



## Course outline: Construction as production

### Course overview

More and more we've seen an increase in the demand for construction processes that mimic the efficiency of production technologies. This growth has occurred all around the world, yet the uptake is still relatively slow - particularly in Australia.

Spanning examples from a range of countries, this subject will take you beyond superficial understandings of the technical and commercial issues involved in production orientated methods.

We'll explore how and where the business case for production orientated methods are most potent and how there needs to be a systematic and process-driven end to end approach, and where effort needs to be focused to achieve improvement.

Not only will you learn about offsite prefabrication processes, but also how onsite process and planning need to change as well.

We'll also look at:

- client led needs
- mass customisation
- modularisation
- design for manufacture and assembly principles
- supply chain strategies
- logistics
- identifying opportunities for production orientated methods
- the use of digital technologies to link end-to-end delivery processes.

### Learning outcomes

Upon successful completion of the course learners will be able to:

- Identify and analyse the business proposition in changing from traditional labour-based approaches to onsite construction, to a more production orientated approaches that include offsite and onsite techniques.
- Analyse and model changes to onsite work flows when changing to production orientated approaches
- Articulate the importance of digital technology in facilitating information flows for design-to-production-to-construction processes.
- Identify the main principles associated with Design for Manufacture and Assembly, mass customisation, modularisation and product platforms.
- Demonstrate a practical understanding of how to apply the above in practice



## Curriculum

The subject provides a shared understanding about construction projects and how/where/when there are opportunities to apply production principles.

Your learning is spread over four modules. The first three are self-paced online study and the final and fourth module is the interactive workshop.

### Online learning

The online learning uses structured reading materials, videos, interviews and interactive activities to assist grounding of the key principles involved.

### Intensive workshop

The workshop builds on the online principles by applying them to real world construction contexts. This is via guest speakers, example case studies and activities that help participants to apply key concepts in practice.

### Module overview

- **Module 1: Production idealism vs. project realities [online]:** sets the construction business context by identifying where tensions exist between production idealism and project realities. It helps identify constraints and a pathway forward.
- **Module 2: Finding production opportunities within projects [online]:** deals with finding opportunities within Projects for production orientated methods at a strategic level and includes decisions around cost, the need for speed, balancing where the work takes place and the importance of having a supply chain strategy.
- **Module 3: Pre-construction planning [online]:** deals with planning, detailing the design and offsite production principles.
- **Module 4: Translating principles into practice [workshop 1.5 days]:** focuses upon translating principles into practice; it includes application of mass customisation and design for manufacture and assembly principles, cost estimating and workflow programming and, dealing with NCC compliance issues.

### Background

The subject is based on a diverse evidence-base spanning the state of the art from not only Australia, but countries such as Canada, Sweden, Austria, Switzerland, Germany, Scotland, England, the United States and New Zealand.

The emphasis is upon understanding how and where the business case for production orientated methods are most potent, how this converts to a systematic and process driven approach, and where to focus efforts in order to achieve improvement.

The subject aims to engage students and reflective practitioners who want “beyond superficial” understanding concerning both the technical and commercial issues involved.



## Who is this for?

The links between the construction as production chain are surrounded by significant gaps in understanding. A more holistic understanding of the systematised business context and mindset is essential for those looking to get involved. This subject is ideal for those who are:

- forward thinking and looking for new business or competitive advantage
- wanting to know about the state of the art in innovative construction technologies
- facilitating change within their organisation towards advanced design and construction processes
- wanting to understanding how to move towards a model of integrated design-to-factory-to-site
- wanting to critically understand production ideals and how that can fit in to project realities
- involved in integrating supply chain collaboration.

You'll be studying alongside professionals who are familiar with construction, having worked in the industry or studied the field for at least three years. Their experiences are diverse, and might come from a range of roles, including:

- in building construction, as project managers, design managers and business development managers
- as a supply chain member, in manufacturing, fabrication, engineering, contracting, architecture, material supply
- as a building client.

## Recognition and assessment

This course provides flexible study options depending on your needs. Some will be taking this subject as non-award students and others as award students, and accordingly will have different assessments.

All participants will receive a Certificate of Attendance.

*Non-award students* may be able to apply for CPD from industry organisations.

*Award students* will be able to apply for Recognition of Prior Learning which can be undertaken instead of elective subjects in designated degree Program within the School of the Built Environment

### *Assessment for non-award students*

Non-award includes those participants seeking a Certificate of attendance i.e. for their employer or the ability to use the certificate to seek CPD points from professional bodies such as AIB, AIA, API, PMI, and RICS (each publishes its own formal and informal CPD requirements). For these students, assessment is at a basic level which revolves around exhibiting active understanding and participation in each learning module via basic online critiques, discussion and simple Q&As.

### *Assessment for award students*

Award relates to those seeking a formal award from UTS, that may be used as a part of pursuing a specific degree program at UTS. In this context, the subject can be used as "Recognised Prior Learning" which can be undertaken instead of elective subjects in designated degree program within



the School of the Built Environment. This includes the Graduate Diploma of Construction Management, Master of Property Development, Master of Project Management or Bachelor of Construction Management. Issues of importance arising from the RPL approach, include:

- enrolment is separate to the normal subjects in your degree program
- timing is not based on semesters, but rather, when the subject is offered externally
- you need to apply for RPL in advance of taking the subject to confirm suitability;
  - this is done via an RPL Application Form that can be provided by the subject coordinator
  - once submitted, the subject coordinator will liaise with your program director (of the degree program that you are aligned with), about confirming RPL

Assessment for award students is more **comprehensive than non-award students**. It still involves undertaking the non-award discussion/critiques, but in addition, focuses on developing this work into a larger, more detailed and structured submission. This is formally marked and requires a minimum pass mark of 50%. Assessment is primarily geared around assignment work that involves problem solving and allows students to tailor their submissions to their own specific area of interest, with a view to having real world application.

## Your facilitator

[Professor Perry Forsythe](#) is a leading construction manager, consultant and researcher. With almost 40 years of experience in the industry, he routinely provides advice on construction sector issues to both industry and government. He has real world industry experience having begun as a Carpenter and foreman, followed by a range of senior managerial and consultancy roles. As an academic at UTS, Perry researches a range of critical issues that are shaping the contemporary construction industry, including productivity, supply chain integration, uptake of digital technology and sustainability, among others. In 2016, Perry received the Gottstein Fellowship for recognition of his commitment to, and achievements in, the field of timber construction. He will be joined by a range of industry speakers.

## Essential information

### Costs

- \$1400 non-award
- \$2727 award

### Duration

- 5-6 hours online content
- 1.5 day workshop (21-22 October)

It is highly recommended that participants complete the online pre-work prior to attending the workshop.