

# Unit Outline (Higher Education)

**Institute / School:** Institute of Innovation, Science & Sustainability

**Unit Title:** OPEN SOURCE & LINUX

**Unit ID:** ITECH2103

**Credit Points:** 15.00

**Prerequisite(s):** (ITECH1102) (ITECH1400 or ITECH2306)

**Co-requisite(s):**

**Exclusion(s):**

**ASCED:** 020117

**Description of the Unit:**

This course introduces students to the concepts of Open Source software, giving a brief history of the movement and examining current issues. A comparison of Open Source development methods is made with traditional software engineering approaches. A study is made of some features of the Linux operating system, a prime example of Open Source software. In particular, some of the Linux editing tools are investigated in a laboratory situation. The use of Linux on a Mainframe Operating system is covered. The course further shows how Linux on a mainframe operating system fits into the e-business/eServer environment. A class project attempts to exemplify Open Source software development approaches.

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

**Work Experience:**

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

**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, has completed all major assessment tasks (including all sub-components where a task has multiple parts) as specified in the Unit Description and is not eligible for any other form of supplementary assessment

**Course Level:**

Level of Unit in Course	AQF Level of Course					
	5	6	7	8	9	10
Introductory	<input type="checkbox"/>	<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"/>
Advanced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Learning Outcomes:

### Knowledge:

- K1.** explain how the Free and Open Source Software movements (FOSS) have arisen, what they are, how they work;
- K2.** describe some of the recent contributions made by FOSS approaches;
- K3.** describe basic mainframe concepts and terminology;
- K4.** recognise how a GNU/Linux operating system fits in a mainframe architecture framework;
- K5.** describe basic principles of system security, availability, data management and system administration.

### Skills:

- S1.** demonstrate skills in the use of the GNU/Linux operating system including tools, libraries and utilities;
- S2.** demonstrate appropriate usage of common FOSS concurrent versions systems in the management of software projects;

### Application of knowledge and skills:

- A1.** Identify a current open source project and make a contribution towards it

### Unit Content:

This course introduces the major functions and capabilities of Open Source as well as the use of Linux on a Z/OS Mainframe Operating system. The course further describes the technical differences between Linux and other UNIX/Linux implementations on a mainframe operating system environment. The course further shows how Linux on a mainframe operating system fits into the e-business/eServer environment.

Topics may include:

- what is Free and Open Source software? Definitions, licenses and their effects;
- a comparison of the Free Software Foundation and the Open Source community;
- Open Source method of development in a business environment;
- FOSS project management tools: concurrent management systems, bug reporting, clearing houses, groupware tools;
- major FOSS applications/projects: e.g. office suites, graphical products;
- major FOSS commercial organisations and their contributions;
- a comparison of FOSS software and proprietary software;
- current issues and challenges: software development forking and standards, attacks from proprietary organisations, software support, potential legal challenges;
- GNU/Linux utilities - vi, sed, tr, grep, awk, cut, gzip, tar, etc;
- installation of applications on GNU/Linux - binaries, source code, package managers;
- software development using Open Source methodologies and tools;
- basic mainframe concepts and terminology with focus on running GNU/Linux on mainframe.

### 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 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 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"> <li>• Using effective verbal and non-verbal communication</li> <li>• Listening for meaning and influencing via active listening</li> <li>• Showing empathy for others</li> <li>• Negotiating and demonstrating conflict resolution skills</li> <li>• Working respectfully in cross-cultural and diverse teams.</li> </ul>	A1	AT1
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"> <li>• Creating a collegial environment</li> <li>• Showing self-awareness and the ability to self-reflect</li> <li>• Inspiring and convincing others</li> <li>• Making informed decisions</li> <li>• Displaying initiative</li> </ul>	Not applicable	Not applicable
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"> <li>• Reflecting critically</li> <li>• Evaluating ideas, concepts and information</li> <li>• Considering alternative perspectives to refine ideas</li> <li>• Challenging conventional thinking to clarify concepts</li> <li>• Forming creative solutions in problem solving</li> </ul>	A1	AT1
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"> <li>• Finding, evaluating, managing, curating, organising and sharing digital information</li> <li>• Collating, managing, accessing and using digital data securely</li> <li>• Receiving and responding to messages in a range of digital media</li> <li>• Contributing actively to digital teams and working groups</li> <li>• Participating in and benefiting from digital learning opportunities</li> </ul>	S1, S2, A1	AT1

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 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"> <li>• Making informed judgments that consider the impact of devising solutions in global economic environmental and societal contexts</li> <li>• Committing to social responsibility as a professional and a citizen</li> <li>• Evaluating ethical, socially responsible and/or sustainable challenges and generating and articulating responses</li> <li>• Embracing lifelong, life-wide and life-deep learning to be open to diverse others</li> <li>• Implementing required actions to foster sustainability in their professional and personal life.</li> </ul>	A1	AT1

### Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K2, A1	Individually, or as part of a team, identify an appropriate Open Source project. Review the contribution and issue tracking practices, and propose a contribution to make to the project	Report/Proposal	10-20%
K1, K2, K3, K4, K5, S1, S2, A1	Collaborate with peers and/or project owners to implement the proposed contribution. Assessment will be based on the scope and quality of the contribution, the alignment to the governance and culture of the Open Source project, and reflection of learning. Present the results of your work and reflection to an audience of peers.	Projects/Presentations	50-70%
K1, K2, K3, K4, K5, S1, S2	Demonstrate achievement of learning outcomes through a summative test activity.	Tests/Examination(s)	20-30%

### Adopted Reference Style:

APA

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

Fed Cite - [referencing tool](#)