

14/5/2019

14.00 - 16.00pm

CMPU 4025 Enterprise Sys Inf. &  
Arch.

KE 103, KE 154 Kevin Street

Programme Code: DT228, DT282  
Module Code: CMPU 4025  
CRN: 22427, 22536

**TECHNOLOGICAL UNIVERSITY DUBLIN**  
**KEVIN STREET CAMPUS**

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BSc. (Honours) Degree in Computer Science

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(International)

**Year 4**

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SEMESTER 2 EXAMINATIONS 2018/19

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**Enterprise Systems Infrastructure & Architecture**

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Dr. Deirdre Lillis  
Dr. Martin Crane

***Answer THREE questions out of FOUR***

All questions carry equal marks.  
One complimentary mark will be awarded.

1. *Rapack* is a company that designs and manufactures packaging for retail products. They have a number of suppliers who supply the raw materials such as cardboard / plastic sheets etc. They produce the packaging at their factory and ship it directly to their customers fulfilment / distribution centres. Using this example, answer the questions below.
- (i) Using Porter's competitive forces model, outline what you think are the main competitive challenges facing *Rapack*.  
[6 Marks]
  - (ii) Using an appropriate diagram, illustrate the value chain that would exist for *Rapack*.  
[6 Marks]
  - (iii) Based on your answers to (i) and (ii) above, discuss **three** business strategies that *Rapack* could employ and how appropriate IT systems could support *Rapack* to achieve each of its strategic goals.  
[3 x 7 Marks]
2. (a) *SAP, Oracle and Microsoft* are among a large number of ERP business systems providers. Explain what is meant by the acronym ERP.  
[5 Marks]
- (b) The centralised nature of ERP systems is one of the biggest arguments in favour of utilising them within an Enterprise. On the other hand, de-centralising business services and their associated data within a "*microservices*" architecture can also be argued as a preferred systems architecture. Explain **three** benefits of the centralised nature of ERP systems and provide a brief discussion of the apparent conflict with a "*microservices*" architecture.  
[16 Marks]
- (c) Although the benefits of utilising an ERP system are evident from their use and popularity, there are potential risks when implementing such a solution. Discuss **three** factors that you think cause risks that could lead to problems when implementing an ERP system.  
[12 Marks]

3. (a) Using the typical stakeholders, components and structure of an *enterprise supply chain* answer the following questions:
- (i) Identify **two** major operational challenges facing the Enterprise when it comes to *supply chain management*. Describe how an appropriate business system could support businesses with addressing those challenges.  
[10 Marks]
  - (ii) Walmart and Proctor & Gamble were two of the first large enterprises to embrace technology in the context of a business partnership and the supply chain. Incorporating both a business and technology perspective, discuss **three** issues that you think would have been potential blockers to this alliance.  
[12 Marks]
- (b) Discuss **three** ways in which you think *supply chain management systems* provide business value to an organisation.  
[11 Marks]
4. In many large enterprises, a high percentage of the technology requirements is provided by a single system such as an ERP. Despite this, those enterprises often require additional technology and systems in order to integrate with other external stakeholders. An *Enterprise Service Bus* (ESB) is often the solution of choice to allow such systems integration. Discuss, in detail, how an ESB could provide such an integration solution giving examples of the issues that it addresses. Use the following headings to structure your answer:
- Architecture & Loose Coupling  
[8 Marks]
  - Data Transportation  
[8 Marks]
  - Data Transformation  
[8 Marks]
  - Integration Patterns  
[9 Marks]