ENGG8107

Business Process Engineering

Session 1, In person-scheduled-weekday, North Ryde 2025

School of Engineering

Contents

General Information

Unit convenor and teaching staff
Lecturer
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By appointment

Credit points
10

Prerequisites

Corequisites

Co-badged status

Unit description
This unit provides students with advanced insights, knowledge and skills needed to design and implement business process framework to drive operational efficiency and effectiveness related to broad engineering business areas. The subject matter covered is suitable for a broad range of engineering disciplines with an emphasis on building advanced skills in Business Process Architecture and Management, Process Modelling, Qualitative and Quantitative process analysis, Process redesign, Process monitoring and Business Process Excellence/ Lean Six Sigma. This is a core unit for the Master of Engineering Management course that delivers coherent learning skills with other units that can help students with advanced knowledge for effective leadership in leading medium to large scale engineering business.

Learning in this unit enhances student understanding of global challenges identified by the United Nations Sustainable Development Goals (UNSDGs) Industry, Innovation and Infrastructure

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at https://www.mq.edu.au/study/calendar-of-dates

Learning Outcomes

On successful completion of this unit, you will be able to:

ULO1: Employ a wide range of engineering process management (BPM) techniques by examining BPM architecture and how it assists in managing an organisation, identify any issues in engineering process excellence and management practices including providing appropriate solutions
ULO2: Synthesizing process measures and assigning accountabilities to drive organisational improvement
ULO3: Applying BPM notation to document the BPM architecture at all levels
ULO4: Applying process monitoring techniques to drive continuous improvement
ULO5: Conduct process mining to identify opportunities for continuous improvement
ULO6: Measure the extent of BPM implementation via Capability Maturity Model

Assessment Tasks

Name	Weighting	Hurdle	Due
Final Examination	40%	No	Exam Week
Design Task	30%	No	Week 7
Case studies	30%	No	Weeks 2, 6, 9, and 11

Final Examination

Assessment Type [1]: Examination
Indicative Time on Task [2]: 30 hours
Due: **Exam Week**
Weighting: **40%**

Final Examination

On successful completion you will be able to:

- Employ a wide range of engineering process management (BPM) techniques by examining BPM architecture and how it assists in managing an organisation, identify any issues in engineering process excellence and management practices including providing appropriate solutions
- Synthesizing process measures and assigning accountabilities to drive organisational improvement
- Applying BPM notation to document the BPM architecture at all levels

- Applying process monitoring techniques to drive continuous improvement
- Conduct process mining to identify opportunities for continuous improvement
- Measure the extent of BPM implementation via Capability Maturity Model

Design Task

Assessment Type [1]: Design Task
Indicative Time on Task [2]: 20 hours
Due: **Week 7**
Weighting: **30%**

To design and construct a business process map based on written instuctions

On successful completion you will be able to:

- Employ a wide range of engineering process management (BPM) techniques by examining BPM architecture and how it assists in managing an organisation, identify any issues in engineering process excellence and management practices including providing appropriate solutions
- Synthesizing process measures and assigning accountabilities to drive organisational improvement
- Applying BPM notation to document the BPM architecture at all levels
- Applying process monitoring techniques to drive continuous improvement

Case studies

Assessment Type [1]: Case study/analysis
Indicative Time on Task [2]: 40 hours
Due: **Weeks 2, 6, 9, and 11**
Weighting: **30%**

An essay on given topics in engineering business process

On successful completion you will be able to:

- Employ a wide range of engineering process management (BPM) techniques by examining BPM architecture and how it assists in managing an organisation, identify any issues in engineering process excellence and management practices including providing appropriate solutions

- Synthesizing process measures and assigning accountabilities to drive organisational improvement
- Applying BPM notation to document the BPM architecture at all levels
- Applying process monitoring techniques to drive continuous improvement
- Conduct process mining to identify opportunities for continuous improvement
- Measure the extent of BPM implementation via Capability Maturity Model

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[1] If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- the Writing Centre for academic skills support.

[2] Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

Delivery and Resources

Text: Fundamentals of Business Process Management, (2nd ed.), 2018 Springer Berlin Heidelberg.

