COMP8760

Enterprise Application Integration

Session 1, In person-scheduled-weekday, North Ryde 2022

School of Computing

Contents

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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 integration. Integration activities start with a process model and process redesign targets. We use the market leading IBM BlueWorks Live 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 then 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 and consider a recent innovative government integration initiative as a student presented case study.

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

Note: Late submissions **will not be accepted** without an approved Special Consideration request. Assessments submitted after the due date will receive a mark of **zero**.

Assessment Tasks

Name	Weighting	Hurdle	Due
Assignment 1	15%	No	Week 4
Assignment 2	15%	No	Week 9
Assignment 3	10%	No	Week12
Group and individual presentation	10%	No	Week 12
Final examination	50%	No	TBA

Assignment 1

Assessment Type [1]: Modelling task
Indicative Time on Task [2]: 15 hours
Due: **Week 4**
Weighting: **15%**

You are given an actual procurement process. This is to be modelled as the 'As Is' Process using IBM Blue Works Live SaaS software. Metrics such as process cost and time are to be derived. Based on the objectives of business process reengineering, an automated, improved 'To Be' process is to be proposed. The new process is to be assessment according to the modelling metrics as well as an ROI justification.

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 [1]: Case study/analysis
Indicative Time on Task [2]: 15 hours
Due: **Week 9**
Weighting: **15%**

You are given a well researched case study about the introduction of electronic medical records in the US. The case highlights the technological, management and organisational challenges of this immense application integration undertaking. Students are required to answer questions about the case study and provide As Is and To Be process models for one of the system's components.

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 [1]: Design Task
Indicative Time on Task [2]: 10 hours
Due: **Week12**
Weighting: **10%**

Students form groups of 4, and choose a contemporary SaaS implementation case study from a given list of published recent studies. 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 and identify the metrics to manage and quantify the benefits. The team is to submit a structured report comprised of each member's contribution and then each member is to give a class presentation on their findings.

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 [1]: Presentation
Indicative Time on Task [2]: 10 hours
Due: **Week 12**
Weighting: **10%**

Firstly, each group will be allocated a minor project and be expected to present their findings regarding an ongoing class case study of a contemporary B2B integration initiative. Secondly, each student is to present on their component of the Assignment 3 Group Report. It is up to each team to structure their activities to meet the overall duel requirements of the two presentations.

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 [1]: Examination
Indicative Time on Task [2]: 50 hours
Due: **TBA**
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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[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

Each week we will run a live seminar for 2 hours on campus plus a non compulsory tutorial hour which is more set for groups to have a time to work with other members. For details of days, times consult the timetables webpage.

Recommended Texts

We have a mandatory textbook that we will be following very closely for lectures and tutorial exercises as follows:

Dumas, M et al Fundamentals of Business Process Management, 2e, Springer, 2018

Fortunately, this textbook is available as a free ebook from our library website, through the following link: https://link-springer-com.simsrad.net.ocs.mq.edu.au/book/10.1007%2F978-3-662-56509-4

Additional references that are available for loan from the library are:

Douglas K. Barry (2013) Web Services, Service-Orientated Architectures and Cloud Computing, 2e, Morgan Kaufmann, Sydney

David S. Linthicum (2009) Cloud Computing and SOA Convergence in Your Enterprise: A Step-by-Step Guide, Addison Wesley, Sydney

Jason Bloomberg (2013) The Agile Architecture Revolution: How Cloud Computing, REST-Based SOA, and Mobile Computing are Changing Enterprise IT, Wiley.

Lecture handouts will list appropriate Web based references and further reading for some of the rapidly evolving technologies discussed in this course. All the lecture handouts and soft copy references will be available for download from the class Web site from Week 1 at: https://ilearn.mq.edu.au/

For consistency with our Dumas textbook, we will be using the Signavio Modelling Tool. You can obtain a free education licence at https://academic.signavio.com/p/register We 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.

Unit Schedule

Week	Topic	References

1	E-Commerce	Laudon and Traver, 2017	
	Introduction to Business Process Management	Chapter 1	
	No Practical in Week 1		
2	Lean Methodology	Mark Robinson, 2014	
	Essential Process Modelling		
	Release Assignment One (Individual Assignment) 'Electronic Medical Records'	Chapter 3	
	Practical Exercises from Chapter 1		
3	Collaborative Commerce (ERP II)	Gartner	
	Advanced Process Modelling		
	Practical Exercises from Chapter 3	Chapter 4	
4	B2B Data Integration (EDI and EDI-INT)	Coles Group Specifications	
	Process Identification	Chapter 2	
	Practical Exercises from Chapter 4		
	Assignment One Due		
5	Web Services Introduction	Barry, 2013	
	Process Discovery	Chapter 5	
	Practical Exercises from Chapter 2		
6	Services Orientated Architecture	IBM, 2009	
	Qualitative Process Analysis		
	Practical Exercises from Chapter 5	Chapter 6	
7	E-Procurement Processes	Gartner, 2015	
	Quantitative Process Analysis		
	Release Assignment Two (Individual Assignment) 'Hospital Procurement Process Model'	Chapter 7	
	Practical Exercises from Chapter 6		
8	Data Orientated Application Integration	White, 2009 and Denodo, 2018	
	Process Redesign	Chapter 8	
	Practical Exercises from Chapter 7		

9	Application Interfaces	Faber Novel, 2012
	Process Aware Information Systems	Chapter 9
	Assignment Two Due	
	Release Assignment Three (Group Assignment) 'BPM with SaaS Solutions'	
	Practical Exercises from Chapter 8	
10	Application Infrastructure and Middleware Market	Gartner, 2018
	Process Implementation with Executable Models	
	Practical Exercises from Chapter 9	Chapter 10
11	BPM and SOA Together	IBM, 2013
	Tutorial on Assignment 3	
12	Group Presentations Assignment Three Due	
13	Group Presentations continued Revision	

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 ask.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/

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 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/ 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.