

INFO5990: Professional Practice in IT

Week 13: Review



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I value your feedback – it will help me improve the unit each semester

(the feedback from last semester's students led to significant changes)

So – whilst you wait for the class to start – can I ask everyone to take 10 mins to complete the USS survey

Unit Survey

Your Unit of Study Survey (USS) feedback is confidential.

It's a way to share what you enjoyed and found most useful in your learning, and to provide constructive feedback. It's also a way to 'pay it forward' for the students coming behind you, so that their learning experience in this class is as good, or even better, than your own.

When you complete your USS survey, please:

Be specific-

Which class tasks, assessments or other activities helped you to learn? Why were they helpful? Which one(s) didn't help you to learn? Why didn't they work for you?

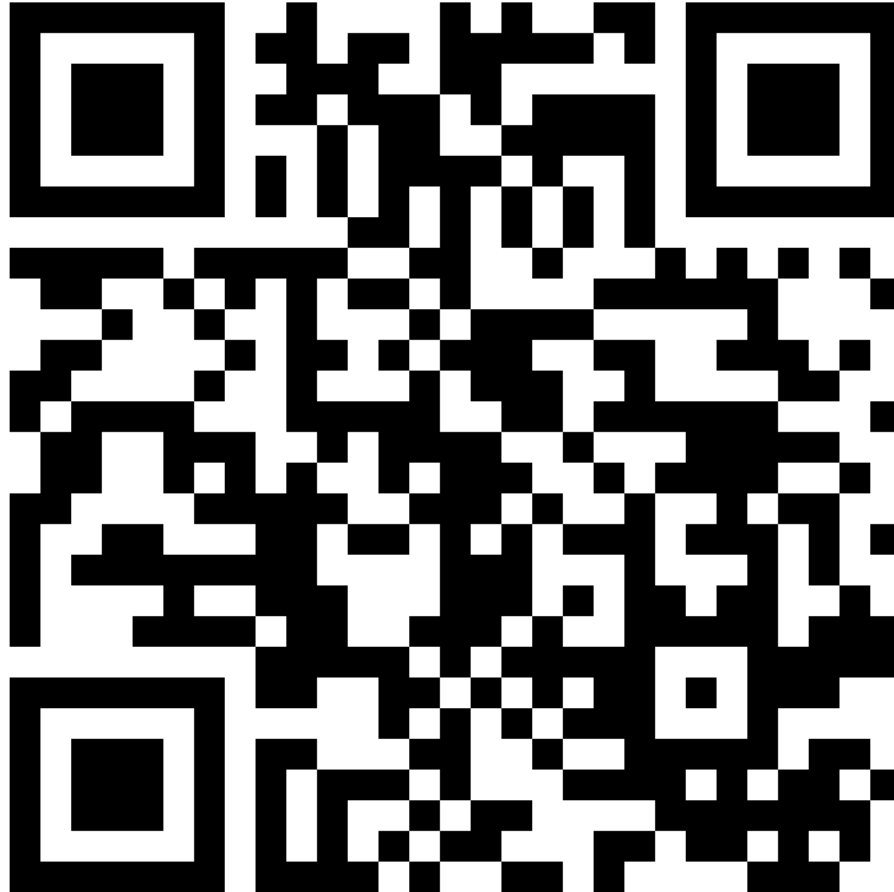
Be constructive-

What practical changes can you suggest to class tasks, assessments or other activities, to help the next class learn better?

Be relevant-

Imagine you are the teacher. What sort of feedback would you find most useful to help make your teaching more effective?

Unit Survey



Learning Outcomes

- **LO1.** demonstrate an ability to construct and present effective written and oral communication appropriate to IT practitioners
- **LO2.** analyse and criticise wider issues and problems concerning professional practice in IT
- **LO3.** evaluate the impact of information technology on individuals and organisations within our globalised world
- **LO4.** demonstrate awareness of and have gained skills in aspects of professional practice including conflict resolution, contract negotiation, team formation, leadership and team dynamics
- **LO5.** understand issues relating to ethics and professional responsibility in the IT profession and be able to analyse and resolve ethical dilemmas
- **LO6.** understand aspects of intellectual property and its protection
- **LO7.** analyse current trends in human resource management in the IT industry
- **LO8.** understand issues related to, and select approaches for managing, software testing, data security, data quality, and quality assurance in the IT industry
- **LO9.** define the use of IT in different industries
- **LO10.** describe and apply skills relating to professional practice in IT project management
- **LO11.** select and apply investigative research methods, models and tools to IT professional practice; identify and critique changing information on the area of interest; and interpret the potential validity of results

