



# COMP8760

## Enterprise Application Integration

Session 1, In person-scheduled-weekday, North Ryde 2023

*School of Computing*

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## General Information

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Credit points

10

Prerequisites

COMP6760 or ITEC601

Corequisites

Co-badged status

Unit description

This unit focuses on integration technologies from internal application integration to external business-to-business (B2B) integration. Integration activities start with a process model and process redesign targets. We use market leading software to define our processes.

Application integration techniques such as data orientated, application interfaces, message orientated middleware and application servers are covered. The role of Web APIs and RESTful architecture is considered, as well cloud based infrastructure, platforms and SaaS.

We consider B2B integration with EDI and Web Services, and the role of portals. We explore the objectives of business process management and supply chain planning.

## 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:** Apply an understanding of process modelling to analyse an existing 'As Is' process and be able to compare and contrast with proposed improved 'To Be' processes

for process improvement and optimisation.

**ULO2:** Apply an understanding of integration technologies to critically analyse contemporary B2Bi case studies.

**ULO3:** Critically evaluate application integration technologies such as APIs, database integration, application servers, Web Services, REST and business process management systems and be able to recommend the most suitable technology for the situation.

**ULO4:** Demonstrate confidence in a range of skills including leadership, communication, critical analysis, problem-solving and creative-thinking skills.

## General Assessment Information

### Late Assessment Submission Penalty:

Unless a Special Consideration request has been submitted and approved, a 5% penalty (of the total possible mark of the task) will be applied for each day a written report or presentation assessment is not submitted, up until the 7<sup>th</sup> day (including weekends). After the 7<sup>th</sup> day, a grade of '0' will be awarded even if the assessment is submitted. The submission time for all uploaded assessments is **11:55 pm**. A 1-hour grace period will be provided to students who experience a technical concern.

For any late submission of time-sensitive tasks, such as scheduled tests/exams, performance assessments/presentations, and/or scheduled practical assessments/labs, please apply for [Special Consideration](#).

### Assessments where Late Submissions will be accepted:

- Assignments 1 & 2 - YES, Standard Late Penalty applies
- Assignment 3 & Group and Individual Presentation - NO, unless Special Consideration is granted

## Assessment Tasks

| Name  | Weighting | Hurdle | Due       |
|---|-----------|--------|-----------|
| <a href="#">Assignment 1</a>                      | 15%       | No     | Week 4    |
| <a href="#">Assignment 2</a>                      | 15%       | No     | Week 9    |
| <a href="#">Assignment 3</a>                      | 10%       | No     | Week 12   |
| <a href="#">Group and individual presentation</a> | 10%       | No     | Week 12   |
| <a href="#">Final examination</a>                 | 50%       | No     | Exam Week |

## Assignment 1

Assessment Type <sup>1</sup>: Modelling task

Indicative Time on Task <sup>2</sup>: 15 hours

Due: **Week 4**

Weighting: **15%**

A modelling task based on a real-world business process.

On successful completion you will be able to:

- Apply an understanding of process modelling to analyse an existing 'As Is' process and be able to compare and contrast with proposed improved 'To Be' processes for process improvement and optimisation.

## Assignment 2

Assessment Type <sup>1</sup>: Case study/analysis

Indicative Time on Task <sup>2</sup>: 15 hours

Due: **Week 9**

Weighting: **15%**

A case study of the introduction of a new technology into an organisation. Students will answer questions and develop process models based on the case study.

On successful completion you will be able to:

- Apply an understanding of process modelling to analyse an existing 'As Is' process and be able to compare and contrast with proposed improved 'To Be' processes for process improvement and optimisation.
- Critically evaluate application integration technologies such as APIs, database integration, application servers, Web Services, REST and business process management systems and be able to recommend the most suitable technology for the situation.
- Demonstrate confidence in a range of skills including leadership, communication, critical analysis, problem-solving and creative-thinking skills.

