

# RYERSON UNIVERSITY

**Ted Rogers School of Information Technology Management  
and G. Raymond Chang School of Continuing Education**

## **COURSE OF STUDY 2017-2018**

### **(C)ITM 706 – Enterprise Architecture**

#### **1.0 PREREQUISITE**

The prerequisite for this course is ITM 301 and ITM 305 and ITM 410. Students who do not have the prerequisites will be dropped from the course.

#### **2.0 INSTRUCTOR INFORMATION**

- Name:
- Office Phone Number:
- E-mail address:
- Faculty/course web site(s): <https://my.ryerson.ca>
- Office Location & Consultation hours:
  - Your instructor is available for personal consultation during scheduled consultation hours which are posted on their office door or on the course shell in D2L Brightspace. However, you are advised to make an appointment by e-mail or by telephone before coming to ensure that the professor is not unavoidably absent.
- E-mail Usage & Limits:

Students are expected to monitor and retrieve messages and information issued to them by the University via Ryerson online systems on a frequent and consistent basis. ***Ryerson requires that any official or formal electronic communications from students be sent from their official Ryerson E-mail account.*** As such emails from other addresses may not be responded to.

#### **3.0 CALENDAR COURSE DESCRIPTION**

This course focuses on business analysis, organizational processes, enterprise architecture, and security/risk management. This course explores the design, selection, implementation and management of enterprise business processes from the perspectives of IT capabilities. These capabilities are typically organized and presented as enterprise architecture, consisting of high-level internally compatible representations of organizational business models, data, applications, and information technology infrastructure. Students will learn frameworks and strategies for infrastructure

management. They will hone their ability to communicate technology architecture strategies concisely to a general business audience.

#### **4.0 COURSE OVERVIEW**

This course explains what Enterprise Architecture (EA) is and how to create and maintain effective business models that enhance business strategic goals and decision-making processes from the perspectives of ICT enabled business processes. The course explains how to integrate the Service Oriented architecture (SOA) with business process logics. It introduces some of the well-known EA frameworks and the ties between enterprise architecture and ICT infrastructure through some practical case studies that explain how to build and maintain business architecture within an organization.

#### **5.0 COURSE OBJECTIVES**

This course has 8 learning objectives in developing the student's ITM knowledge and skills at the university level. These objectives are aligned with AACSB standards and the IS 2010 model curriculum published by Association for Information Systems (AIS) and the Association for Computing Machinery (ACM).

1. Explain the principles underlying an enterprise architecture system.
2. Learn how to link the organization logic business logic processes with ICT infrastructure reflecting the integration and standardization requirements of the company's strategic goals.
3. Explain how digitized business processes, IT infrastructure, shared data and customer interfaces are identified and linked in the enterprise architectures.
4. Explain the ICT engagement model as a system of governance mechanism to ensure business and IT projects achieve both local and companywide objectives.
5. Explain the integration of Service Oriented architecture (SOA) with business process logics.
6. Understand the importance of integrating people, ICT and business processes with business strategic goals.
7. Learn about some of the exiting EA frameworks and tools and how they applied in business today
8. Understand the principles underlying Enterprise Security, Privacy, Trust and Accessibility for Enterprise Architecture

#### **6.0 EVALUATION**

The grade for this course is composed of the mark received for each of the following components:

<b>Evaluation Component</b>	<b>Percentage of the Final Grade</b>
Labs	4%
4 Assignments (4% each)	16%
Midterm Exam	25%
Group Project	10%
Final Exam	45%
<b>Total</b>	<b>100%</b>

**NOTE:** Students must achieve a course grade of at least 50% to pass this course.

## Citation Format for Essays and Term Papers

All essay assignments, term paper and other written works must adhere with APA citation format. Technical errors (spelling, punctuation, proofing, grammar, format, and citations) and/or inappropriate levels of language or composition will result in marks being deducted. You are encouraged to obtain assistance from the Writing Centre ([www.ryerson.ca/writingcentre](http://www.ryerson.ca/writingcentre)) for help with your written communications as needed.

