Master of Engineering (Telecommunications)

Why study telecommunications engineering?

Modern communication systems including mobile telephony systems, computer networks and the Internet depend on foundations in telecommunication engineering. Telecommunications forms the nuts and bolts of the engine which drives ubiquitous communication worldwide. Roles in this area are supported largely by professional engineers and they are in high demand. Melbourne Institute of Technology has therefore designed a skills oriented course to address the needs of industry and also for students who want to progress beyond their Bachelor or Master of Engineering in telecommunication courses.

Over the last ten years, a number of new social and streaming media have been developed and with them a greater need for fast and reliable communication infrastructure. A number of new digital services have also been combined into a single, seamless all-purpose telecommunications and network architecture platform in third generation (3G), fourth generation (4G) mobile communication networks and the emerging fifth generation (5G) mobile networks and Internet of things.

These new services are based on fast, reliable wired and wireless communications technology. Hence, as technology becomes increasingly powerful, personalized, inexpensive and accessible, telecommunications and networking are becoming some of the fastest growing professions today. The foundation course which supports these technologies is the unique focus of our program. The course is a great foundation also for future technologies such as robotics, mechatronics, home automation, Internet of things and mobile networks.

The engineering course at Melbourne Institute of Technology is designed based on three pillars: strong theoretical foundations, practical skills and soft skills. The course builds practical skills based on strong theoretical foundations in telecommunication with both of them being enhanced further with soft skills to create a rounded engineer ready to practice. The course offers a personalised learning environment, with smaller classes delivered by highly qualified and helpful staff. Students get hands-on practical training through practice-based learning approach and the mandatory industry internship program. It is taught by lecturers with relevant industry experience and some still in industry. It equips students to plan, design, implement and manage telecommunication technology and infrastructure. The course explores the latest wired and wireless network technologies and broadband wireless networks. This means students will learn about these state-of-the-art technologies, their implementation and management in an applied environment. In addition, electives in IT, security and information systems make students work-ready graduates with solid technical knowledge and able to apply these skills at work.

In the design of the course, Engineers Australia generic attributes and stage 1 competencies are mapped into the units comprising the course structure. At each stage of study, they are presented and tested in lectures, assignments, tests, laboratories and examinations.

Master of Engineering (Telecommunications) – MEng(Tel)

Mapping of Core Units to the Engineers Australia (EA) Stage 1 Competency Standard for Professional Engineers

Note that the purpose of the table is to demonstrate how the EA stage 1 competencies are addressed in the core units of the course. The table is not intended as a comprehensive mapping of every unit's every topic and assessment to competency standards. Further information on topics is available in the Unit Description, the teaching material and assessment tasks for each unit posted on the Moodle Learning Management System.

Note: The letter 'x' means that the topic is taught (in lectures), assessed (in assessments) or practiced (in laboratories). The level of achievement of competencies is given in the respective Unit Descriptions using the CDIO (Conceive, Design, Implement, Operate) scale.

	1. Knowledge and skills base						**2. Engineering Application Ability**				**3. Professional and Personal Attributes**					
Units	1.1. Comprehensive, theory based understanding	1.2. Conceptual understanding	1.3. In-depth understanding	1.4. Discernment	1.5. Knowledge	1.6. Understanding	2.1. Application of established engineering methods	2.2. Fluent application of engineering techniques	2.3. Application of systematic engineering synthesis	2.4. Application of systematic approaches	3.1. Ethical conduct and professional accountability.	3.2. Effective oral and written communication in professional	3.3. Creative, innovative and pro-active demeanour	3.4. Professional use and management of information	3.5. Orderly management of self, and professional	3.6. Effective team membership and team leadership
MN502 Overview of Network Security																
Lecture	x	x	x	x	x	x	x	x	x							
Assignments	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x
Laboratories	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x
MN601 Project Management																
Lecture	x		x		x	x				x	x					
Assignments	x	x		x	x	x	x	x		x		x		x		x
Laboratories	x	x		x		x	x	x		x		x				
ME502 Digital Communication																
Lecture	x	x	x		x			x								
Assignments	x	x	x	x	x		x	x			x	x				
Laboratories		x	x		x		x	x	x		x	x	x			
ME503 Telecommunication System Engineering																
Lecture	x	x	x		x	x	x		x	x						

Assignments	x	x	x	x	x		x	x	x		x	x		x		
Laboratories	x	x	x	x	x		x	x	x		x	x		x	x	x
ME504 Advanced Networking																
Lecture	x	x	x		x		x		x	x						
Assignments	x	x	x	x	x		x	x	x			x		x		x
Laboratories	x	x	x	x	x	x	x	x	x			x		x		x
ME601 Telecommunication Modelling and Simulation																
Lecture	x	x	x	x		x				x						
Assignments	x	x	x	x	x	x	x	x	x	x		x	x	x	x	
Laboratories	x	x	x	x	x	x		x	x	x		x		x	x	
ME602 Mobile and Satellite Communication Systems																
Lecture	x	x	x	x	x				x		x		x			
Assignments	x	x	x	x	x		x	x			x	x		x	x	
Laboratories	x	x	x	x	x	x		x	x	x	x	x		x	x	
ME603 Project 1																
Assignments	x	x					x	x	x		x	x	x	x		
Laboratories	x		x	x	x	x	x	x	x	x		x	x	x	x	x
ME604 Project 2																
Assignments	x	x	x				x	x	x	x	x	x	x	x		
Laboratories	x	x	x	x	x	x	x	x		x	x	x		x	x	x
ME606 Digital Signal Processing																
Lecture	x	x	x													
Assignments		x	x	x			x	x	x		x	x	x	x		
Laboratories				x	x	x	x	x	x	x	x	x	x	x	x	
ME700 Digital Industry Experience																
Workshops				x		x	x						x		x	
Assignments	x	x	x		x	x	x	x			x	x	x	x	x	
Placement	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x