## Assignment 3

Assessment Type <sup>1</sup>: Design Task

Indicative Time on Task <sup>2</sup>: 10 hours

Due: **Week 12**

Weighting: **10%**

Students form groups and choose a case study from a given list. The team is to identify the possible opportunities for improvement to the existing As Is Process. Then, model the given new

To Be Process as described in the case study and demonstrate how it delivers significant business benefits.

On successful completion you will be able to:

- Apply an understanding of process modelling to analyse an existing 'As Is' process and be able to compare and contrast with proposed improved 'To Be' processes for process improvement and optimisation.
- Apply an understanding of integration technologies to critically analyse contemporary B2Bi case studies.
- Critically evaluate application integration technologies such as APIs, database integration, application servers, Web Services, REST and business process management systems and be able to recommend the most suitable technology for the situation.
- Demonstrate confidence in a range of skills including leadership, communication, critical analysis, problem-solving and creative-thinking skills.

## Group and individual presentation

Assessment Type <sup>1</sup>: Presentation

Indicative Time on Task <sup>2</sup>: 10 hours

Due: **Week 12**

Weighting: **10%**

A presentation of group and individual findings from Assignment 3.

On successful completion you will be able to:

- Apply an understanding of process modelling to analyse an existing 'As Is' process and be able to compare and contrast with proposed improved 'To Be' processes for process improvement and optimisation.
- Apply an understanding of integration technologies to critically analyse contemporary B2Bi case studies.
- Critically evaluate application integration technologies such as APIs, database integration, application servers, Web Services, REST and business process management systems and be able to recommend the most suitable technology for the situation.
- Demonstrate confidence in a range of skills including leadership, communication, critical analysis, problem-solving and creative-thinking skills.

## Final examination

Assessment Type <sup>1</sup>: Examination

Indicative Time on Task <sup>2</sup>: 50 hours

Due: **Exam Week**

Weighting: **50%**

A closed book exam covering all lecture, reference and workshop material.

On successful completion you will be able to:

- Apply an understanding of process modelling to analyse an existing 'As Is' process and be able to compare and contrast with proposed improved 'To Be' processes for process improvement and optimisation.
- Apply an understanding of integration technologies to critically analyse contemporary B2Bi case studies.
- Critically evaluate application integration technologies such as APIs, database integration, application servers, Web Services, REST and business process management systems and be able to recommend the most suitable technology for the situation.
- Demonstrate confidence in a range of skills including leadership, communication, critical analysis, problem-solving and creative-thinking skills.

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<sup>1</sup> 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.

<sup>2</sup> 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

### Class

Each week we will run a lecture for 2 hours and a non compulsory SGTA hour which is more set for groups to have a time to work with other members. However there is no SGTA in week one. For details of days, times consult the [timetables webpage](#).

All classes will be run on campus.

### Mandatory text

Dumas, M., La Rosa, M., Mendling, J. and A Reijers, H., 2018. *Fundamentals of business*

*process management*, 2<sup>nd</sup> edn, Springer. (Available from our library website: <https://link-springer-com.simsrad.net.ocs.mq.edu.au/book/10.1007%2F978-3-662-56509-4>)

**Additional references** that are available from the library are:

[Web services, service-oriented architectures, and cloud computing: the savvy manager's guide, second edition - Macquarie University \(mq.edu.au\)](#)

[Cloud Computing and SOA Convergence in Your Enterprise: A Step-By-Step Guide - Macquarie University \(mq.edu.au\)](#)

[The agile architecture revolution how cloud computing, REST-based SOA, and mobile computing are changing enterprise IT - Macquarie University \(mq.edu.au\)](#)

Lecture handouts will list appropriate Web based references and further reading for some of the rapidly evolving technologies discussed in this course. Lecture handouts will be available for download from the unit Website.

### Modelling tool

For consistency with our Dumas textbook, we will be using the Signavio Modelling Tool, which is available at <https://www.signavio.com/news/process-modeling-platform-for-students-and-researchers/>. We will use the latest BPMN 2.0 modelling notation.