Example: LO2. analyse and criticise wider issues and problems concerning professional practice in IT

- Q: Can you identify key issues that affect professional practice in IT?
- **Examples:**
 - Rapid pace of technological change
 - Organisational resistance to change/transformation
 - Skills gaps
 - Security and data protection
 - Lack of agility
 - Outsourcing/Insourcing decisions and risks
- **See:**
 - <https://www.forbes.com/sites/peterbendorsamuel/2020/02/06/key-issues-for-enterprise-it-spend-decisions-in-2020/?sh=311c2e9e649c>
 - <https://www.cio.com/article/3245772/the-12-biggest-issues-it-faces-today.html>
 - <https://www.globalknowledge.com/us-en/resources/resource-library/articles/12-challenges-facing-it-professionals/#gref>

Example: LO3. evaluate the impact of IT on individuals and organisations within our globalised world

- **Think about your project!**
 - What value is the system supposed to provide?
 - Impacts on the business activities/processes?
 - How did you identify those impacts?
- Q: What types of impacts might occur?
- **Examples**
 - Ways in which you interact with customers/clients?
 - Skills required internally?
 - Risks that you are exposed to?
 - New opportunities that are created?

Example: LO5. understand issues relating to ethics and professional responsibility in the IT profession

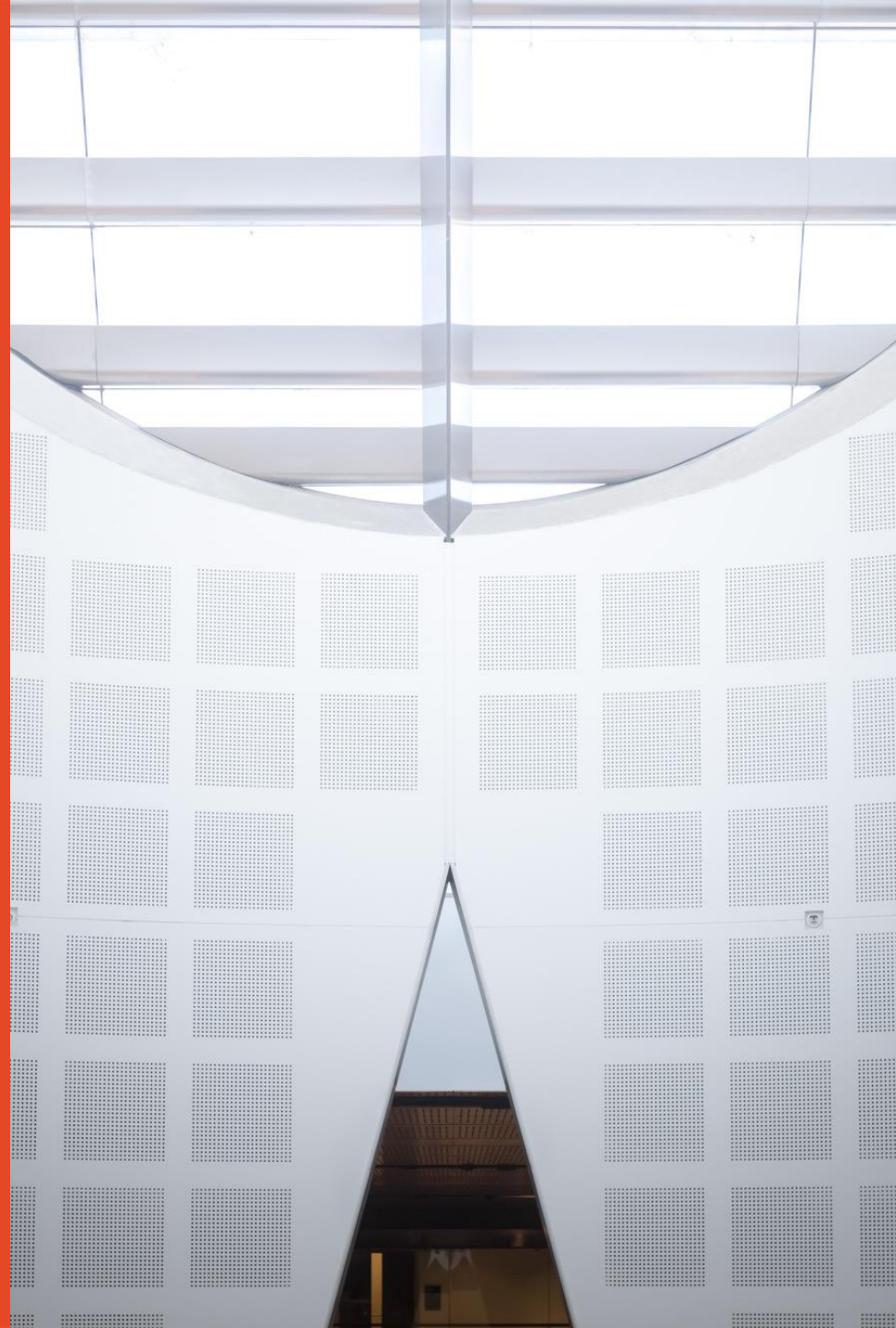
- Q: Were there any ethical issues that emerged in your project?
- If you didn't find any then you weren't looking hard enough!

