BE (Honours) in Electrical Engineering / Master of Engineering

(Program code: 3736 Plan code: ELECBH3736)

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

This is a recommended study plan.

Course Code (each 6uoc)	Course Name	Terms offered	Pre-requisite course required to pass
Year 1/ Term 1			
MATH1131 or MATH1141	Maths1A or Higher Maths1A	T1, T2, T3 T1, T3	
ELEC1111	Electrical Circuit Fundamentals	T1, T3	
ELEC2141	Digital Circuit Design	T1	co-req ELEC1111
Year 1/ Term 2			
MATH1231 or MATH1241	Maths1B or Higher Maths1B	T1, T2, T3 T1, T2	MATH1131 or MATH1141
COMP1511	Introduction to Programming	T2, T3	
PHYS1131	Higher Physics 1A	T1, T2, T3	
Year 1/ Term 3			
PHYS1231	Higher Physics 1B	T1, T3	PHYS1131
DESN1000	Introduction to Engineering Design & Innovation	T1, T3	
MATH2069	Maths 2A	T3	MATH1231
Year 2/ Term 1			
ELEC3115	Electromagnetic Engineering	T1	PHYS1231 and MATH2069
ELEC2134	Circuits and Signals	T1, T3	ELEC1111
GENxxxxx or Minor course	6uoc of General Education course	T1, T2, T3	
Year 2/ Term 2			
ELEC2133	Analogue Electronics	T2	ELEC2134
DESN2000	Engineering Design and Professional Practice	T2	ENGG1000 & ELEC2141 & (COMP1511 or COMP1521)
MATH2099	Maths 2B	T2	MATH1231 or MATH1241
Year 2/ Term 3			
ELEC3104	Digital Signal Processing	T3	ELEC2134
ELEC2117	Electrical System Design	T3	ELEC1111 & ELEC2141 & COMP1511
GENxxxxx or Minor course	6uoc of General Education course	T1, T2, T3	
Year 3/ Term 1			
L3 elective	choose from L3 elective list		shown in L3 elective list
Minor course			
Minor course			
Year 3/ Term 2			

ELEC3105	Electrical Energy	T2	ELEC3115 and ELEC2134
ELEC3114	Control Systems	T2	ELEC2134 and MATH2099
ELEC3117	Electrical Engineering Design	T2	ELEC2133
Year 3/ Term 3			
Internship	60 days of work experience outside of UNSW – one term free from classes or International Exchange	Any term	at least finished two years of undergrad studies
Year 4/ Term 1			
ELEC4951	Thesis A (4uoc)	T1, T2, T3	126 uoc & completion of 3rd year's core courses
ELEC4122	Strategic Leadership and Ethics	T1	Passed 120 uoc
ELEC4123	Electrical Design Proficiency	T1, T3	Passed all L3 core courses
Year 4/ Term 2			
ELEC4952	Thesis B (4uoc)	T1, T2, T3	ELEC4951
L4 elective	choose from L4 elective list		shown in L4 elective list
L4 elective	choose from L4 elective list		shown in L4 elective list
Year 4/ Term 3			
ELEC4953	Thesis C (4uoc)	T1, T2, T3	ELEC4951 & co-req: ELEC4952
L4 elective	choose from L4 elective list		shown in L4 elective list
Minor course			
Year 5/Term 1			
GSOE9xxx	6uoc from Technical Management list		
L5 elective	choose from L5 elective list		shown in L5 elective list
ELEC9451	ME Project A (4uoc)	T1, T2, T3	
Year 5/ Term 2			
ELEC9452	ME Project B (4uoc)	T1, T2, T3	ELEC9451
L5 elective	choose from L5 elective list		shown in L5 elective list
L5 elective	choose from L5 elective list		shown in L5 elective list
Year 5/Term 3			
ELEC9453	ME Project C (4uoc)	T1, T2, T3	ELEC9451 & co-req: ELEC9452
L5 elective	choose from L5 elective list		shown in L5 elective list
Minor course			

L3 Elective Courses list

ELEC3146	Engineering Modelling and Simulation	T3	COMP1511 & ELEC2134
ELEC3106	Electronics	T1	ELEC2133 & ELEC2141
ELEC3111	Distributed Energy Generation	T3	ELEC2134
ELEC3145	Real Time Instrumentation	T2	COMP1511 & ELEC2141
ELEC3705	Fundamentals of Quantum Engineering	T3	MATH2099 & PHYS1231

TELE3113	Analogue & Digital Communications	T1	ELEC2134
TELE3118	Network Technologies	T3	DESN2000 or ELEC2142
TELE3119	Trusted Networks	T3	TELE3118
MATH3411	Information, Codes and Ciphers	T3	MATH1231 or MATH1241
MATH3101	Computational Mathematics	T2	MATH2069(CR) & MATH2099
MATH3121	Mathematical Methods and Partial Differential Equations	T1	MATH2069(DN) & MATH2099
MATH3161	Optimization	T1	MATH2069(CR) & MATH2099
MATH3201	Dynamical Systems and Chaos	T3	MATH2069(CR) & MATH2099
MATH3261	Fluids, Oceans and Climate	T3	MATH2069(DN) & MATH2099
COMP2041	Software Construction	T2	COMP1511
COMP3211	Computer Architecture	T1	ELEC2141 or COMP3222
COMP3231	Operating Systems	T1	(COMP1521 or DESN2000 or ELEC2142) & COMP2521
ENGG3001	Fundamentals of Humanitarian Engineering	T2	96uoc
ENGG3060	Rehabilitation and Assistive Technology	T2, T3	18uoc
ENGG2600	Engineering Vertically Integrated Project	T1, T2, T3	ENGG1000 & 42uoc
ENGG3600	Engineering Vertically Integrated Project	T1, T2, T3	ENGG1000 & 90uoc

