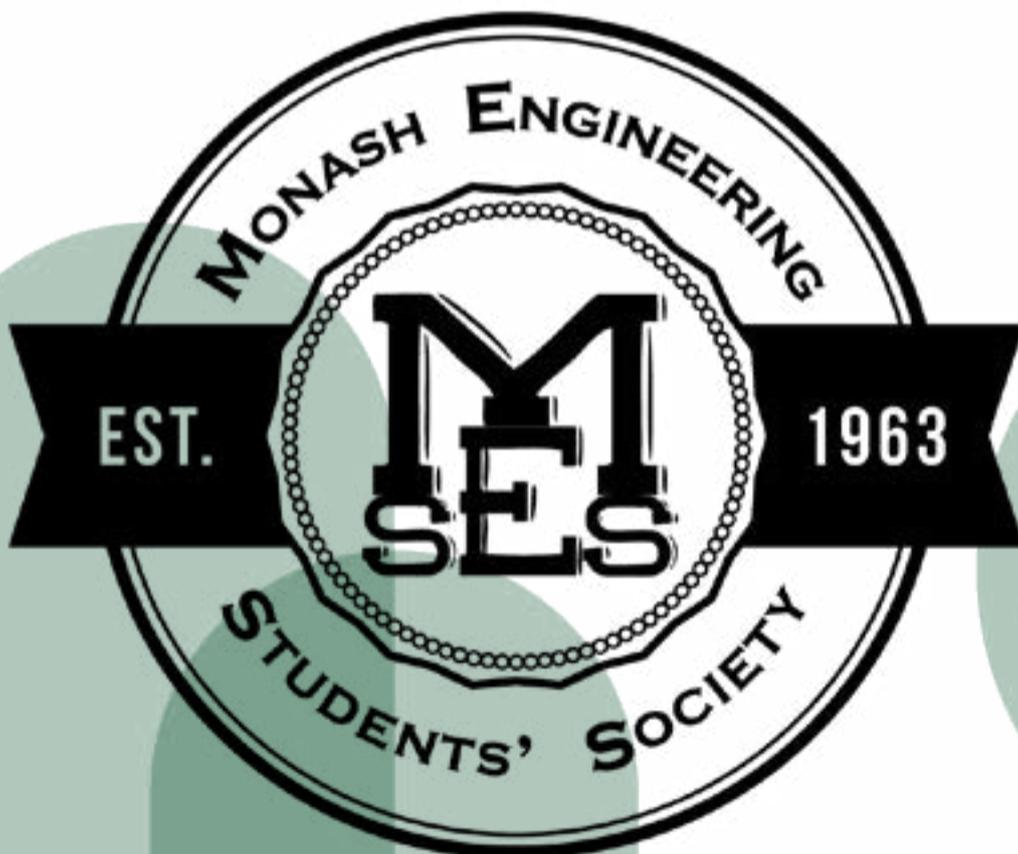# EXPLORING ENGINEERING

An overview of engineering clubs and teams, an introduction to each specialisation, and some other things to know

WHAT ARE CLUBS?

How Clubs Work at Uni

Becoming involved in clubs is one of the best ways to meet people and to explore new hobbies in uni. Clubs and societies are organisations run by committees of students, with each being built around an area of study and/or an interest area. Each of the clubs organise a wide variety of social and professional events and gatherings including camps, networking events, BBQ's, friendly competitions, conferences, and more for over 10,000 student members.

Things to Know about Clubs

The following tips will vary from club to club or in specific circumstances and should be seen as a general overview.

- You don't have to have purchased a membership to a club to attend their events or meetings
- Club memberships usually cost between $5 and $15, and can be purchased from the [MSA Clubs and Societies website](#)
- Club memberships often provide ticket discounts, access to exclusive events, voting rights for a club's committee, and the ability to run for a club's committee
- Most academic-based clubs/societies will use a Facebook page as their main way of advertising events or sharing information, however smaller, interest or hobby-based clubs will often have a more tight-knit community, and may use a discord group or a Facebook messenger chat to communicate with members

The Monash Student Association

The Monash Student Association (MSA) is the largest student representative body at Monash, and facilitates the running of all clubs and societies. It is also recognised as the means of communication between students and academic authorities at Monash, acting as a student advocacy group. It runs events, funds student publications, and provides academic and other support to students.