INFO5990: Professional Practice in IT

Week 13: The Exam...



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Final Exam – Information Pack

General Information about exams and Special Consideration

<https://www.sydney.edu.au/students/exams.html>

How do I check my exam timetable?

<https://www.sydney.edu.au/students/exams/timetables.html>

- **Saturday, 16th November – 9 AM (Sydney time!!!)**

Please cross-check the exam time again!

- For CC students
 - On-campus, paper exam
 - Write your answers in the provided exam booklet/bubble sheet
- Allowed material
 - **Only 1-A4 size cheat sheet of notes (double-sided, handwritten/printed, no text colour restriction, and English Language Only)**
 - Colour pencils/pens can be used if you want to make handwritten notes with no restrictions on text colour.
 - Hardcopy Bilingual dictionary (Needs to be approved by the University). Please see <https://www.sydney.edu.au/students/exams/calculator-dictionary.html>

On the day of the Exam: Special Consideration?

Special Consideration

<https://www.sydney.edu.au/students/special-consideration.html>

If a problem affects you completing your exam, describe it on a Student Declaration and apply for Special Consideration

Exam Structure

- **Your exam is 2 hours and 10 minutes long (130 mins).**
 - This includes **10 minutes of reading time.**
 - However, students who registered for a disability academic action plan will receive additional time set by the disability service team. Kindly check your Disability Academic Plan portal for more information.
 - You are strongly encouraged to use the “**reading time**” to carefully plan and structure your response before you start writing.
 - To pass the unit you *must* obtain at least 40% (**16/40**)
 - If you obtain less than **40%** then your unit result will be capped at **45%**.
- **For example:**
 - Non-exam mark = 45/60; Exam mark = 15/40 → Final result = ~~60P~~ 45F
- **Section A**
 - 16 Multiple Choice Questions x 1 mark each = 16 marks
 - Same type of questions as in the weekly quiz
- **Section B**
 - 8 Written questions (**short and scenario**) x 3 marks each = 24 marks
 - Each answer should typically be ~50+ words

Information Pack

- Focus mainly on all the topics/contents covered in weekly lecture & lecture slides
- MCQ Quizzes & Short questions will **NOT directly come from weekly reading materials** which all of you used to get during weekly MCQ quizzes & some of the exam style questions
- The questions will mainly come from **topics/contents/concepts covered in weekly lecture & lecture slides. NO Calculation based questions will come.**
- Go through Foundational weekly reading materials which are related to topics/contents/concepts covered in weekly lecture as it will help you to analyze the contents and answer the short questions efficiently as they will test your ability to analyze information and synthesize ideas
- **Guest Presentation/Guest Lecture part is excluded from the Exam contents**

Information Pack

- For the **MCQ section**, you will be given an OMR form. A black pencil is recommended for filling in the circle; if any modification is required, an eraser can be used.
- For some **MCQ questions**, there might be a scenario, and you have to select the correct answer based on the scenario. You must carefully read the scenario and identify the key point. This will assist you in identifying the answer correctly.
- Write answers to the short descriptive questions within the boxes. All non-MCQ questions will have a box in which you should write down your answers. You should aim to write your answer within **50-200** words, as we always emphasize clear and concise answers. Try not to provide any generic/vague answer, as it will significantly reduce your mark.
- You should be familiar with the evaluation criteria that we provided in the tutorial guides for exam-style questions discussion by now. You might need to consider the criteria while you are answering. If you can provide relevant examples where necessary, it would add significant value to your justification.

