ABPL90394 ZEMCH Engineering Design Workshop

Credit Points:	12.5
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2016, Parkville This subject commences in the following study period/s: September, Parkville - Taught on campus. Quota: 25This subject is a quota subject and places are limited. Students may provisionally enroll via the Student Portal, but places are not guaranteed until selection is completed. You will be notified in writing by the Student Centre if you are selected.Selection criteria: Selection is based on academic merit. For detailed information on the quota subject application process and due dates, refer to the EDSC Quota Subjects webpage: http://edsc.unimelb.edu.au/quota-subjects Pre-teaching Period Requirements:Students will be required to read ZECHM text book during the pre-teaching period. Primary Course Textbook: Noguchi, M. (ed.) (2016) ZEMCH, New York: Springer. Supplemental Reference: Noguchi, M. (ed.) (2015) ZEMCH Research Initiatives: Mass Customisation and Sustainability, Basel: MDPI - Open Access: http://books.mdpi.com/pdfview/book/158
Time Commitment:	Contact Hours: 36 hours Total Time Commitment: 170 hours
Prerequisites:	None
Corequisites:	None
Recommended Background Knowledge:	Basic knowledge of housing design and building systems and materials
Non Allowed Subjects:	**Subject** / **Study Period Commencement:** / **Credit Points:** ABPL90114 Travelling Studio (Brazil) / March / 25
Core Participation Requirements:	For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Student Support and Engagement Policy, academic requirements for this subject are articulated in the Subject Overview, Learning Outcomes, Assessment and Generic Skills sections of this entry. It is University policy to take all reasonable steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact on meeting the requirements of this subject are encouraged to discuss this matter with a Faculty Student Adviser and Student Equity and Disability Support: http://services.unimelb.edu.au/disability
Coordinator:	Assoc Prof Masa Noguchi
Contact:	Email:**masa.noguchi@unimelb.edu.au (mailto:masa.noguchi@unimelb.edu.au)**
Subject Overview:	This subject is an intensive 5-day workshop that encompasses a series of lectures on zero energy mass custom home (ZEMCH) design and function analysis techniques, as well as hands-on trainings of energy and environmental design simulation tools for implementation during the workshop. The ZEMCH Engineering Design Workshop will consist of: # Knowledge transfer activities; # Design demonstration site visit and function analysis; # Design code and housing prototype development; # Energy and environmental design simulation and mass custom design development; and # Data collation and presentation. The workshop will be carried out on the University campus. Victorian homebuilder/housing manufacturer will be invited to the workshop whose learning outcomes will be presented in

	the form of four group oral presentations and one A0 size group poster submission. Prior to the workshop, students are requested to read a textbook that packages ZEMCH engineering design knowledge related to: (1) Sustainable development; (2) Mass housing; (3) Prefabrication; (4) Mass customisation; (5) Mass personalisation; (6) Inclusive design; (7) Energy use in housing; (8) Passive design; (9) Active technologies; (10) Zero energy homes; (11) Building performance and simulation; and (12) Business operation. Along with the workshop experience, the knowledge gained through the pre-teaching ZEMCH textbook reading will be tested by means of a 2h examination.
Learning Outcomes:	# Identify social, economic and environmental sustainability issues in housing # Demonstrate a mass custom design approach to sustainable housing development # Undertake function analysis towards housing design code development # Apply cost reduction strategies for housing design # Undertake inclusive design for housing # Identify design elements that affect domestic energy use # Devise passive design techniques for reduction of housing energy demand # Visualise shading and day-lighting patterns and ventilation scheme # Estimate operational housing energy consumption # Identify renewable energy technologies applicable to affordable housing development # Simulate renewable energy power generation # Present design solutions applied for the delivery of zero energy mass custom homes
Assessment:	Workshop attendance (5%) Group brainstorming session presentation, 3-5 min per student (equivalent to 300 words per student), due Workshop Day 2 (5%) Group Function Assessment System Technique diagram presentation, 3-5 min per student (equivalent to 300 words per student), due Workshop Day 2 (5%) Group weighted evaluation presentation, 3-5 min per student (equivalent to 300 words per student), due Workshop Day 3 (5%) Final group presentation, 20-30 min per 3-5 students (equivalent to 800 words per student), due Workshop Day 5 (15%) Group poster submission (equivalent to 800 words per student), due 1 week after last class (15%) A two-hour end-of-semester examination (50%)
Prescribed Texts:	Primary Course Textbook:Noguchi, M. (ed.) (2016) ZEMCH, New York: Springer.Supplemental Reference:Noguchi, M. (ed.) (2015) ZEMCH Research Initiatives: Mass Customisation and Sustainability, Basel: MDPI - Open Access: http://books.mdpi.com/pdfview/book/158
Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	# Ability to manage interdisciplinary teamwork and organizational collaboration # Ability to deliver written, verbal and graphic presentation of gained knowledge and ideas # Correct use of design and engineering terminology # Ability to analyse social and cultural contexts # Critical thinking and analysis # Creative response to complex problems # Ability to select appropriate design and assessment approaches # Ability to collaborate with others
Related Majors/Minors/ Specialisations:	200 point Master of Architecture 300 point Master of Architecture Melbourne School of Design multidisciplinary elective subjects