MSA+ can be purchased for $10, and provides the following benefits:
- Reduces the price of all other club memberships by $5 (so if you join two or more clubs you get your money back)
- Reduces the price of MSA events (usually by $5)
- Provides discounts to on-campus retailers

You can purchase MSA+ here.

ENGINEERING CLUBS & SOCIETIES

Monash Engineering Student Society (MESS)

MESS is both Monash University's largest engineering-based club and largest student club, based on membership numbers. MESS has four different portfolios: academic, industry, social, and W&E (wellbeing and equity).

Our academic portfolio aims to support engineering students through their studies. FaME is a major part of the academic portfolio, connecting you with fellow engineering students to support integration into university. The academic team also runs workshops and seminars to help you with topics such as CPD and choosing your specialisation.

Our industry portfolio allows you to network with and learn about firms operating in engineering and engineering-adjacent sectors. Events, such as Beers with Engineers, allow you to practice networking with major industry partners, and resources, such as the careers guide, help you gain a better idea of working in industry after you finish your degree.

Our social portfolio runs all the events that MESS is most famous for. From our first year camp and our award winning cocktail night, to regular BBQs, our social team has many opportunities for you to make new friends and create amazing memories that uni students are always talking about.

Our W&E portfolio supports all engineering students at Monash in areas of mental and academic wellbeing. The W&E team, and everyone else at MESS, is always striving to support all student groups, including both onshore and offshore international students, disability-affected students, female students, members of the LGBTQIA+ community, and more.

Join at [Monash Engineering Student Society (MESS)](#)

Female Engineers at Monash (FEM)

Female Engineers at Monash (FEM) is a student-run society that aims to empower and support woman-identifying students. The club holds a variety of industry, social, and outreach events that provide personal and professional enrichment opportunities for our members while nurturing an environment in which gender diversity may thrive.

In 2022, FEM is keen to deliver a mixture of new events and timeless classics for all their members. Everyone is welcome to attend FEM's industry nights (which always have a fun twist to make networking that little bit less daunting!), social gatherings, and technical workshops all year round. It is also FEM's 10th Birthday this year so they hope you will join them at their events throughout the year to celebrate this amazing milestone! FEM is reachable on Facebook, Instagram, LinkedIn or via email and they are happy to answer your questions anytime!

Coming to visit FEM's stall during O-Week is a great way to find out more about their values & mission,

upcoming events and most importantly – how to become a FEMber or better yet, a committee member!

Join at [Female Engineers at Monash (FEM)](#)

Queers in STEM (GLEAM)
GLEAM is a student group for Queer+ identifying science, technology, engineering and maths students at Monash University. We offer opportunities for younger Queer+ students to create nurturing connections within the wider Queer+ community at Monash. We emphasise lasting friendships between students across year levels and industry connections with companies who are LGBTIQ+ friendly.

For students in earlier years, we focus on building relationships with older GLEAM members. This gives students new to university life a stable, positive experience. Who better to study with than someone who has already completed the subject? GLEAM is a safe space. (Being a member of GLEAM will not out you to your family should you join!)

Join at [Queers in STEM (GLEAM)](#)

Engineers Without Borders (EWB)
Engineers Without Borders (EWB) Monash is a local chapter of EWB Australia, which provides students with social events to meet and interact with like-minded individuals. EWB organises and runs a variety of engaging and diverse workshops and events to help members learn more about sustainable

and appropriate technology engineering, with the opportunity to put your new knowledge to the test in EWB's annual Ideathon competition.

If you are interested in meeting like-minded individuals, taking part in meaningful volunteering experiences and developing a more culturally appropriate mindset to compliment your career aspirations, EWB Monash is the club for you!