Information Pack

- The following slides will contain some sample questions. **DO NOT TREAT** these exact questions as suggestions/possible questions for the final exam, as these **exact questions will NOT appear on the exam.**
- The upcoming slides provide some important topics under each weekly review to help you prepare better for the short questions, as **short questions MAY come from these topics.**
- **PLEASE DO NOT CONSIDER these topics as ONLY CONTENT for the exam.**
- The important topics list is **NOT applicable for MCQ questions** as there are 16 questions in the MCQ section. For the MCQ section, it is crucial that **you thoroughly review all the lecture slides as questions may be drawn from any part of the weekly lecture and lecture slides.**

Sample - MCQ Question & Answer Book

Section A

Organization structure primarily refers to

- a) how activities are coordinated & controlled
- b) how resources are allocated
- c) the location of departments and office space
- d) the policy statements developed by the firm

To check whether we are developing the right product according to the customer requirements are not. It is a static process

- a) Validation
- b) Verification
- c) Quality Assurance
- d) Quality Control

A Non-Functional Software testing done to check if the user interface is easy to use and understand

- a) Usability Testing
- b) Security Testing
- c) Unit testing
- d) Block Box Testing

Each iteration in the incremental model passes through the

- a) Communication and modeling phases
- b) Planning and construction phases
- c) Deployment and maintenance phases
- d) All phases

What is the advantage of the recursive approach than an iterative approach

- a) Consumes less memory
- b) Less code and easy to implement
- c) Consumes more memory
- d) More code has to be written

Name	Version
ID	Other
Section	Marking I
Date	Be sure to co propriate bui

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Short Question Answer Book

Section B

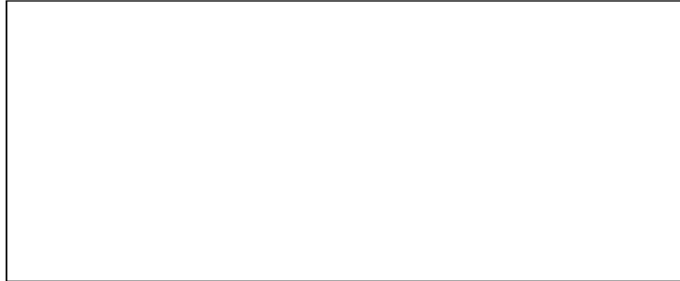
Section B: Written Questions

The answers to these written questions must be included only in the space provided below. Any answer outside the space given will not be assessed.

Question B1: (3 marks)

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Answer:



Question B2: (3 marks)

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Answer:

