FACULTY OF ENGINEERING AND THE BUILT ENVIRONMENT

Revision History				
Revision:	01			
Approved Date:				
Approved By				
Lecturer:				
Signature				
HOD:				

Signature

Faculty of Engineering and the Built Environment

5

NQF LEVEL

SUBJECT GUIDE First Year Experience: Engineering for Social Change

SUBJECT GUIDE

SUBJECT NAME:	First Year Experience: Engineering for Social Change	
SUBJECT CODE:		
SAQA CREDITS:	7	
HEMIS CREDITS:		
NQF LEVEL:	5	
IMPLEMENTATION	Year 2023	

COURSE MANAGEMENT				
SUBJECT COORDINATORS:	A Reiners N Mohamed L Kakaza B Swartz S Ramsuroop			
EXAMINERS:	Different examiners for different topics A Reiners N Mohamed L Kakaza B Swartz S Ramsuroop			
INTERNAL MODERATORS:	Different moderators for different topics A Reiners N Mohamed L Kakaza B Swartz S Ramsuroop			
EXTERNAL MODERATOR/S:	N/A			
LECTURER/S:	Communication Lecturers			
PROJECT SUPERVISORS	None			
EMAIL OF LECTURER				
PHONE NUMBER				
EMAIL OF COORDINATORS	reinersa@cput.ac.za mohamedn@cput.ac.za kakazal@cput.ac.za swartzb@cput.ac.za ramsuroops@cput.ac.za			

COURSE LINKAGE/S				
QUALIFICATION LINKAGE/S:	Articulates into several second-year subjects.			
PROGRAM-LEVEL LINKAGE/S:	None			
PRE-REQUISITE SUBJECT/S:	None			
C0- REQUISITE SUBJECTS	None			

PURPOSE OF SUBJECT

The first-year experience (FYE) programme is a 12-week semester course (5hours 50mins per week) focusing on developing critical skills in seven critical areas (themes) to enhance a positive first-year student experience. It is an integrated compulsory component in the Engineering Communications course, where your participation will be monitored and assessed. FYE pulls together all the resources and support available at CPUT to help first-year students manage the transition from high school to university.

The themes are as follows:

- 1. Diversity and Cultural Inclusivity (Week1)
- 2. Identity (Week 2)
- 3. Time Management and Study Skills (Week 3 and 4)
- 4. Holistic (Emotional and Financial) Wellness (Week 5, 6, 7 and 8)
- 5. Ethics and Values (Week 9)
- 6. Introduction to Sustainable Development Goals (Week 10)
- 7. Al Emerging Technologies Literacy (Week 11 and 12)

SUBJECT OBJECTIVES

On successful completion of this subject, the learner will be able to:

1. Diversity and Cultural Inclusivity (Week1)

- Recognize and appreciate the value of diverse backgrounds, perspectives, and experiences.
- Develop cultural sensitivity and demonstrate respectful engagement with peers from different backgrounds.
- Understand the importance of inclusivity in team dynamics and collaborative environments.

2. Identity (Week 2)

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- Reflect on one's own identity, values, and beliefs.
- Understand the impact of personal and social identities on interactions in a university setting.
- Value the importance of personal growth and self-awareness in the context of higher education.

3. Time Management and Study Skills (Week 3 and 4)

- Develop practical strategies for organizing time efficiently.
- Prioritize tasks effectively and set realistic goals.
- Understand the importance of work-life balance and the role of self-discipline in achieving academic success.
- Develop effective note-taking, reading, and summarizing skills.
- Understand and apply various study techniques suited to different types of content and exams.
- Utilize feedback effectively to improve academic performance.

5. Wellness - Holistic (Emotional and Financial) (Week 5,6,7 and 8)

- Recognize the importance of financial, mental, physical, and emotional well-being in the context of academic success.
- Develop strategies to manage stress and seek support when needed.
- Understand the significance of self-care and the available resources to promote holistic well-being.

6. Ethics and Values (Week 9)

- Understand the importance of ethical behaviour in both academic and professional settings.
- Recognize and navigate ethical dilemmas and conflicts of interest.
 - Uphold principles of integrity, responsibility, and respect in all endeavours.