L4 Elective Courses List

EET Disciplinary Courses: Student must take at least 12uoc of EET Disciplinary courses			
	Microelectronics		
ELEC4601	Digital and Embedded Systems	T2	ELEC3106
ELEC4602	Microelectronics Design and Technology	T3 every 2 yrs	ELEC3106
ELEC4603	Solid-State Electronics	T3	ELEC2133
ELEC4604	RF Circuit Design - Theory & Applications	T1	ELEC3106
ELEC4605	Quantum Devices and Computers	T2	ELEC3705
	Energy Systems		
ELEC4611	Power System Equipment	T1	ELEC3105
ELEC4612	Power System Analysis	T3	ELEC3105
ELEC4613	Electrical Drive Systems	T2	ELEC3105
ELEC4614	Power Electronics	T1	ELEC2133
ELEC4617	Power System Protection	T2	ELEC4612
	Signal Processing		
ELEC4621	Advanced Digital Signal Processing	T1	ELEC3104
ELEC4622	Multimedia Signal Processing	T2	ELEC3104
ELEC4623	Biomedical Instrumentation, Measurement and Design	T3	ELEC3104

	Systems and Control		
ELEC4631	Continuous-Time Control System Design	T2	ELEC3114
ELEC4632	Computer Control Systems	T3	ELEC3114
ELEC4633	Real Time Engineering	T1	ELEC3114
	Data and Mobile Communications		
TELE4642	Network Performance	T2	TELE3118
TELE4651	Wireless Communication Technologies	T3	TELE3113
TELE4652	Mobile and Satellite Communication Systems	T2	TELE3113
TELE4653	Digital Modulation and Coding	T1	TELE3113
	Photonics		
PHTN4661	Optical Circuits and Fibres	T1	ELEC3115
PHTN4662	Photonic Networks	T2	ELEC3115 or TELE3113
ELEC4445	Entrepreneurial Engineering	T2, T3	Pre-requisite: 132 uoc
L4 Engineering electives (but not EET Disciplinary)			
ENGG4102	Humanitarian Engineering Project	T3	ENGG3001 and ARTS2755
ENGG4600	Engineering Vertically Integrated Project	T1, T2, T3	ENGG1000 & 136uoc

L5 Elective Courses List

	Nano/Micro Systems		
ELEC9701	Mixed Signal Microelectronic Design		
ELEC9702	Radio Frequency Integrated Circuits		
ELEC9703	Microsystems Design and Technology	T1	
ELEC9704	VLSI Technology		
	Energy Systems		
ELEC9711	Power Electronics for Renewable & Distributed Generation	T3	
ELEC9712	High Voltage Systems	T3	
ELEC9713	Industrial and Commercial Power Systems	T1	
ELEC9714	Electricity Industry Planning and Economics	T2	
ELEC9715	Electricity Industry Operation	T1	
ELEC9716	Electrical Safety	T2	
ELEC9719	Real-time Digital Simulations	T1,T2,T3	
	Signal Processing		
ELEC9721	Digital Signal Processing Theory	T2	
ELEC9723	Speech Processing		
ELEC9725	Satellite Navigation: Systems, Signals & Receivers	T1	
ELEC9741	Electrical Engineering Data Science	T2	
	Control Systems		
ELEC9731	Robust and Linear Control Systems	T1	
ELEC9732	Analysis and Design of Non-linear	T3	
ELEC9733	Real Computing and Control		

	Data and Mobile Communications		
TELE9751	Switching Systems Architecture	T2	
TELE9752	Network Operations & Control	T2	
TELE9753	Advanced Wireless Communications	T1	
TELE9754	Coding & Information Theory	T3	
TELE9755	Microwave Circuits, Theory & Techniques	T2	
TELE9756	Advanced Networks	T3	
TELE9757	Quantum Communications	T1	
GSOE9758	Network Systems Architecture	T1	
	Space Systems		
ELEC9762	Space Mission Development	T1	
ELEC9764	The Ground Segment and Space Operations	T1	
ELEC9765	Space Law and Radio Regulations	T3	
	Engineering and Technical Management		
GSOE9210	Engineering Decision Structures	T3	
GSOE9445	Entrepreneurial Engineering	T3	exclude ELEC4445
GSOE9820	Engineering Project Management	T1, T2	
GSOE9830	Economic Decision Analysis in Engineering	T2, T3	

Notes:

For further information regarding the 3736 program rules, please view:
https://www.handbook.unsw.edu.au/undergraduate/programs/2023/3736?year=2023

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

https://www.engineering.unsw.edu.au/electrical-engineering/resources/shared-resources/timetables