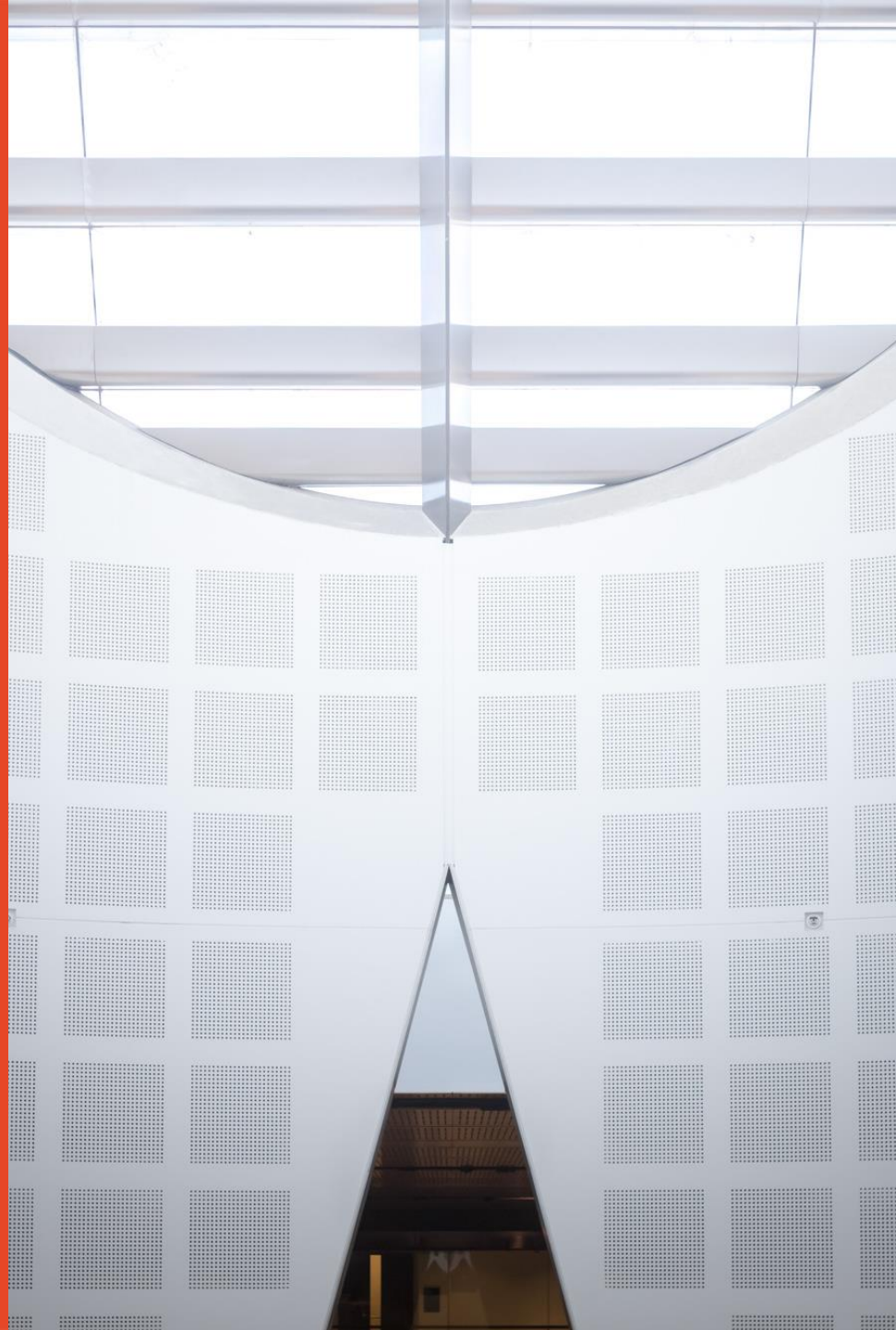


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Week 13: Lectures Review



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Course Materials - Canvas

Course materials

<https://canvas.sydney.edu.au/courses/59195/modules>

Weekly Readings:

https://canvas.sydney.edu.au/courses/59195/pages/weekly-readings?module_item_id=2332226

Week 1 - Introduction

- **Part A**

- Professions and practice
- Nature of the IT industry
- Professionalism

- **Part B**

- Introductions
- Topics, Learning objectives, and concepts covered in the unit
- Overview of the unit and assessments

Week 1 – Introduction

Sample Question

- Explain what is meant by the term professionalism in the context of the IT industry
- Why IT professionalism is needed and why is it important?
- Why we need diversity in High Tech? Justify your answer

Week 1 – Introduction

Important Topics/Contents List for Short Questions

- Terminologies such as Profession, Practice, Expertise and so on
- Changing Business Landscape
- Role of IT
- Diversity in High Tech

Week 2

Creating organisational value through IT - investments

- **Part A:** Four foundational concepts:
 - Organisations, value, organisational value, and IT investments
- **Part B:** How is organisational value created? Aligning IT and business.
 - Organisational (business) goals, objectives and strategy
 - Organisational (business) models, operating models and capabilities
 - IT strategy, the IT operating model and IT capabilities
 - Orchestrating business and IT capabilities into value streams
- **Part C:** How to represent IT value as organisational value
- **Part D:** What does this mean for you as an IT professional?