7. Introduction to Sustainability Goals (Week 10)

- Understand the core principles of sustainability and their global significance.
- Relate the concepts of sustainability to real-world engineering challenges and solutions.
 - Evaluate the role and impact of engineering practices in achieving sustainability objectives.
- 8. Al and Emerging Technologies Literacy (Week 11 and 12)

- Understand the fundamental concepts of AI and emerging technologies.
- Recognize the impact of AI on various industries, including engineering.
- Develop a critical perspective on the ethical implications and potential biases associated with AI technologies.

LEARNING OBJECTIVES

Primary learning objectives:

1. Diversity and Cultural Inclusivity:

Students will develop cultural sensitivity, recognize diverse perspectives, and understand the benefits of inclusivity in teamwork.

2. Identity:

Students will reflect on their personal identities, understand how it influences interactions, and create a plan for personal growth.

3. Time Management and Study Skills

- Students will utilize tools and techniques to manage their time effectively, prioritizing tasks and setting realistic academic goals.
- Students will employ a range of effective study techniques, incorporating feedback to enhance academic performance.

4. Wellness - Holistic:

Students will understand the facets of holistic well-being, apply stress-relief techniques, and identify when and where to seek support.

5. Ethics:

Students will navigate ethical dilemmas, uphold principles of integrity, and understand the importance of ethical behavior in academia and beyond.

6. Introduction to Sustainable Development Goals

Understand the core principles of sustainability and their global significance.

7. Al and Emerging Technologies Literacy:

Students will grasp foundational AI concepts, recognize its impact on engineering, and critically evaluate its ethical implications.

THEME	SPECIFIC LEARNING OUTCOMES	ASSESSMENT STRATEGY		
THEME Diversity and Cultural Inclusivity (1 week)	 Understand the concept of diversity and its importance. Recognise and appreciate different dimensions of diversity. Evaluate the impact of stereotypes, biases, and discrimination. Develop effective communication skills for diversity and inclusivity. Demonstrate cultural sensitivity in interpersonal and professional contexts. 	Question and Answer on Blackboard (for the week), composition of the 'questions' includes the following formatting: 1. MCQ's 2. Short answer questions 3. Comprehension paragraph-long question		
	 interpersonal and professional contexts. Apply critical thinking to examine power dynamics and privilege. Explore strategies for creating an inclusive environment. Reflect on personal beliefs, attitudes, and behaviours concerning diversity and inclusivity. Collaborate effectively with individuals from diverse backgrounds. 	paragraph for g quoedon		

Identity Develop self-awareness by reflecting on Question and Answer on Blackboard (for Self-awareness, personal growth and personal values, beliefs, strengths, and the week), composition of the 'questions' appreciation of diversity and inclusion. weaknesses. includes the following formatting: (1 week) • Explore and understand one's cultural, social, and personal identity. 1. Comprehension Foster personal growth and self-acceptance paragraph-long reflection by embracing and celebrating one's identity. question Enhance self-confidence and resilience by better understanding oneself and one's 2. A linked personality quiz place in the world. Enhance the ability to absorb and retain Time Management and Study skills Self-reflection and goal setting: reflection information, leading to better performance in on time management practice assignments. and Time management: Effective time exams. overall coursework. They will be better equipped to management techniques, such as creating Designing a study schedule schedules, prioritising tasks, and avoiding understand complex concepts, critically analyse information and articulate their procrastination. thoughts effectively. Short written task Note-taking strategies: Various note-taking strategies outlining, mind mapping, and Prioritise tasks, avoid procrastination and Study (support) groups creation create schedules that optimise their study summarising. time. This leads to increased productivity, reduced stress, and a better work-life Active reading techniques: Strategies for engaging with and comprehending academic balance. texts, such as highlighting, annotating, and Analyse information, evaluate arguments asking questions. and make connections between concepts. These skills are valuable not only in Memorisation techniques: Approaches to

academics but also in various aspects of life

Reduce anxiety and feel more confident in their abilities by mastering notetaking, exam preparation, and research techniques.

and future careers.

improve memory retention, such as mnemonic devices, visualisation, and spaced repetition.

(2 weeks)

Holistic Wellness (Emotional)

(3 weeks)

Self-Awareness and Emotional Understanding:

- Develop self-awareness of emotions, including recognising and labelling different emotions.
- Understand the connection between thoughts, emotions, and behaviours.
- Identify personal triggers, stressors, and coping mechanisms.
- Cultivate empathy and understanding towards others' emotions.