By: Marlon Dumas, Marcello La Rosa, Jan Mendling, Hajo A. Reijers

ISBN: 978-3-662-56508-7

ISBN: 978-3-662-56509-4 (ebook)

Unit Schedule

Week	Lecture /Content / Topic	Chapter Ref	HBR Case Study
1	Course introduction. Background, history, and overview of BPM.	Ch 1	No SGTA
2	Business Process Architecture	Ch 2	**PNB Housing Finance Ltd Transformation**
3	Business Process Modelling & Intro to Signavio	Ch 3	Signavio Training
4	Advanced Process Modelling	Ch 4	Signavio Training
5	Process Discovery	Ch 5	Signavio Training and Exercises
6	Qualitative and Quantitative Process Analysis	Ch 6 & 7	**Intro to Process Analysis**

7	Process Redesign	Ch 8	Mid Term Assignment
8	Process-Aware Information System	Ch 9	Midterm Assignment Review
9	Process Implementation with Executable Models	Ch 10	**Celonis Process Mining Unicorn**
10	Process Monitoring	Ch 11	ERP Implementation Sodastream Canada
11	BPM as an Enterprise Capability (Capability Maturity Models)	Ch 12	**Creating A process oriented enterprise Pinnacle West**
12	Business Process Excellence, Lean Six Sigma, and the future of BPM		Process Management and the future of Six Sigma
13	Review		

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central (https://policies.mq.edu.au). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- Academic Appeals Policy
- Academic Integrity Policy
- Academic Progression Policy
- Assessment Policy
- Fitness to Practice Procedure
- Assessment Procedure
- Complaints Resolution Procedure for Students and Members of the Public
- Special Consideration Policy

Students seeking more policy resources can visit Student Policies (https://students.mq.edu.au/support/study/policies). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

To find other policies relating to Teaching and Learning, visit Policy Central (https://policies.mq.edu.au) and use the search tool.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/admin/other-resources/student-conduct

Results

Results published on platform other than eStudent, (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the

University. Once approved, final results will be sent to your student email address and will be made available in eStudent. For more information visit connect.mq.edu.au or if you are a Global MBA student contact globalmba.support@mq.edu.au

Academic Integrity

At Macquarie, we believe academic integrity – honesty, respect, trust, responsibility, fairness and courage – is at the core of learning, teaching and research. We recognise that meeting the expectations required to complete your assessments can be challenging. So, we offer you a range of resources and services to help you reach your potential, including free online writing and maths support, academic skills development and wellbeing consultations.

Student Support

Macquarie University provides a range of support services for students. For details, visit http://students.mq.edu.au/support/

Academic Success

Academic Success provides resources to develop your English language proficiency, academic writing, and communication skills.

- Workshops
- Chat with a WriteWISE peer writing leader
- Access StudyWISE
- Upload an assignment to Studiosity
- Complete the Academic Integrity Module

The Library provides online and face to face support to help you find and use relevant information resources.

- Subject and Research Guides
- Ask a Librarian

Student Services and Support

Macquarie University offers a range of Student Support Services including:

- IT Support
- Accessibility and disability support with study
- Mental health support
- Safety support to respond to bullying, harassment, sexual harassment and sexual assault
- Social support including information about finances, tenancy and legal issues
- Student Advocacy provides independent advice on MQ policies, procedures, and processes

Student Enquiries

Got a question? Ask us via the Service Connect Portal, or contact Service Connect.

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

When using the University's IT, you must adhere to the Acceptable Use of IT Resources Policy. The policy applies to all who connect to the MQ network including students.

Engineers Australia Competency Mapping

EA Competency Standard		Unit Learning Outcomes
Knowledge and Skill Base	1.1 Comprehensive, theory-based understanding of the underpinning fundamentals applicable to the engineering discipline.	ULO1
	1.2 Conceptual understanding of underpinning maths, analysis, statistics, computing.	
	1.3 In-depth understanding of specialist bodies of knowledge	ULO2
	1.4 Discernment of knowledge development and research directions	
	1.5 Knowledge of engineering design practice	
	1.6 Understanding of scope, principles, norms, accountabilities of sustainable engineering practice.	ULO3. ULO4
Engineering Application Ability	2.1 Application of established engineering methods to complex problem solving	ULO2
	2.2 Fluent application of engineering techniques, tools and resources.	
	2.3 Application of systematic engineering synthesis and design processes.	
	2.4 Application of systematic approaches to the conduct and management of engineering projects.	ULO1, ULO2, ULO3
Professional and Personal Attributes	3.1 Ethical conduct and professional accountability.	ULO3, ULO4
	3.2 Effective oral and written communication in professional and lay domains.	ULO3
	3.3 Creative, innovative and pro-active demeanour.	ULO1
	3.4 Professional use and management of information.	ULO3, ULO4

	3.5 Orderly management of self, and professional conduct.	
	3.6 Effective team membership and team leadership	ULO1

Unit information based on version 2025.02 of the Handbook