Week 2 – Creating organizational value through IT - investments

Sample Question

- What do you understand by top-down organization hierarchical structure? Explain with relevant examples.
- Why are business goals important?
- Discuss the benefits of an IT operating model

Week 2

Important Topics/Contents List for Short Questions

- Organizational value, Strategy & Structure
- Business goals, business models, components of business model
- IT Operating Model
- IT Capabilities, IT Operational Metrics
- Value Stream (Concept)

Week 3

IT Lifecycle and Its Processes

1. A whole of lifecycle view of IT in organisations

Learning outcomes (able to..)

2. An example of the ongoing lifecycle of a family project to acquire and operate a domestic security service

Identify and access descriptions of processes for managing the IT lifecycle

3. Integrating new components into the family's interdependent systems

4. An example of an organisation's processes for integrating a new IT system

Week 3 - IT Lifecycle and Its Processes

Sample Question

- What is a project? Explain the project characteristics.
- Identify the best frameworks and approaches that can manage the IT lifecycle. Justify with an example.
- Creating organisational value with IT investments and IT lifecycle is an important element. Why and why not?

Week 3

Important Topics/Contents List for Short Questions

- Iterative IT Lifecycle (Concepts, Pros & Cons)
- Enterprise architecture – TOGAF
- ITSM
- Different Software Development Models such as DevOps, Waterfall, Agile (Concepts, Characteristics, Difference between them, Manifesto/Principles)

Week 4 - Teams

Part A: Theory

- **Focus:** Sourcing and managing human resources; consulting and contracting; team structures.
- Admin

Part B: Discussion on project success/failure

Week 4 – Teams

Sample Question

- What is a team? How to achieve effective teamwork in the workplace?
- Explain some of the key challenges in talent sourcing.
- Describe a time when you had to address a diversity-related issue or conflict within your team, and how you handled it.

Week 4

Important Topics/Contents List for Short Questions

- Characteristics of Great Teamwork
- Talent Management Process Model
- Change Management (Concepts, Difference with project management, key roles in change management, theories & perspectives of change)
- Different OCM Models and understanding of their building blocks

Week 5 – Information, Research, and Estimation

– Part A: Information

- Finding Information: types; location; purpose
- Trusting Information

– Part B: Research

- Statistics
- Types of research
- Business analytics

– Part C: Project Estimation

- Understand general approaches to estimating project size and effort...
- ... and then explore what this means for organisational IT
- Question: How many of your project failures involved the project taking much more effort / costing much more than expected???

Week 5 – Information, Research, and Estimation

Sample Question

- What is project estimation in IT and why is project estimation needed?
- What makes estimating an IT project challenging? Identify the five steps in project estimation.

↓ update

↓
hard to define

Week 5

Important Topics/Contents List for Short Questions

- Data – Information – Knowledge – Wisdom (Concepts, Difference & relationship between them)
- Reliability & Validity (Concepts, Difference between them)
- Different approaches/models to project estimation (Concepts, Advantages & Disadvantages)

Week 6 – Quality Assurance

- Project Quality Assurance - Concepts
 - How do you measure the quality of a project?
 - How do you ensure the quality of a project?

Week 6 – Quality Assurance

Sample Question

- What is quality assurance and Quality Control?
- What does quality assurance refer to in the context of information technology?
- Imagine you are working in an organisation as an auditor and you have been asked to audit a large IT organisation. Explain some of the scopes of the audit
- Describe how QA is related to IT.

Week 6

Important Topics/Contents List for Short Questions

- Quality Assurance & Quality Control (Definitions, characteristics, Difference between them)
- QA Standards such as ISO 9000 (Concepts, Principles)
- IT Auditing (Definition, key areas, scope, process, risk-based approach and its benefits)

Week 7 – Software Testing

Testing Management

- Software Testing - how much is enough (in different environments)?
- Managing testing; responsibilities
- Case Study

benchmark



Week 7 – Software Testing

Sample Question

- You work as a quality assurance tester for a car rental company that operates a web and mobile application for customers to book and manage car rentals. The company has a large fleet of vehicles and serves customers at various locations.
- Describe the specific testing strategy you would employ to ensure that the website and mobile app can handle a high volume of expected concurrent bookings during Christmas peak time. Explain why this type of testing is crucial for a car rental company.
 - Answer: Load testing

Week 7

Important Topics/Contents List for Short Questions

- All types of Testing such as Component, System, Integration, Load, Stress, Soak, and So on (Concepts, Characteristics, Examples, Difference between them)
- Top-Down vs Bottom-Up Integration Testing
- Functional vs Non-functional Requirements

Week 8 - Security Management

Security Management

- Not focusing on:
 - Security tools / Techniques
- Rather, focusing on:
 - Appreciation of the importance of managing security
 - Understand the sort of difficulties encountered in security in large software systems
- Case Studies
- Discussion...

