

Course Outline (Higher Education)

Institute / School: Institute of Innovation, Science & Sustainability

Course Title: IT PROBLEM SOLVING

Course ID: ITECH1101

Credit Points: 15.00

Prerequisite(s): Nil

Co-requisite(s): Nil

Exclusion(s): (GPSIT1101)

ASCED: 020109

Description of the Course:

This course introduces students to the fundamental techniques and strategies involved with problem solving, with an emphasis on analysing and resolving IT problems in particular. Students are expected to develop a sound methodological approach to problem solving that will equip them to resolve problems fundamental to the IT industry. Key to this process is developing confidence, resilience and perseverance in identifying multiple potential solutions to problems individually and in team-based environments. Also to evaluate which solutions may be most appropriate to the problems encountered.

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 course? No

Placement Component: No

Supplementary Assessment: Yes

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

Program Level:

Level of course in Program	AQF Level of Program					
	5	6	7	8	9	10
Introductory	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intermediate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Advanced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Learning Outcomes:

Knowledge:

- K1.** Explain, compare, and contrast fundamental strategies for problem solving
- K2.** Relate goal-setting and plan formulation to problem solving
- K3.** Describe tools and techniques that can be used to model and describe problems
- K4.** Investigate the value of reflection, collaboration, attitude and self-efficacy towards success in problem solving
- K5.** Show an understanding of the norms involved with collaboration and team work

Skills:

- S1.** Decompose a problem and create goals and plans to solve that problem
- S2.** Devise and implement problem solving strategies which can be applied to a range of IT problems
- S3.** Develop and verify algorithms based on conceptual models used in programming
- S4.** Construct documentation describing how to solve a problem

Application of knowledge and skills:

- A1.** Apply problem solving strategies, tools and techniques to solve problems in a variety of domains

Course Content:

Topics may include:

- Fundamentals of problem solving
- Problem solving strategies and their application
- Goal setting and plan formulation
- Collaboration and team work
- Understanding feedback and evaluating potential solutions
- Critical thinking
- Design thinking
- Reading and writing documentation
- Data and data storage
- UML Modelling and problem solving
- Innovations in computing

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**tttributes **S**kills and **K**nowledge) provide a targeted focus on five key transferable Attributes, Skills, and Knowledge that are 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 course, and all must be directly assessed in each program.*

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the course	
		Learning Outcomes (KSA)	Assessment task (AT#)
FEDTASK 1 Interpersonal	Students will demonstrate the ability to effectively communicate, interact and work with others both individually and in groups. Students will be required to display skills in-person and/or online in: <ul style="list-style-type: none"> • Using effective verbal and non-verbal communication • Listening for meaning and influencing via active listening • Showing empathy for others • Negotiating and demonstrating conflict resolution skills • Working respectfully in cross-cultural and diverse teams. 	K1, K3, K5, S1, S3 and S4	AT3
FEDTASK 2 Leadership	Students will demonstrate the ability to apply professional skills and behaviours in leading others. Students will be required to display skills in: <ul style="list-style-type: none"> • Creating a collegial environment • Showing self-awareness and the ability to self-reflect • Inspiring and convincing others • Making informed decisions • Displaying initiative 	K4, K5	AT4
FEDTASK 3 Critical Thinking and Creativity	Students will demonstrate an ability to work in complexity and ambiguity using the imagination to create new ideas. Students will be required to display skills in: <ul style="list-style-type: none"> • Reflecting critically • Evaluating ideas, concepts and information • Considering alternative perspectives to refine ideas • Challenging conventional thinking to clarify concepts • Forming creative solutions in problem solving 	K1-K5, S1-S4 and A1	AT1, AT2, AT3
FEDTASK 4 Digital Literacy	Students will demonstrate the ability to work fluently across a range of tools, platforms and applications to achieve a range of tasks. Students will be required to display skills in: <ul style="list-style-type: none"> • Finding, evaluating, managing, curating, organising and sharing digital information • Collating, managing, accessing and using digital data securely • Receiving and responding to messages in a range of digital media • Contributing actively to digital teams and working groups • Participating in and benefiting from digital learning opportunities 	K1-K5, S1-S4 and A1	AT2, AT3 and AT4

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the course	
		Learning Outcomes (KSA)	Assessment task (AT#)
FEDTASK 5 Sustainable and Ethical Mindset	Students will demonstrate the ability to consider and assess the consequences and impact of ideas and actions in enacting ethical and sustainable decisions. Students will be required to display skills in: <ul style="list-style-type: none"> • Making informed judgments that consider the impact of devising solutions in global economic environmental and societal contexts • Committing to social responsibility as a professional and a citizen • Evaluating ethical, socially responsible and/or sustainable challenges and generating and articulating responses • Embracing lifelong, life-wide and life-deep learning to be open to diverse others • Implementing required actions to foster sustainability in their professional and personal life. 	Not applicable	Not applicable

Learning Task and Assessment:

Assessment for this course will be based on a number of tasks including a lecture / practical test or presentation, written portfolio of work, practical assignments, and an end of semester test sampling content from throughout the course.

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1-K5, S1-S4 and A1	Apply various problem solving processes and reflect on the thinking skills and processes used.	Learning Journal	20% - 30%
K1-K3, S1-S2 and A1	Application of theoretical concepts covered to explain and solve problems	Problem Solving Exercise	10% - 20%
K2-K5, S1-S4, and A1	Plan and comprehensively solve IT problem(s).	Practical Assignment(s)	40% - 50%
K1-K5, S1 and S2	Summative assessment/s	Final Test	20% - 30%

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 program level. Although courses must undertake MiCS mapping, there is NO expectation that courses 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 program level reporting highlights how each program embraces the principals and practices associated with the Co-Operative Model. Evidence of program alignment with the MiCS, can be captured in the Program Modification Form.

MICS Mapping has been undertaken for this course

No

Date:

Adopted Reference Style:

APA

Refer to the [library website](#) for more information

Fed Cite - [referencing tool](#)