COMP8760
Enterprise Application Integration
Session 1, Weekday attendance, North Ryde 2020
Dept of Computing

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General Information

Unit convenor and teaching staff
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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://students.mq.edu.au/important-dates

Learning Outcomes

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.

### Assessment Tasks

<table>
<thead>
<tr>
<th>Name</th>
<th>Weighting</th>
<th>Hurdle</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignment 1</td>
<td>15%</td>
<td>No</td>
<td>17/03/2020</td>
</tr>
<tr>
<td>Assignment 2</td>
<td>15%</td>
<td>No</td>
<td>5/05/2020</td>
</tr>
<tr>
<td>Assignment 3</td>
<td>10%</td>
<td>No</td>
<td>25/5/2020</td>
</tr>
<tr>
<td>Group and individual presentation</td>
<td>10%</td>
<td>No</td>
<td>25/5/20</td>
</tr>
<tr>
<td>Final examination</td>
<td>50%</td>
<td>No</td>
<td>Exam Week</td>
</tr>
</tbody>
</table>

**Assignment 1**

**Assessment Type:** Modelling task  
**Indicative Time on Task:** 15 hours  
**Due:** 17/03/2020  
**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:** Case study/analysis  
**Indicative Time on Task:** 15 hours  
**Due:** 5/05/2020  
**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: 25/5/2020
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: 25/5/20
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: 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.

1 If you need guidance or support to understand or complete this type of assessment, please contact the Learning Skills Team

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 you should attend up to 3 hours of lectures and tutorials. For details of days, times and rooms 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:


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 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/](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

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<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>E-Commerce&lt;br&gt;Introduction to Business Process Management&lt;br&gt;No Practical in Week 1</td>
<td>Laudon and Traver, 2017&lt;br&gt;Chapter 1</td>
</tr>
<tr>
<td>2</td>
<td>Lean Methodology&lt;br&gt;Essential Process Modelling&lt;br&gt;Release Assignment One (Individual Assignment) ‘Electronic Medical Records’&lt;br&gt;Practical Exercises from Chapter 1</td>
<td>Mark Robinson, 2014&lt;br&gt;Chapter 3</td>
</tr>
<tr>
<td>3</td>
<td>Collaborative Commerce (ERP II)&lt;br&gt;Advanced Process Modelling&lt;br&gt;Practical Exercises from Chapter 3</td>
<td>Gartner&lt;br&gt;Chapter 4</td>
</tr>
<tr>
<td>4</td>
<td>B2B Data Integration (EDI and EDI-INT)&lt;br&gt;Process Identification&lt;br&gt;Practical Exercises from Chapter 4&lt;br&gt;Assignment One Due</td>
<td>Coles Group Specifications&lt;br&gt;Chapter 2</td>
</tr>
<tr>
<td>5</td>
<td>Web Services Introduction&lt;br&gt;Process Discovery&lt;br&gt;Practical Exercises from Chapter 2</td>
<td>Barry, 2013&lt;br&gt;Chapter 5</td>
</tr>
<tr>
<td>6</td>
<td>Services Orientated Architecture&lt;br&gt;Qualitative Process Analysis&lt;br&gt;Practical Exercises from Chapter 5</td>
<td>IBM, 2009&lt;br&gt;Chapter 6</td>
</tr>
<tr>
<td>7</td>
<td>E-Procurement Processes&lt;br&gt;Quantitative Process Analysis&lt;br&gt;Release Assignment Two (Individual Assignment) ‘Hospital Procurement Process Model’&lt;br&gt;Practical Exercises from Chapter 6</td>
<td>Gartner, 2015&lt;br&gt;Chapter 7</td>
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Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central). 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
- Grade Appeal Policy
- Complaint Management Procedure for Students and Members of the Public
- Special Consideration Policy (Note: The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.)

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

If you would like to see all the policies relevant to Learning and Teaching visit Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central).

**Student Code of Conduct**

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/study/getting-started/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

**Student Support**

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

**Learning Skills**

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to improve your marks and take control of your study.

- Workshops
- StudyWise
- Academic Integrity Module for Students
- Ask a Learning Adviser

**Student Enquiry Service**

For all student enquiries, visit Student Connect at ask.mq.edu.au

If you are a Global MBA student contact globalmba.support@mq.edu.au

**Equity Support**

Students with a disability are encouraged to contact the Disability Service who can provide appropriate help with any issues that arise during their studies.

**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.
Changes from Previous Offering

To accommodate a new format of 2 hour lectures and 1 hour tutorials, a comprehensive textbook has been adopted, Dumas et al, Fundamentals of Business Process Management, 2e, 2018, Springer.

This textbook has in chapter exercises that demonstrate the lecture material very well. These exercises have been used for the new tutorial structure.

This change required the adoption of Signavio, an excellent process modelling tool, which aligns with the textbook and has a free licence for educational purposes.

Standards

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
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<tbody>
<tr>
<td>HD</td>
<td>Apply techniques and knowledge in new contexts, show breadth and depth of understanding of business process modeling and its role in justifying investment in application integration technologies. A sound grounding in designing application integration architectures, understanding the web services evolution to a Services Orientated Architecture and the role of Business Process Management. Demonstrate leadership, creativity, critical thinking and analysis skills. Enthusiastic in acquiring new knowledge in the application integration area. Demonstrate capability in applying new application integration knowledge to solve real-world problems. Conduct team work effectively and play a key role in moving the whole project team forward.</td>
</tr>
<tr>
<td>D</td>
<td>Apply techniques and knowledge in some new contexts, show breadth and depth of understanding of across most of the business process modeling topics and its role in justifying investment in application integration technologies. Apply techniques and knowledge in some new contexts, show breadth and depth of understanding across most of the topics: designing application integration architectures, understanding the web services evolution to a Services Orientated Architecture and the role of Business Process Management. Demonstrate some leadership occasionally. Show creativity, critical thinking and analysis skills. Have the capability in applying application integration knowledge to solve real-world problems. Collaborate with team members well and finish assigned tasks on time and with good quality.</td>
</tr>
<tr>
<td>CR</td>
<td>Show breadth of understanding across most of the business process modeling topics and its role in justifying investment in application integration technologies. Show breadth of understanding across most of designing application integration architectures, understanding the web services evolution to a Services Orientated Architecture and the role of Business Process Management. Demonstrate analysis skills in some occasions. Know how to apply application integration to solve some of the real-world problems. Able to finish assigned tasks on time and with good quality most of the time.</td>
</tr>
<tr>
<td>P</td>
<td>Can reproduce definitions and ideas, show some breadth of understanding of the business process modeling topics and its role in justifying investment in application integration technologies. Can reproduce some definitions and ideas, show some breadth on issues in how breadth of understanding across most of designing application integration architectures, understanding the web services evolution to a Services Orientated Architecture and the role of Business Process Management. Demonstrate limited analysis skills. Can apply application integration knowledge to solve limited real-world problems. Able to finish all assigned tasks on time and with acceptable quality.</td>
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In this unit, your final grade depends on your performance in each part of the assessment. For
each task, you receive a mark that combines your standard of performance regarding each learning outcome assessed by this task. Then the different component marks are added up to determine your total mark out of 100. Your grade then depends on this total mark and your overall standards of performance.

In order to pass the unit, you must obtain a total mark of 50% or higher.