Join at [Engineers Without Borders (EWB)](#)

Specialisation Clubs

- [Association of civil engineering students (ACES)](#)
- [Materials Engineering Society (MATES)](#)
- [Mechatronics Engineering Clayton Club (MECC)](#)
- [Monash Aerospace and Mechanical Engineering Club (MAMEC)](#)
- [Monash Engineering and Pharmaceutical Science Society (MEPSS)](#)
- [Monash Environmental Engineering Society (MEES)](#)
- [Resources Engineering Student Society (RESS)](#)
- [Society of Monash Electrical Engineers (SMEE)](#)
- [Society of Monash University Chemical Engineers (SMUCE)](#)

STUDENT TEAMS

Student teams differ significantly from clubs and societies. Student teams are multidisciplinary teams that work together to achieve a goal, such as creating the highest flying rocket (Monash High-Powered Rocketry) or designing and competing with Formula-style cars (Monash Motorsport).

To join a student team, you must apply for an open position, which can be found on their website or social media page. Usually, teams will recruit members at a single point in a year. While it is possible to join a team as a first year, teams often recruit engineering students who have begun to specialise, so keep an eye on any teams you want to join but know that you may have to wait until you are further into your degree to join.

Student teams also require a time commitment each week, which can range from 5 hours to upwards of 20 hours a week. Many students who are heavily involved in student teams underload (taking only three units per semester) so that they can work in their team.

Student teams provide amazing opportunities to practically apply engineering skills you are learning in your units and give great experiences to add to your resume when applying for internships or graduate roles. The Monash student teams webpage is [here](#).

Here is a list of the student teams currently running at Monash:

- [Monash Brewlab](#)
- [Monash Carbon Capture and Conversion](#)
- [Monash Connected Autonomous Vehicle](#)
- [Monash DeepNeuron](#)

- [Monash Forge](#)
- [Monash Fuel From Waste](#)
- [Monash High-Powered Rocketry](#)
- [Monash Human Power](#)
- [Monash Motorsport](#)
- [Monash Nova Rover](#)
- [Monash Solar Decathlon Team](#)
- [Monash Solar Water Team](#)
- [Monash Uncrewed Aerial Systems](#)
- [Monash Young MedTech Innovators](#)
- [Precious Plastic Monash](#)
- [Robogals Monash](#)

SPECIALISATIONS

Choosing your engineering specialisation may seem quite daunting but you have plenty of time to consider your options. You don't need to select your specialisation until at least the end of your first year.

There are some restrictions if you are taking a double degree (check your options [here](#)). MESS also runs a specialisation fair in semester 2 where students from each stream share their experience and knowledge.

Aerospace Engineering

Aerospace engineering delves into the main aspects of flight: structure, propulsion, and design, to provide a base knowledge to apply to industry. While aerospace engineering is a relatively niche degree, it's worth getting into if you have an interest in aircraft or rocketry, as there is a lot of hands-on content and applicable knowledge! There is also a strong basis for computational methods and 3D design which can be used in other fields, particularly within the mechanical engineering industry. If you enjoy learning about how things work, specifically powered flight, aerospace is a great choice!
 — *Karina Finlayson, 4th year aerospace engineering*

Biomedical Engineering

Biomedical Engineering is a new specialisation that opens up a world of possibilities in the healthcare and medical technology sectors. The structure of the degree is like Mechatronics on the engineering side, with units from ECSE and Mechanical engineering, such as robotics, programming, circuits, and deep learning. Biomedical Engineering also provides

opportunities to learn about different aspects of biomedical science, including units in developmental biology, neuroscience, and physiology. If you are interested in shaping the future of medical aid as we know it, Biomedical Engineering is the specialisation for you.

— Hannah Tay, 2nd year biomedical engineering

Chemical Engineering

Despite what the name implies, chemical engineering is not really about chemistry! Chem eng looks at processes, and how they can be designed and improved. We rely on processes for almost everything we do, and it's important that these processes are efficient and sustainable. Chemical engineering is a challenge, but if you are passionate about energy and sustainability there's no doubt this is the specialisation for you.

