

# Unit Outline (Higher Education)

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

**Unit Title:** Mainframe Systems and Services

**Unit ID:** ITECH3105

**Credit Points:** 15.00

**Prerequisite(s):** (ITECH2308)

**Co-requisite(s):** Nil

**Exclusion(s):** Nil

**ASCED:** 020117

**Description of the Unit:**

Mainframes play a central role in cloud computing. Over the years transaction and database management tools for mainframe systems have evolved to fit the needs of enterprise customers. This unit introduces major concepts and features that are applicable to principles of major mainframe systems such as Customer Information Control System (CICS), hierarchical and relational database systems including Information Management System (IMS) and Database (DB2), Storage Management Subsystem (SMS), RACF (Resource Access Control Facility), as well as the application of REXX programming language on z/OS. In addition, the other elements of mainframe system services such as virtualisation, UNIX and Linux are introduced and discussed.

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

**Work Experience:**

No work experience

**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	■	■	■	■	■	■
Intermediate	■	■	■	■	■	■
Advanced	■	■	✓	■	■	■

### Learning Outcomes:

#### Knowledge:

- K1.** Explain major architectural components, concepts and mechanisms applicable to mainframe (sub)systems and services.
- K2.** Compare the structure and usage between relational and hierarchical database (sub)systems.
- K3.** Explain the transaction management (sub)systems and their services in the context of business transactions.
- K4.** Interpret and (deploy/ write) system-based scripting languages such as REXX and JCL.

#### Skills:

- S1.** Demonstrate use of mainframe systems and services such as "Unix System Services" (USS), RACF (Resource Access Control Facility) and Storage Management Subsystem (SMS)
- S2.** Use DB2 for database management system and to design structures
- S3.** Use CICS subsystem via supplied transactions and programs.
- S4.** Interpret, create and implement the code using system-based scripting languages such as REXX and JCL running on a mainframe.

#### Application of knowledge and skills:

- A1.** Plan, create, and execute solutions to an enterprise problem demonstrating initiative and judgement to solve using transaction and database management tools
- A2.** Identify and interpret the needs of enterprise customers to demonstrate how mainframe systems tools and services can be adapted to suit unique and diverse business requirements.

#### Unit Content:

This unit introduces major concepts and features that are applicable to the mainframe (sub)systems and services including Unix System Services (USS), transactional services (CICS and IMS), database services (DB2 and IMS), web application service (WebSphere), virtualization services with Linux OS as well as system services such as TSO/ISPF, JES, and RACF. In addition, mainframe scripting languages such as JCL and REXX are covered on an advanced level.

Topics may include:

- Concepts and features of mainframe (sub)systems and services.
- Unix system services.
- Scripting languages on a Mainframe including REXX and JCL.
- DB2 relational database.
- Customer Information Control System (CICS) transactional service.
- Information Management System (IMS) transactional server and hierarchical database.
- Virtual services for Linux with VM hyper-visor.
- RACF (Resource Access Control Facility), a security system that provides access control and auditing functionality.
- WebSphere application service

## 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, inter-act 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>	K1,A1,A2	AT2
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>	Not applicable	Not applicable
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>	K1-K4,S1-S4	AT1,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 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>	Not applicable	Not applicable

### Learning Task and Assessment:

Students should attend laboratory classes and complete laboratory worksheets. Students should maintain a folio and record for tutors to see at any time throughout the semester. Students should participate in lectures and computer laboratory classes and maintain a notebook with notes and exercises. The assessment for the subject will include at least one test during semester and a final examination will test the understanding of the concepts studied in this unit.

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
S1-S4, A1, A2	The tasks will develop skills in the analysis and practical application of content introduced.	Lab Exercises and Practical tests	20%-40%
S1-S4, K1,K4, A1, A2	Self-directed initiatives aimed at producing an artifact that demonstrates skill acquisition.	Assignment(s) and Presentation(s)	20%-40%
K1- K4	Participate in lectures and labs/tutorials, read and summarise theoretical and practical aspects of the unit.	Tests and Examinations	20%-40%

### Adopted Reference Style:

APA

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

Fed Cite - [referencing tool](#)