Title (Units): **COMP7500 Enterprise Architecture and Information Systems Development (3,2,1)**

Course Aims: This course first introduces the overview and the developing concerns of enterprise architecture. Functionalities of enterprise information systems are then covered. Students will also study the enterprise-scale agile software development concepts including agile manifesto and principles, and agile analysis. Enterprise systems integration approach and performance evaluation of enterprise information systems are also covered.

Prerequisite: Postgraduate Student Standing

Course Intended Learning Outcomes (CILOs):
Upon successful completion of this course, students should be able to:

No.	Course Intended Learning Outcomes (CILOs)
	Knowledge
1	Describe the functions, implementation strategies, and components and artifacts of enterprise architecture
2	Describe the functionalities of enterprise information systems
3	Explain the agile manifesto and principles, agile project management and analysis for the enterprise-scale agile software development
4	Explain the enterprise systems integration approach and performance evaluation of enterprise information systems
	Professional Skill
5	Apply the agile manifesto and principles for the enterprise-scale agile software development
	Attitude
6	Critique the important issues and concerns related to enterprise architecture and enterprise information systems

Calendar Description: This course aims to introduce the overview and the developing concerns of enterprise architecture. Functionalities of enterprise information systems and enterprise-scale agile software development concepts are included. Enterprise systems integration approach and performance evaluation of enterprise information systems are also covered.

Teaching and Learning Activities (TLAs):

CILOs	Type of TLA
1-6	Via lectures, tutorials, and assignments, students will learn key concepts of enterprise architecture and enterprise software development
5	Via lab sessions and/or group projects, students gain hands-on exposure to apply the agile manifesto and principles for the enterprise software development

Assessment:

No.	Assessment Methods	Weighting	CILOs to be addressed	Description of Assessment Tasks
1	Continuous assessment	50%	1-6	Continuous assessments via assignments, lab exercises and/or group projects are designed to measure how well the students have learned the key concepts of enterprise architecture and enterprise software development.
2	Examination	50%	1-5	Final examination questions are designed to see how far students have achieved their intended learning outcomes. Questions will focus on assessing students' ability in enterprise software development.

Assessment Rubrics:

Criteria	Excellent (A)	Good (B)	Satisfactory (C)	Fail (F)
Understand the overview and developing concerns of enterprise architecture (EA)	Able to show a thorough understanding of EA functions, implementing strategies and architecture components	Able to show a good understanding of EA functions, implementing strategies and architecture components	Able to show some understanding of some EA functions, implementing strategies and architecture components	Fail to show understanding of EA functions, implementing strategies and architecture components
Explain the functionalities of enterprise information systems	Can explain the functionalities of enterprise information systems very well	Can explain the functionalities of enterprise information systems often	Can explain some functionalities of enterprise information systems sometimes	Not able to explain the functionalities of enterprise information systems
Understand the enterprise-scale agile software development	Demonstrate the ability to well understand the development concerns of enterprise-scale agile software development including manifesto and principles, project management and analysis	Demonstrate the ability to understand most development concerns of enterprise-scale agile software development including manifesto and principles, project management and analysis	Demonstrate the ability to understand some development concerns of enterprise-scale agile software development including manifesto and principles, project management and analysis	Cannot demonstrate the ability to understand the development concerns of enterprise-scale agile software development including manifesto and principles, project management and analysis
Explain the enterprise systems integration approach and performance evaluation of enterprise information systems	Can explain thoroughly the enterprise systems integration approach, e.g. messaging and SOA, and the performance evaluation of enterprise information systems	Can explain the enterprise systems integration approach, e.g. messaging and SOA, and the performance evaluation of enterprise information systems by adequate justifications	Can explain some enterprise systems integration approach, e.g. messaging and SOA, and the performance evaluation of enterprise information systems	Cannot explain the enterprise systems integration approach, e.g. messaging and SOA, and the performance evaluation of enterprise information systems

Course Content and CILOs Mapping:

Content		CILO No.
I	An Overview of Enterprise Architecture (EA)	1,6
II	Developing an Enterprise Architecture	1,6
III	Functionalities of Enterprise Information Systems	2,6
IV	Enterprise-Scale Agile Software Development	3,5,6
V	Enterprise Systems Integration Approach	4,6
VI	Performance Evaluation of Enterprise Information Systems	4,6

References:

- Svyatoslav Kotusev. The Practice of Enterprise Architecture: A Modern Approach to Business and IT Alignment. SK Publishing, 2018.
- Dr Mehmet Yildiz. A Modern Enterprise Architecture Approach: Transform enterprise with pragmatic architecture using mobility, IoT, Big Data, Cloud (Revised Edition). 3rd Edition, S.T.E.P.S. Publishing Australia, 2019.

- Vivek Kale. Digital Transformation of Enterprise Architecture, 1st Edition, CRC Press, 2019.
- Fowler Martin. Patterns of Enterprise Application Architecture (Addison-Wesley Signature Series (Fowler)), 1st Edition, Addison-Wesley Professional, 2012.
- Alexander Scheerer. Coordination in Large-Scale Agile Software Development: Integrating Conditions and Configurations in Multiteam Systems, Springer, 2017.
- Cliff Berg, Kurt Cagle, Lisa Cooney, Philippa Fewell, Adrian Lander, Raj Nagappan, and Murray Robinson. Agile 2: The Next Iteration of Agile, 1st Edition, Wiley, 2021.
- Li Da Xu. Enterprise Integration and Information Architecture: A Systems Perspective on Industrial Information Integration, CRC Press, 2015.
- Marc Lankhorst. Enterprise Architecture at Work: Modelling, Communication and Analysis (The Enterprise Engineering Series), 4th Edition, Springer, 2017.
- Robert. C. Martin. Agile Software Development, Principles, Patterns, and Practices. Pearson Education. 2013.
- Scott A. Bernard. An Introduction to Enterprise Architecture, 3rd Edition, AuthorHouse, 2012.
- William R. Simpson. Enterprise Level Security: Securing Information Systems in an Uncertain World, Auerbach Publications, 2016

Course Content:

Topic

I. An Overview of Enterprise Architecture (EA)
   A. Functions of EA
   B. EA Methodologies (e.g. TOGAF, Zachman)

II. Developing an Enterprise Architecture
   A. Implementation strategies
   B. Architecture components and artifacts
   C. Development of architecture views

III. Functionalities of Enterprise Information Systems

IV. Enterprise-Scale Agile Software Development
   A. Agile Manifesto and Principles (e.g. Extreme Programming, Pair Programming)
   B. Agile Project Management
   C. Agile Analysis
   D. Launching and Managing Scrum Teams
   E. Agile Development Tools

V. Enterprise Systems Integration Approach

VI. Performance Evaluation of Enterprise Information Systems