— Luke McVicar, 4th year chemical engineering

Civil Engineering

Civil Engineering is a very diverse specialisation than most would expect and goes into much more than the spaghetti bridges you may build in first year. Civil branches into four 'minor' specialisations which include structural engineering, traffic engineering, geomechanics/geotechnical engineering, and water engineering. Within the 3-4 years of your specialisation, you will take multiple units that relate to each of these areas, helping you to determine which area most suits you. Civil is the perfect specialisation for those who are keen to assist the change of the built world around them for the better.

— Courtney Papa, 5th year civil engineering

Electrical and Computer Systems Engineering

Electrical and Computer Systems Engineering (ECSE) is an exciting specialisation that has a bit of everything. ECSE is not just about resistors, LEDs and breadboards. In second year alone you will improve your understanding in a range of areas including signal processing, probability models, computer organisation and programming. Whether you are interested in Robotics and AI, Wireless Telecommunications or Smart Power Systems, research in ECSE spans a wide variety of disciplines. If you are looking for a challenge and enjoy units like ENG1013, then ECSE is the specialisation for you.

— *Amy Liberman, 4th year ECS engineering*

Environmental Engineering

Environmental Engineering (ENVE) is an invigorating specilisation that offers some very interesting pathways and opportunities. It is not just about planting trees and trying to evaluate what plot of land is best to plant a community garden. You will walk away with a degree providing you the skills and knowledge to design energy efficient, social impact focused buildings, land contamination assessment and remediation processes and a wider understanding of civil and chemical specialisations. After you finish your degree opportunities to work in delivering major projects, work in designing buildings, helping businesses decarbonise are just some of the pathways you can take. If you have a strong interest in applying your engineering knowledge to work in a field that can have a long lasting positive impact on the environment, ENVE is for you!

— *Max Peethamparam, 5th year ENV engineering*

Materials Engineering

Materials engineering explores the structure of materials on an atomic level and how this structure correlates to different properties. It also involves learning how to change the properties of materials through different processing techniques, as different techniques result in different atomic structures. The goal of materials engineers is not only to make new materials, but to improve upon the ones we already have by making them stronger, lighter, more functional, more sustainable and more cost-effective.

— *Billie Bennet, 3rd year materials engineering*

Mechanical Engineering

Mechanical Engineering is a broad specialisation of engineering that revolves around the design and analysis of anything that moves. This can range from working on wind turbines, cars, biotechnological devices, aircraft, water systems and computer automation just to name a few. Through your studies, you will learn about Fluid Mechanics and Aerodynamics, Thermodynamics, Mechanics of Materials, Design Processes and Control Systems, applying each of these areas of study to the analysis of different mechanical systems. Mechanical Engineering combines both the analytical side of engineering through mathematics and physics with the freedom of design and computer-aided design to produce dynamic and creative solutions to engineering problems. Whether you are interested in the development of new forms of renewable energy, the design of life-saving biomedical equipment or even wanting to travel the world as a race engineer in a Formula 1 team, Mechanical Engineering is the path for you.

— Nick Grossi, 4th year mechanical engineering

Robotics and Mechatronics Engineering

Mechatronics epitomises the idea of a "jack of all trades", giving students an opportunity to complete Mechatronics, Mechanical, and Electrical units. If you've got an interest in one or all the aforementioned areas, mechatronics is the specialisation for you.

Monash's mechatronics specialisation splits into two streams, automation and AI, however they only differ by a few units. The automation stream enables

students to understand manufacturing operations, power systems, and changing technologies through the study of areas such as dynamical systems, modelling, and control. The AI stream focuses more on electrical units and develops understanding on the underlying software and electrical systems that go into designing intelligent robots and machine learning systems.

— *An Qu, 3rd year mechatronics engineering (automation), and Maddy Armstrong, 3rd year mechatronics engineering (AI)*

Software Engineering

Software Engineering is a specialisation that's reputation tends to be misleading. It is very abstract to those that have never done anything coding related. However, there is much more than what meets the eye. In this specialisation you start by gaining a basic understanding of how to code, how machine programs work and even how to understand and read other programs. Later in the course the topics become more project based, you work together with others whilst applying your technical knowledge of things such as; web development, different algorithms and data structures and computer architecture. If you like problem solving and are an analytical thinker then Software Engineering is definitely something you should try! It may seem daunting at the beginning, but then becomes rewarding later.