You can find APA guidelines and academic referencing from the following online resources:

a) Ryerson Writing Support Web site:

<http://www.ryerson.ca/content/dam/studentlearningsupport/resources/citation-conventions/APA%20Basic%20Style%20Guide.pdf>

b) Ryerson Library for APA style guide: <https://library.ryerson.ca/guides/style/>

## 7.0 POSTING OF GRADES

- ❖ All grades, on assignments or tests must be posted or made available to students through the return of their work. Grades on final exams must be posted. However, as there may be other consideration in the determination of final grades, students will receive their official final grade in the course only from the Registrar. Final official course grades may not be posted or disclosed anywhere by an instructor.
- ❖ Posting of grades on the Course Management System (D2L Brightspace) is preferred. If grades are posted in hard copy they must be posted numerically sorted by student identification number after at least the **first four digits** have been removed. Instructors must inform students in all course management documentation of the method to be used in the posting of grades. Students who wish not to have their grades posted must inform the instructor in writing.
- ❖ Some graded work will be returned to students prior to the last date to drop a course without academic penalty.

## 8.0 TOPICS – SEQUENCE & SCHEDULE

Session	Topic	Readings	Case Assignment/ Additional Readings
1	Application of Business Process Modeling (BPM) & Legacy ERP systems  <b>Learning Outcomes</b> <ul style="list-style-type: none"><li>• Describe business process management</li><li>• Describe legacy systems and their limitations in today's business environment</li></ul>	Review Lecture Notes	
2	Introduction to Enterprise Architecture  <b>Learning Outcomes</b> <ul style="list-style-type: none"><li>• Describe the architecture process</li><li>• Explain business architecture modeling and its drivers</li><li>• Explore the foundations of Sparx System</li></ul>	Chapter 1 Lecture Notes	Introduction to Sparx

3	Enterprise Architecture frameworks & methods  <b>Learning Outcomes</b> <ul style="list-style-type: none"> <li>• Describe Enterprise Architectures</li> <li>• Explain TOGAF &amp; Zackman frameworks</li> <li>• Explain MOG's Model driven Architecture</li> <li>• Discuss principles of BPMN</li> </ul>	Chapters 2 & 3 Lecture Notes	<a href="#">Sparx EA Modeling</a>
4	Enterprise Architecture Modeling  <b>Learning Outcomes</b> <ul style="list-style-type: none"> <li>• Explain EA Goals, Requirements,</li> <li>• Constraints and Principle</li> <li>• Explain EA Stakeholders, Drivers and Assessment</li> <li>• Explain EA Business Layer</li> <li>• Explain EA Technology Layer</li> </ul>	Chapters 4 & 5 Lecture Notes	Assignment 1
5	Enterprise Architecture Tools, view and viewpoints  <b>Learning Outcomes</b> <ul style="list-style-type: none"> <li>• Explain ArchiMate tools</li> <li>• Explain BPMN with TOGAF</li> <li>• Explain the modeling processes</li> </ul>	Chapters 67, Lecture Notes	Assignment 2
6	Enterprise Architecture Development  <b>Learning Outcomes</b> <ul style="list-style-type: none"> <li>• Explain Explain Viewpoints &amp; Visualization</li> <li>• Explain functional analysis of EA</li> </ul>	Chapters 8& 9 Lecture Notes	Group Project Case Assignment 3
7	Group Project case  <b>Midterm Examination</b>		
8	Governance Models for Enterprise Architecture  <b>Learning Outcomes</b> <ul style="list-style-type: none"> <li>• Explain the role of IT Governance in EA</li> <li>• Describe Infrastructure Architecture</li> <li>• Explain Business System Architecture</li> </ul>	Chapter 10 Lecture Notes	Assignment 4
9	Business Process Modeling with BPMN2.0  <b>Learning Outcomes</b> <ul style="list-style-type: none"> <li>• Explain BPMN in Sparx System</li> <li>• Describe BPMN vs. ArchiMate 2.0</li> </ul>	Sparx Lecture Notes	
10	Enterprise Architecture Assessment & Analysis  <b>Learning Outcomes</b> <ul style="list-style-type: none"> <li>• Describe EA analysis techniques</li> <li>• Explain functional analysis of an EA</li> </ul>	Chapter 9 Lecture Notes	<a href="#">EA Analysis</a>
11	Service Oriented Architecture (SOA), Modeling and Architecture with BPMN  <b>Learning Outcomes</b> <ul style="list-style-type: none"> <li>• Explain the conceptual model of a SOA architectural</li> <li>• Explain SOA and Universal Description • Discovery and Integration (UDDI)</li> <li>• Explain Business Process Execution Language (BPEL)</li> </ul>	Lecture Notes	Group Project Due  <a href="#">SOA Modeling</a>
12	Enterprise Security and Risk assessment, Privacy, Trust and Accessibility	Chapter 9 Lecture Notes	<a href="#">Enterprise Security Guidelines</a> <a href="#">Privacy by Design</a>