Emotional Resilience:

- Develop strategies for managing and regulating emotions effectively.
- Learn healthy coping mechanisms.

Communication and Relationship Skills:

- Develop effective communication skills to express emotions assertively and empathetically.
- Enhance active listening skills to understand and validate others' emotions.
- Build positive relationships and create a supportive social network.
- Recognise and navigate conflicts constructively while considering others' emotions.

Emotional Intelligence and Empathy:

- Cultivate emotional intelligence, including the ability to perceive, understand, and manage emotions in oneself and others.
- Foster empathy and perspective-taking skills to understand and connect with others' emotions.
- Develop emotional awareness in multicultural and diverse contexts.
- Recognise and challenge biases and stereotypes that impact emotional well-being.

Stress Management and Self-Care:

- Identify stressors and develop effective stress management techniques.
- Create and implement personalized self-care strategies to support emotional well-being.
- Understand the importance of work-life balance and time management.
- Foster a positive mindset and cultivate gratitude and mindfulness practices.

Mental Health Awareness and Help-Seeking:

• increase awareness of common mental health challenges and disorders.

Embedded Assessments:

Incorporate assessments that evaluate students' understanding and application of emotional wellness concepts. This can include reflective assignments, case studies, role-playing exercises, and group projects that require students to demonstrate their understanding and skills related to emotional wellness. Provide constructive feedback to help students develop and grow in these areas.

Holistic Wellness (Financial) Demonstrate understanding of basic Perform pre-seminar reading financial concepts, such as budgeting, saving, debt management, and financial (1 weeks) Quizzes based on a case study goal setting. Apply knowledge of financial Reflective mapping/diagramming income, terminology, including expenses, assets, liabilities, interest Drafting a Budget Plan rates, and credit scores. Analyse and interpret financial information, such as bank statements, credit card statements, and loan terms. Develop a personal budget based on income, expenses, and financial goals. Identify strategies for managing reducing debt, expenses, maximizing savings. Create a financial plan that aligns with short-term and long-term recognise Recognise the importance of financial well-being and its impact on overall personal well-being. Identify strategies for managing financial stress and building resilience.ls, such as managing student loans, saving for emergencies, and planning for future expenses. Develop a lifelong learning mindset toward financial knowledge and skills, seeking ongoing self-education and

seeking professional advice when

needed.

Ethics and Values

(1 week)

This section is designed to provide students with a strong foundation in values and principles, helping them make ethical decisions and become responsible, compassionate, and principled individuals.

- Define and Understand Ethics:
 Explain the concept of ethics and its significance in decision-making.

 Distinguish between right and wrong based on the context and the individuals involved.
- Recognize the Importance of Ethical Capability:
 - Identify the relevance of ethical capability as an institutional graduate attribute of CPUT.
- Identify and Differentiate between Ethical Theories:

Define and differentiate between the three ethical theories: utilitarianism, deontology, and virtue ethics.

Apply each theory's principles to hypothetical scenarios in engineering contexts.

- Understand General Principles Underlying Ethical Behaviour:
 - Explain the principles of beneficence, non-maleficence, respect for autonomy, and justice.
 - Analyze their implications in real-world scenarios.
- Reflect on Personal, Academic, and Professional Values:

Reflect on personal experiences related to ethical dilemmas and their resolutions. Recognize the ethical responsibilities and challenges faced in academic settings, particularly as a student in the Faculty of Engineering and the Built Environment at CPUT.

Anticipate the ethical challenges and responsibilities they may face as young professionals entering the workforce and as future engineers.

- Understand the Engineering Council of South Africa's Code of Conduct: Recognize the significance of the ECSA's Code of Conduct for engineers. Understand key elements from section 3 of the Code, focusing on competence, integrity, public interest, environment, and upholding the profession.
- Apply Metacognition to Ethical Situations: Engage in reflective thinking about their own ethical beliefs, choices, and the broader implications of those choices.
- Engage in Further Ethical Learning and Assessment:

Successfully complete an external short course from LinkedIn Learn related to ethics.