— *Rachel Knowles, 4th year software engineering*

THINGS TO KNOW
Networking 101

Having technical knowledge is very important in engineering, but it may mean nothing without networking skills. Networking means to make meaningful connections with people in your industry. Most graduate jobs are actually referrals, and never announced to the public; this is why learning to make connections with employers is essential as you approach graduation.

Some important qualities that you can develop as a professional networker engineer are confidence, good communication, and good phone and email skills. The best way to acquire these types of skills is to practice from your first year, so you become a professional by the end of your degree. Attend networking events and participate in industry programs, such as hackathons, case studies, and anything else that piques your interest.

Through MESS, you can find plenty of industry events in which representatives from engineering firms will be present. They are seeking students interested in internships, but it is also an amazing opportunity for younger students to practice formal networking, without the pressure. Events include the famous Beers with Engineers, as well as Industry Night, amongst others.

You should also sign up for clubs and societies in areas you have an interest in, because they will have seminars which give you insight into industry and access to industry professionals, as well as

opportunities to practice these skills in competitions and hackathons.

FaME

Monash wants every student to feel welcome and supported right from the start. That's why every first-year student is matched with two peer mentors from the Faculty of Engineering to ease their transition to university life and help them build friendships. This program is known as Friends and Mentors in Engineering (FaME).

As a new student, you'll be grouped with other first-year students to receive support from a peer mentor. Your mentors will be experienced students who can share knowledge and answer your questions about university life. They can show you where to find programs, resources and services at Monash, so that you can have an enjoyable and successful first year.

Mentoring will take place across the semester with four main sessions:
- Welcome and connect
- You and our University
- You and your study success
- You and your assessments

Beyond this, mentors will check in and offer support at various times. Throughout the program, there will be social events and professional development opportunities for both mentors and mentees to attend. Your peer mentors will be in touch just before the beginning of O-week.

PASS

The Peer Assisted Study Sessions (PASS) program is run by Monash to help first year students study for their classes. Each session is run by a PASS Leader, who has excelled at that unit in the past. They impart useful study skills, encourage an active university life, help mentees make friendships in class, and motivate students to achieve desired results. PASS classes are an hour long each, but attendending a PASS class is equivalent to about three hours of study, considering you are able to access exam style questions, and receive personalised help for any concepts you find difficult.

Unfortunately, due to the restructuring of the first year engineering course in 2022, PASS classes will not be running for first year engineering units in semester 1 (except for ENG1001 and ENG1002, which are only accessible to repeating students). However, classes for engineering may be running in semester 2, and classes for other faculties are running in both semesters if you are taking a double degree or units from other faculties. You can check here to find a list of all units offered by PASS.

You can sign up to PASS through Allocate+. If a PASS session is fully booked on Allocate+, there is no harm in rocking up at the assigned time and place as you can usually join in.

Useful Apps and Websites

With uni comes a lot more responsibility of personal learning which can be tough. Below are some websites and apps to help you keep on track.

- [Will.io](#) – This timetable generator is a great way to maximise your time at uni and work your classes into your other commitments.
- [Lost on Campus](#) – Find your next classroom easily with this app. It's not 100% accurate, but much better than Google Maps for finding where your classes should be.
- my.monash App ([iOS](#)/[Android](#)) – Functions exactly the same as the my.monash webpage, but functions better than on your web browser.
- [Cellopark](#) – Used to pay for parking at most parking spots on campus (for $2.50 a day).
- [Todoist](#) – An app which lets you create and manage 'to do' lists. You can create tasks, set due dates and track your progress.
- [Google Calendar](#) – Using a digital calendar helps you manage your time and is also great at providing reminders for those meetings you almost forgot about. Allocate+ can also link with your Google Calendar, and so can Facebook, making it really useful to track classes and events.
- [Forest](#) – Use this app to help remove the distraction that is your phone, allowing you to focus on the task at hand.