	<p><b>Learning Outcomes</b></p> <ul style="list-style-type: none"> <li>• Explain Risk Analysis</li> <li>• Explain security principles of information security integrated with EA</li> <li>• Explain Privacy-by-Design (PbD) principles associated with EA</li> </ul>		
--	--	--	--

## 9.0 TEACHING METHODS

This course will incorporate the following teaching and learning methods:

- Regular lectures, prescribed weekly readings, problem based assignments, group project work, and case study discussions are the main teaching activities that occur in this course.
- Since a major component of this course is problem-based learning the three individual assignments provide the students practice and progressive skill-building that they can apply in the group based project.
- The group project work allows the students to apply the analytical techniques that were introduced in class and practiced in the problem sets. In addition, by working in small teams the students develop group interaction and individual and group presentation skills.
- The instructor will establish an active learning environment by engaging the students in a Socratic exchange of relevant questions and ideas. Students should expect a frequent and substantive interaction between the instructor and students and among students in every class.
- Those students that actively participate in the learning process will gradually assume ownership of the knowledge contained in the course materials. In addition to ownership of the course content, the students will

## 10.0 TEXTS & OTHER READING MATERIALS

**Title:** Enterprise Architecture at Work: Modelling, Communication and Analysis (4rd Edition)

**Author:** Marc Lankhorst

**Publisher:** Springer

**ISBN:** 979-3662539323

### Suggested/Recommended Textbook

**Title:** Modeling Enterprise Architecture with TOGAF: A Practical Guide Using UML and BPMN

**Authors:** Philippe Desfray and Gilbert Raymond

**Publisher:** Morgan Kaufmann

**ISBN:** 978 – 012-4199842

**Title:** Enterprise Architecture as Strategy: Creating a Foundation for Business Execution

**Authors:** Jeanne W. Ross, Peter Weill, David C. Robertson

**Publisher:** Harvard Business Press Books

**ISBN:** 978-1591398394

**Title:** Modeling Service-Oriented Architectures: An Illustrated Example using Sparx Systems Enterprise Architect

**Author:** Doug Rosenberg

**Publisher:** Sparx Systems Pty Ltd and ICONIX

**Available for Download:**

<http://www.sparxsystems.com.au/downloads/ebooks/Modeling%20Service-Oriented%20Architectures.pdf>

**IBM Redbooks:** Combining Business Process Management and Enterprise Architecture for Better Business Outcomes

**Authors:** Claus T. Jensen, Owen Cline, and Martin Owen

**Publisher:** IBM

**Available for Download:** <http://www.redbooks.ibm.com/redbooks/pdfs/sg247947.pdf>

**IBM Redbooks:** Patterns: Service-Oriented Architecture and Web Services

**Authors:** Mark Endrei, Jenny Ang, Ali Arsanjani, Sook Chua, Philippe Comte, Pål Krogdahl, Min Luo, and Tony Newling

**Available for Download:** <http://www.redbooks.ibm.com/redbooks/pdfs/sg246303.pdf>

## **11.0 VARIATIONS WITHIN A COURSE**

All sections of a course (Day and CE sections) will follow the same course outline and will use the same course delivery methods, methods of evaluation, and grading schemes. Any deviations will be posted on D2L Brightspace once approved by the course coordinator.

## **12.0 OTHER COURSE, DEPARTMENTAL, AND UNIVERSITY POLICIES**

- For more information regarding course management and departmental policies, please consult the ‘**Appendix of the Course of Study**’ which is posted on the Ted Rogers School of Information Technology Management website, <http://www.ryerson.ca/content/dam/itm/documents/cos/Appendix.pdf>. This appendix covers the following topics:
  - 12..1** Attendance & Class Participation
  - 12..2** Email Usage
  - 12..3** Request for Academic Consideration
    - 12..3.1** Ryerson Health Certificate
    - 12..3.2** Academic Accommodation for Students with Disabilities
    - 12..3.3** Religious, Aboriginal or Spiritual Observance
    - 12..3.4** Re-grading and Recalculation
  - 12..4** Examinations & Tests
    - 12..4.1** Period of Prohibition from Testing
    - 12..4.2** Make-Up of Mid-Term Tests, Assignments and Other Assessments During the Semester
    - 12..4.3** Make –Up of Final Exams
    - 12..4.4** Missing a Make-Up
  - 12..5** Late Assignments
  - 12..6** Standard of Written Work
  - 12..7** Academic Grading Policy
  - 12..8** Academic Integrity
    - 12..8.1** Turnitin.com
  - 12..9** Student Rights