Other technology required is MS Word, MS Visio (or draw.io) and MS PowerPoint. MS Visio is available free of charge from the University collaborative [Microsoft Imagine](#) website.

## Website and access to unit material

The web page and content for this unit can be found at iLearn: <https://ilearn.mq.edu.au/login/MQ/>. Note that the unit content is not publicly available and requires for you to log in to access.

### Method of communication

We will communicate with you via your university email or through announcements on iLearn. Queries to teaching staff can either be placed on the iLearn discussion board or sent to their university email address from your university email address.

### COVID Information

For the latest information on the University's response to COVID-19, please refer to the Coronavirus infection page on the Macquarie website: <https://www.mq.edu.au/about/coronavirus-faqs>. Remember to check this page regularly in case the information and requirements change during semester. If there are any changes to this unit in relation to COVID, these will be communicated via iLearn.

## Unit Schedule

The weekly schedule below is tentative. Efforts will be made to adhere to the schedule; however we reserve the right to update it as appropriate.

| Week | Topic | References | Assessment |
|------|-------|------------|------------|
|------|-------|------------|------------|

|    |   |   |                    |
|----|---|---|--------------------|
| 1  | E-Commerce<br>Introduction to Business Process Management<br>No Practical in Week 1   | Laudon and Traver (2017)<br>Chapter 1       |                    |
| 2  | Lean Methodology<br>Essential Process Modelling<br>Practical Exercises from Chapter 1   | Mark Robinson (2014)<br>Chapter 3           |                    |
| 3  | Collaborative Commerce (ERP II)<br>Advanced Process Modelling<br>Practical Exercises from Chapter 3   | Gartner<br>Chapter 4                        |                    |
| 4  | B2B Data Integration (EDI and EDI-INT)<br>Process Identification<br>Practical Exercises from Chapter 4  | Coles Group Specifications<br>Chapter 2     | Assignment One due |
| 5  | Web Services Introduction<br>Process Discovery<br>Practical Exercises from Chapter 2  | Barry (2013)<br>Chapter 5                   |                    |
| 6  | Services Orientated Architecture<br>Qualitative Process Analysis<br>Practical Exercises from Chapter 5  | IBM (2009)<br>Chapter 6                     |                    |
| 7  | E-Procurement Processes<br>Quantitative Process Analysis<br>Practical Exercises from Chapter 6  | Gartner (2015)<br>Chapter 7                 |                    |
| 8  | Data Orientated Application Integration<br>Process Redesign<br>Practical Exercises from Chapter 7   | White (2009) and Denodo (2018)<br>Chapter 8 |                    |
| 9  | Application Interfaces<br>Process Aware Information Systems<br>Practical Exercises from Chapter 8   | Faber Novel (2012)<br>Chapter 9             | Assignment Two due |
| 10 | Application Infrastructure and Middleware Market<br>Process Implementation with Executable Models<br>BPM and SOA Together<br>Practical Exercises from Chapter 9 | Gartner (2018)<br>Chapter 10                |                    |



|    |  |            |  |
|----|--|------------|--|
| 11 | Guest Lecture (Tentative)<br>Tutorial on Assignment 3    | IBM (2013) |  |
| 12 | Group and Individual Presentations                       |            | Assignment Three due<br>Group and Individual Presentations due |
| 13 | Group and Individual Presentations continued<br>Revision |            |  |

## Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central](https://policies.mq.edu.au) (<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) (<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) (<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 [ask.mq.edu.au](https://ask.mq.edu.au) or if you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto: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/>

### The Writing Centre

[The Writing Centre](#) 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 [AskMQ](#), or contact [Service Connect](#).

## IT Help

For help with University computer systems and technology, visit [http://www.mq.edu.au/about\\_us/](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.

## Changes since First Published

| Date               | Description  |
|--------------------|--|
| 17/<br>02/<br>2023 | Removed the wording "from Week 1" in this sentence: "Lecture handouts will be available for download from the unit Website from Week 1." |