



Net Zero Homes



Course Information

Visit our AGSE website:
unsw.edu.au/engineering/our-schools/agse

For more information or registrations:
navigator.agsm.edu.au/listing/agse-net-zero-homes



Who__should attend__

- Designers
- Engineers
- Architects
- Planners
- Developers
- Innovators
- Sustainability experts

__Action the latest science and engineering technologies_ to design and construct sustainable net zero homes__

Climate change is happening now, and requires immediate action. Seven of the last ten years have been the hottest on record across the globe. Australia is experiencing more extreme weather more often: floods, droughts, bushfires and more floods. The need for this course is reinforced with every extreme event in Australia and the world.

The design of our homes is one way we can act now that will reduce the acceleration of climate change, and adapt to a future climate. Homes are built to last 50 years or more in most cases, so the need to create a net zero home is very important.

This program focuses on the practical application of effective sustainable design, with a focus on building science and energy and water solutions; an action you can adopt now to reduce your reliance on the grid, reduce your emissions, and increase your contribution to a net zero economy.

Participants will bring a working project to this program (or can use one of our case studies) to apply the knowledge learnt in this course to a local and real example.

Investment in this course is equivalent to less than 0.5% of a new home, and adopting the design principles and sustainability solutions outlined in this course is an opportunity for individuals to save thousands in bills over the lifetime of the dwelling, in addition to saving the planet!

How you__ will learn__

This program provides you with a practical pathway to creating a net zero home. The program runs over a seven week period and uses a combination of online and face to face sessions. It explores the principles and methods that are critical to creating net zero homes, and applies this to real examples and projects that you are working on.

The course will be delivered on the AGSM Navigator, where extra resources and social learning will be available to aid in the development of projects. Participants will also be able to submit their designs for feedback from their facilitator, and workshop ideas with their peers and industry experts.

Course Overview

Key takeaways

- understanding of national and state-based codes and guidelines.
- material selection and their structural implications, as well as identify where to source materials/resources.
- understand what energy is required for a home and where it comes from - change how much energy the building is using, and change where it is sourced from
- key design techniques

Credit/Badges

3 AGSE points + Credly digital badge

Course format

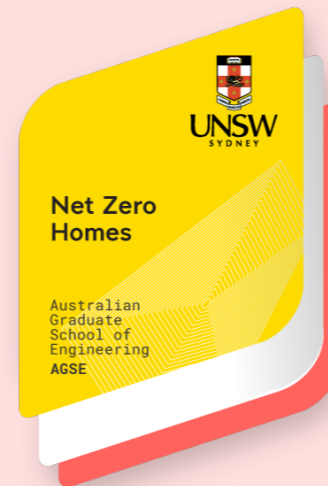
Blended

Course fee

\$2,249.99 Inc GST

Digital Credentials

At the Australian Graduate School of Engineering AGSE you will find a range of thoughtfully curated learning options, including stackable courses and digital credentials. Participants will earn a digital badge upon course completion representing their acquired skills and qualifications.



What you will learn

Participants will gain skills and understanding in the latest science and engineering technologies to inform how you approach your next 'net zero home', whether you are a professional in the building and architecture field, as a developer or a homeowner.

The concept of net zero implies mitigation of greenhouse gas emissions and with a world-wide target to achieve net zero emissions by 2050, it is imperative that we all work towards limiting our own emissions at an individual and community level. Understanding how our homes can be optimised to reduce energy consumption, making them passive houses, is vitally important to achieving this target. This course will help to develop our understanding of the need for net zero homes, define the main aspects of a passive house, and how to apply it in both existing and new dwellings.



Online Support, Additional Resources

Facilitator Feedback on Design

Course Timetable_

All webinars will take place on Wednesday evenings from 5:00pm to 6:30pm AEST

Webinar Week 1 – Defining net zero and key principles	In our first week of this course, we will begin to understand the concept of net zero and how it applies to buildings and houses. We will examine Australia's obligations to reducing greenhouse gas emissions and look at how we can design homes and buildings with minimal emissions.
Webinar Week 2 – Rating schemes, approvals, and regulations	This week you will become familiar with the different types of rating schemes to determine which is necessary for a project and why they become relevant when upgrading or constructing new dwellings. In addition, you will explore what qualifications are needed to produce certified analysis and who should obtain them.
Webinar Week 3 – Modelling	The path towards net zero includes the adoption of completely electric homes powered with renewable solutions. This week you will examine the available options to model household energy demand as well as the options available for industry. Energy modelling tools can help determine the energy needs of individual houses, however before this information is generated, an optimised demand curve that considers climate as well as household efficiency must be determined.
Webinar Week 4 – Design solutions	<p>There are many aspects that contribute to the ability of a home to achieve net zero. Considerations of sustainable building and layout design are key in increasing energy efficiency – whether generated at the home or bought from the grid.</p> <p>Adopting a mindset that centres around sustainability can help you make smart design choices for your home that will enhance day-to-day operations of the home, drawing from natural sources of energy, such as light and heat.</p>
Week 5 – Face 2 Face session UNSW Kensington Campus 8:30am – 5:00pm	In this one day immersive session you will explore some national and international case studies of sustainable homes. You can also use this face-to-face session as an opportunity to collaborate and learn from your colleagues, leveraging different experience and skill sets to inform your project design.
Webinar Week 6 – Constructability	<p>While your design might be perfect on paper, is it transferable to the real world? Designing with constructability in mind is a crucial aspect of achieving net zero buildings that last. Sourcing materials and workers capable of carrying out building plans can be tricky, so it's important to consider the feasibility of your building in practice when making design choices.</p> <p>It is also vital to work with best practice principles in mind throughout the process from concept to construction, as the consequences of poorly constructed homes can be detrimental to those living in them and the surrounding environment.</p>
Webinar Week 7 – Monitoring and usage	There are monitoring systems we can use to measure energy use and generation, battery, water and air quality, made possible by household wifi and the Internet of Things (IoT). The IoT is a system whereby devices can connect to the internet to access and communicate data. This makes it a valuable resource in the sustainability sector, as the knowledge you gain from monitoring energy expenditure influences design choices, appliance use and choice of resources to power the home.
Webinar Week 8 – The Final Plan	That brings us to the end of the Net Zero Homes program at the AGSE. It is here that you will complete your final tasks for the program and present your project.

AGSE

The world needs a new kind of engineering leader.

The AGSE at UNSW recognises that the world's best engineers are flexible, adaptable, able to acquire new skills, and problem-solve quickly and efficiently. Whether you seek to be a world-building leader or a world-leading builder, we design postgraduate courses across all engineering fields. An exciting new path in engineering postgraduate education awaits.

The Australian Graduate School of Engineering was established by the UNSW Faculty of Engineering to redefine the future of postgraduate education and lifelong learning for engineers. The AGSE will build upon the faculty's strong reputation and track record for excellence – UNSW Engineering is consistently ranked #1 in Australia and among the top 50 engineering faculties in the world.

