Unit Outline (Higher Education)

Institute / School:	Institute of Innovation, Science & Sustainability
Unit Title:	INTELLIGENT CONSTRUCTION
Unit ID:	ENGIN4213
Credit Points:	15.00
Prerequisite(s):	(ENGIN2202)
Co-requisite(s):	Nil
Exclusion(s):	(ENGIN4203)
ASCED:	030901

Description of the Unit:

This course aims to assist you in preparing yourself for the role of construction engineer in construction projects. You will become familiar with different aspects of construction projects. Topics include equipment, methods, contracts, economics, quality assurance, and occupational health and safety in the construction industry. A brief introduction to sustainable construction and evolving trends and technologies in the construction industry is also included to equip you with the latest requirements in the industry.

Grade Scheme: Graded (HD, D, C, P, MF, F, XF)

Work Experience:

No work experience: Student is not undertaking work experience in industry.

Does Recognition of Prior Learning apply to this Unit?   No

Placement Component: No

Supplementary Assessment: Yes

Where supplementary assessment is available a student must have failed overall in the Unit but gained a final mark of 45 per cent or above and submitted all major assessment tasks.

CourseLevel:

Level of Unit in Course	AQF Level of Course					
	5	6	7	8	9	10
Introductory						
Intermediate				✔		

Level of Unit in Course	AQF Level of Course					
	5	**6**	**7**	**8**	**9**	**10**
Advanced	☐	☐	☐	☐	☐	☐

Learning Outcomes:

Knowledge:

K1. Justify the use of different construction equipment and methods.

K2. Explain the concepts and benefits of sustainable and intelligent construction practices.

K3. Evaluate the different types of contracts used in construction projects.

Skills:

S1. Create and use relevant quality management documents, procedures, and systems in construction projects.

S2. Differentiate the tasks involved in a construction project and prepare a construction project schedule.

S3. Analyse relevant safety hazards, risks and controls in construction projects.

Application of knowledge and skills:

A1. Apply the principles of economics to construction equipment.

A2. Communicate engineering construction concepts and issues.

Unit Content:

Topics may include:

- An overview of the construction industry
- Occupational Health and Safety (OH&S) in the construction industry
- Quality assurance (QA) in construction projects
- Construction equipment and methods
- Construction economics
- Procurement and contracts in construction
- Basics of construction project management
- Introduction to intelligent construction
- Sustainability in the construction industry

FEDTASKS

Federation University Federation recognises that students require key transferable employability skills to prepare them for their future workplace and society. FEDTASKS (**T**ransferable **A**ttributes **S**kills and **K**nowledge) provide a targeted focus on five key transferable Attributes, Skills, and Knowledge that are be embedded within curriculum, developed gradually towards successful measures and interlinked with cross-discipline and Co-operative Learning opportunities. *One or more FEDTASK, transferable Attributes, Skills or Knowledge must be evident in the specified learning outcomes and assessment for each FedUni Unit, and all must be directly assessed in each Course.*

FEDTASK attribute and descriptor	Development and acquisition of FEDTASKS in the Unit	
	Learning Outcomes (KSA)	Assessment task (AT#)

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the Unit	
		Learning Outcomes (KSA)	Assessment task (AT#)
FEDTASK 1 Interpersonal	Students at this level will demonstrate an advanced ability in a range of contexts to effectively communicate, interact and work with others both individually and in groups. Students will be required to display high level skills in-person and/or online in: • Using and demonstrating a high level of verbal and non-verbal communication • Demonstrating a mastery of listening for meaning and influencing via active listening • Demonstrating and showing empathy for others • High order skills in negotiating and conflict resolution skills • Demonstrating mastery of working respectfully in cross-cultural and diverse teams.	K1, A2	AT1
FEDTASK 2 Leadership	Students at this level will demonstrate a mastery in professional skills and behaviours in leading others. • Creating and sustaining a collegial environment • Demonstrating a high level of self -awareness and the ability to self-reflect and justify decisions • Inspiring and initiating opportunities to lead others • Making informed professional decisions • Demonstrating initiative in new professional situations	K1, S1, S2	AT2, AT3
FEDTASK 3 Critical Thinking and Creativity	Students at this level will demonstrate high level skills in working in complexity and ambiguity using the imagination to create new ideas. Students will be required to display skills in: • Reflecting critically to generate and consider complex ideas and concepts at an abstract level • Analysing complex and abstract ideas, concepts and information • Communicate alternative perspectives to justify complex ideas • Demonstrate a mastery of challenging conventional thinking to clarify complex concepts • Forming creative solutions in problem solving to new situations for further learning	K3, S3	AT2, AT4
FEDTASK 4 Digital Literacy	Students at this level will demonstrate the ability to work competently across a wide range of tools, platforms and applications to achieve a range of tasks. Students will be required to display skills in: • Mastering, exploring, evaluating, managing, curating, organising and sharing digital information professionally • Collating, managing complex data, accessing and using digital data securely • Receiving and responding professionally to messages in a range of professional digital media • Contributing competently and professionally to digital teams and working groups • Participating at a high level in digital learning opportunities	S1, S2	AT2, AT3

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the Unit	
		Learning Outcomes (KSA)	Assessment task (AT#)
FEDTASK 5 sustainable and Ethical Mindset	Students at this level will demonstrate a mastery of considering and assessing the consequences and impact of ideas and actions in enacting professional ethical and sustainable decisions. Students will be required to display skills in: • Demonstrate informed judgment making that considers the impact of devising complex solutions in ambiguous global economic environmental and societal contexts • Professionally committing to the promulgation of social responsibility • Demonstrate the ability to evaluate ethical, socially responsible and/or sustainable challenges and generating and articulating responses • Communicating lifelong, life-wide and life-deep learning to be open to the diverse professional others • Generating, leading and implementing required actions to foster sustainability in their professional and personal life.	K2, A1	AT4

Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1, A2	Assessment on construction equipment and methods	Q&A discussion forum	5% - 10%
K1, K2, S1, S3, A2	Quality and safety in construction	Project, Report	20% - 30%
S2, A1, A2	Construction project planning	Problem Solving Task	10% - 20%
K1 - K3, S3, A1, A2	A final test on any or all of the material covered in the course.	Final test	40% - 50%

Alignment to the Minimum Co-Operative Standards (MiCS)

The Minimum Co-Operative Standards (MiCS) are an integral part of the Co-Operative University Model. Seven criteria inform the MiCS alignment at a Course level. Although Units must undertake MiCS mapping, there is NO expectation that Units will meet all seven criteria. The criteria are as follows:

1. Co-design with industry and students
2. Co-develop with industry and students
3. Co-deliver with industry
4. FedTASK alignment
5. Workplace learning and career preparation
6. Authentic assessment
7. Industry-link/Industry facing experience

MiCS Course level reporting highlights how each Course embraces the principles and practices associated with the Co-Operative Model. Evidence of Course alignment with the MiCS, can be captured in the Course Modification Form.

MICS Mapping has been undertaken for this Unit　　　　　No

Date:

Adopted Reference Style:

IEEE

Refer to the library website for more information

Fed Cite - referencing tool