisite: Elec2134
Tele3119	Trusted Networks	Pre-requisite: Tele3118
Math3411	Information, Codes and Ciphers	
Math3101	Computational Mathematics	Pre-requisite: Math2069 & Math2099
Math3121	Mathematical Methods and Partial Differential Equations	Pre-requisite: Math2069 & Math2099
Math3161	Optimization	Pre-requisite: Math2069 & Math2099
Math3201	Dynamical Systems and Chaos	Pre-requisite: Math2069 & Math2099
Math3261	Fluids, Oceans and Climate	Pre-requisite: Math2069 & Math2099
Comp3211	Computer Architecture	Pre-requisite: Comp2021 & Comp3222
Comp3231	Operating Systems	Pre-requisite: Comp1921 or Comp1927 & Comp2121 or Elec2142.

### ***L4 elective courses list***

	<b><i>Microelectronics</i></b>	
Elec4601	Digital and Embedded Systems	Pre-requisite: Elec3106
Elec4602	Microelectronics Design and Technology	Pre-requisite: Elec3106
Elec4603	Solid-State Electronics	Pre-requisite: Elec2133
Elec4604	RF Electronics	Pre-requisite: Elec3106
	<b><i>Energy Systems</i></b>	
Elec4611	Power System Equipment	Pre-requisite: Elec3105
Elec4612	Power System Analysis	Pre-requisite: Elec3105
Elec4613	Electrical Drive Systems	Pre-requisite: Elec3105
Elec4614	Power Electronics	Pre-requisite: Elec2133
Elec4617	Power System Protection	Pre-requisite: Elec4612
	<b><i>Signal Processing</i></b>	
Elec4621	Advanced Digital Signal Processing	Pre-requisite: Elec3104
Elec4622	Multimedia Signal Processing	Pre-requisite: Elec3104
Elec4623	Biomedical Instrumentation, Measurement and Design	Pre-requisite: Elec3104

	<b><i>Systems and Control</i></b>	
Elec4631	Continuous-Time Control System Design	Pre-requisite: Elec3114
Elec4632	Computer Control Systems	Pre-requisite: Elec3114
Elec4633	Real Time Engineering	Pre-requisite: Elec3114
	<b><i>Data and Mobile Communications</i></b>	
Tele4651	Wireless Communication Technologies	Pre-requisite: Tele3113
Tele4652	Mobile and Satellite Communication Systems	Pre-requisite: Tele3113
Tele4653	Digital Modulation and Coding	Pre-requisite: Tele3113
Tele4642	Network Performance	Pre-requisite: Tele3118
	<b><i>Photonics</i></b>	
Phtn4661	Optical Circuits and Fibres	Pre-requisite: Elec3115
Phtn4662	Photonic Networks	Pre-requisite: Tele3113
	<b><i>Business Administration</i></b>	
Elec4445	Entrepreneurial Engineering	Pre-requisite: 132 uoc

### ***L5 Elective Courses List***

Elec9701 Mixed Signal Microelectronic Design  
 Elec9702 Radio Frequency Integrated Circuits  
 Elec9703 Microsystems Design and Technology  
 Elec9704 VLSI Technology  
 Elec9705 Quantum Devices  
 Elec9711 Power Electronics for Renewable & Distributed Generation  
 Elec9712 High Voltage Systems  
 Elec9713 Industrial and Commercial Power  
 Elec9714 Electricity Industry Planning  
 Elec9715 Electricity Industry Operation  
 Elec9716 Electrical Safety  
 Elec9721 Digital Signal Processing Theory  
 Elec9722 Digital Image Processing  
 Elec9723 Speech Processing  
 Elec9724 Audio and Electroacoustics  
 Elec9725 Satellite Navigation  
 Elec9731 Robust and Linear Control Systems  
 Elec9732 Analysis and Design of Non-linear  
 Elec9733 Real Computing and Control  
 Elec9734 Biomedical Instrumentation & Informatics  
 Tele9751 Switching Systems Architecture  
 Tele9752 Network Operations & Control  
 Tele9753 Advanced Wireless Communications  
 Tele9754 Coding & Information Theory  
 Tele9755 Microwave Circuits, Theory & Techniques  
 Tele9756 Advanced Networks  
 Tele9757 Quantum Communications  
 Gsoe9758 Network Systems Architecture

### ***Technical Management courses list***

Gsoe9420 Project Management  
 Gsoe9747 Successful Innovation  
 Gsoe9820 Project Management

**Notes:**

For further information regarding the 3731 program rules, please view:

<http://www.handbook.unsw.edu.au/undergraduate/programs/2015/3731.html>

Regarding Minor streams and minor courses (Broadening Discipline) selection rules, please view:

<https://www.engineering.unsw.edu.au/electrical-engineering/be-me-program>

All students are required to undertake 60 full days of mandatory industrial training. Each student is personally responsible for arranging and completing the compulsory industrial training. Please view the details information in this site:

<https://www.engineering.unsw.edu.au/electrical-engineering/industrial-training-0>

Core courses may not be substituted with other courses.

L4 Electives may be substituted with postgraduate courses (Elec97xx or Tele97xx) subject to approval from our Director of Academic Studies. Students' academic performance and supporting reasons to enroll a postgraduate course are taken into consideration. Substitution form has to be filled out to apply for it.

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>