All Intended Learning Outcomes (ILOs), aside from the final one (which is "Engage in Further Ethical Learning and Assessment) are tested using a combination of two assessment types

- 1. H5Q quiz embedded in video
- Blackboard Test (MCQ and short answer questions – at least one question for each ILO)

The final ILO, "Engage in Further Ethical Learning and Assessment"

Independently complete a 2 hour online short-course on Values and Ethics

	Achieve a satisfactory score on a multiple-choice quiz related to the lesson content.	
Introduction to Sustainable Development Goals (1 week)	This section aims to empower students to become informed global citizens and active agents of positive change by providing them with a deep understanding of the SDGs and opportunities to contribute to their achievement. Define the Sustainable Development Goals (SDGs) and their significance. Explore the pressing global issues addressed by the SDGs, such as poverty, inequality, climate change, and more. Students should reflect on the SDGs that are relevant to SA and identify the Relationship between the NDP2030 and SDGs Students should identify how their area of study can contribute to addressing the objectives of SDGs, by explaining: How engineering principles; technical knowledge; and practices can be used to address challenges faced by communities around the world such as poverty, inequality, and environmental degradation. How engineering can promote social justice by creating solutions that are equitable and accessible to all and help to reduce inequalities and promote social mobility, improving the lives of those who are most in need. How Engineers can also use technology to promote social change and address social justice issues. This can include developing technologies that improve access to education, healthcare, and financial resources, as well as technologies that promote democratic participation and social activism.	The assessment strategy for this section of the work includes one or more of the following: 1. Research Project: Assign students to individually or in groups select one of the 17 SDGs. They should research its significance, goals, and potential engineering solutions that contribute to achieving that SDG. The project can culminate in a written report or presentation. 2. Case Study Analysis: Provide students with a real-world engineering scenario that has sustainable implications. Have them analyse the situation, identify the relevant SDGs, and propose sustainable engineering solutions. 3. Quiz/Test: A short quiz or test covering the basic principles of all 17 SDGs, their targets, and the role of engineering in each. This helps ensure foundational understanding. 4. Reflection Paper: Have students reflect on how understanding SDGs will influence their future engineering decisions and practices. 5. Group Discussion: Engage students in discussions on current events or trends related to SDGs. They can critically discuss the role of engineering and potential solutions for the issues at hand.

Al and Literacy in Emerging Technologies (2 weeks)

- Understand the fundamental concepts of Al and emerging technologies.
- Recognize the impact of AI on various industries, including engineering.
- Develop a critical perspective on the ethical implications and potential biases associated with AI technologies.

The assessment strategy for this section of the work includes one or more of the following:

- Hands-on Project: Students use a basic AI tool or platform (like Google's Teachable Machine or other beginner AI tools) to create a simple AI model.
- 2. Facilitated Group Ethical Debate: Organize a debate where students are given roles either defending or challenging the use of AI in a controversial setting (e.g., facial recognition in public places). This will allow students to critically evaluate the ethical implications of Al. Or Case Study Analysis: Present students with a real-world scenario involving AI (e.g., an AI system producing biased results). Have them analyse the situation, identify the AI concepts involved, and propose both technical and ethical solutions.
- Quiz/Test: A test encompassing the basics of AI, its applications in engineering and other industries, and its ethical concerns. This ensures students have grasped the foundational knowledge.

CRITICAL CROSS-FIELD OUTCOMES (CCFO s)

This qualification is designed, presented and assessed so that the following skills of the research student and promoted and developed: The ability to:

- 1. identifying and solving problems in which responses display that responsible decisions using critical and creative thinking have been made.
- 2. **working** effectively with others as a member of a team, group, organisation, community.
- 3. **organising** and managing oneself and one's activities responsibly and effectively.
- 4. **collecting**, analysing, organising and critically evaluating information.
- 5. **communicating** effectively using visual, mathematical and/or language skills in the modes of oral and/or written persuasion.
- 6. using science and technology effectively and critically, showing responsibility towards the environment and health of others.
- 7. **demonstrating** an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation.
- 8. **contributing** to the full personal development of each learner and the social and economic development of the society at large, by making it the underlying intention of any programme of learning to make an individual aware of the importance of:
 - 1. reflecting on and exploring a variety of strategies to learn more effectively;
 - 2. **participating** as responsible citizens in the life of local, national and global communities;
 - 3. **being culturally** and aesthetically sensitive across a range of social contexts;
 - 4. **exploring** education and career opportunities; and
 - 5. developing entrepreneurial opportunities

METHOD OF DELIVERY

The course will be delivered in a varied method, both synchronous and asynchronous hybrid methods (face to face or online using particular tools).

The method of delivery for the week is determined by the topics covered for that particular week on a Thursday afternoon from 13:30 to 16:00. Delivery Platforms used: Blackboard Ultra (in your communications course) and MS Teams which are freely available to CPUT students.

ASSESSMENT CONDITIONS

Venue: Remote or online assessments from remote locations or in classrooms or labs are required depending on the assessment and social distancing regulations

Time: Term assessments throughout semester

Duration: Ranging from 30 minutes to 3 hours (tests, projects)

LENGTH OF COURSE				
METHOD	NOTIONAL HOURS			
Formal Lecturers	13			
Tutorials	None			
Laboratory	None			
Practical / Assignments	15			
Self Study	10			
Other	32			
TOTAL	70			

ASSESSMENT SPECIFICATIONS				
ASSESSMENT 1	Diversity and Cultural Inclusivity (Week1)	12,5%		
ASSESSMENT 2	Identity (Week 2)	12,5%		
ASSESSMENT 3 - 4	Time Management and Study Skills (Week 3 and 4)	12,5%		
ASSESSMENT 5-7	Emotional Wellness (Week 5, 6 and 7)	12,5%		
ASSESSMENT 8	Financial Wellness (Week 8)	12,5%		
ASSESSMENT 9	Ethics and Values (Week 9)	12,5%		
ASSESSMENT 10	Introduction to Sustainable Development Goals (Week 10)	12,5%		
ASSESSMENT 11 – 12	Al and Emerging Technology Literacy (Week 11 and 12)	12,5%		

ASSESSMENT ADMINISTRATION						
PERIOD ENDING:						YEAR
TERM:	1 st Term	2 nd Term				
MARKS DUE:	TBA	TBA				
BOARD LIST:	TBA	TBA				
MARKS REVIEW:	TBA	TBA				
FINAL MARKS:	TBA	TBA				
ASSESSMENT SELECTION:	YES	YES				
WEIGHT IN %:	35%	100%				100
MODERATION SELECTION:	YES	YES				MIN 60% BY WEIGHT

COURSEWARE		
COURSE TEXTBOOK/S:		
RECOMMENDED BOOK/S:		
WEBSITE/S:		
SOFTWARE	Blackboard Ultra	
OTHER MATERIALS:	Additional sources, if required, to be uploaded onto the LMS Blackboard Ultra	

Students must familiarise themselves with all rules, policies and responsibilities as outlined in the Course Learner Guide. REGISTRATION DEADLINES Students who cancel their studies/subjects may be allowed credit according to the following table SEMESTER 1 :COURSES and MODULARIZED SUBJECTS REDUCTION IN FEES DATES 100% TBA (Faculty Office) TBA (Faculty Office) TBA (Faculty Office)

SYLLABUS AND SCHEDULE				
Week	Торіс	Platform	Your tasks	
	TERM 1			
	Monday, Date - Date			
Term 1 begins Week 1:	Diversity and Cultural Inclusivity			
Week 2:	Identity			
Week 3:	Time Management			
Week 4:	Study Skills			

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Week 5:	Emotional Wellness 1	
Week 6:	Emotional Wellness 2	
	TERM 2	
	Monday, Date - Date	
Term 2 begins Week 7:	Emotional Wellness 3	
Week 8:	Financial Wellness	
Week 9:	Ethics and Values	
Week 10:	Introduction to Sustainable Development Goals	
Week 11:	Al and Emerging Technology Literacy 1	
Week 12:	Al and Emerging Technology Literacy 2	
	University closes for Term 2	

Consultation Times				
	By appointment only- Lecturer to confirm Email:			

NOTES

- 1. This document is subject to revision.
- 2. It is the responsibility of the student to ensure that the latest version of this document used.
- 3. Learner Guide and Subject Guide electronically available on Blackboard.

Also refer to CPUT Learning, Teaching and Assessment Policy and CPUT Student Rules and Regulations [END OF DOCUMENT]