Week 8 - Security Management

Sample Question

- What are some aspects of security management that are proving to be a challenge
- What is cyber crime ? Provide explanation with an appropriate example

Week 8

Important Topics/Contents List for Short Questions

- Security Management Frameworks e.g. NIST
- Categories of security threats
- Concepts such as malware, privacy, accuracy, accessibility, phishing and so on

Week 9 – Security Management 2

Security Management 2

- Cybersecurity vs information security
- GDPR
- Business continuity vs disaster recovery
- Security planning
- Asset protection;
- Mitigation approaches
- Cloud computing
- MFA

Week 9 – Security Management 2

Sample Question

- A small e-commerce startup is looking to host its website. They want a cost-effective solution that allows them to scale easily. Which cloud service model should they consider, and why? **IaaS**
- A team of project managers across different locations needs a tool for collaborative project management. Which cloud service model and deployment option would you recommend? **SaaS**
- A software development company plans to build a custom mobile app for a client. Which cloud service model should they choose for backend development, and why? **PaaS**
- A huge firm is looking forward to move its IT infrastructure into the cloud, managing its own network, DB and storage security. What platform to use? **IaaS**

Week 9

Important Topics/Contents List for Short Questions

- GDPR (concept, Individual rights)
- Cybersecurity Standards (Concepts)
- Technical, Physical, and Administrative Security Controls
- Different types of Attacks such as Brute Force, Rainbow, Social Engineering (Concepts, Tactics, Difference between them)
- Business Continuity vs Disaster Recovery
- Different Cloud Deployment Models such as public, private, hybrid & Cloud Service Models such as IaaS, PaaS, SaaS (Concepts, Examples, Difference between them)

Week 10 - Communication

- **Writing & Presenting**
 - To convince and persuade
 - For IT Professionals
- **Your Project**
 - Who is your audience?
 - What information will they want?
 - What key messages do you want them to understand?

Week 10 - Communication

Sample Question

- Explain why good writing skills are essential for professionals
- Explain the Anatomy of a presentation

Week 10

Important Topics/Contents List for Short Questions

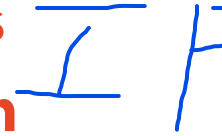
- Characteristics of Professional Writing
- Components of Paragraph
- Terminologies such as Structure, Clarity, Coherence, and so on

Week 11 - Ethics

- Do you know right from wrong? Always?
 - How do you decide?
 - What do you do about it?
 - Is it different in the workplace to in your personal life?
- How do you judge other people/ companies/ groups ethics?
 - What happens when your 'wrong' is someone else's 'right'?
- Covered:
 - Theories
 - Scenarios
 - Case Studies
 - A broader look at ethics in Information Technology

Week 11 - Ethics

Sample Question



- You accept a 6-month short term contract job, working for a small start-up that is creating a new App that locates the cheapest place near your current location to buy consumer items. Whilst working on the project you accidentally discover that they have obtained access to proprietary code from another company (that analyses web pages to find product price information). They aren't using the code directly, but they are analysing it so they can understand the algorithm and then duplicate it in their system.
- Is this OK? Why? What would you do about this?

Week 11

Important Topics/Contents List for Short Questions

- Terminologies such as Etiquette, Morals, Personal ethics, professional ethics
- Ethical Frameworks such as Teleological, Deontological, Utilitarianism, Egoism, and so on (Concepts, Examples, Difference between them)

Week 12 - Decision Making

- What is a “Business Decision”
- What process is used to make a decision?
- What tools might help in decision making?

*Consider an example of a national gardening company?
They want to open three new franchises.*

*How do they decide where these should be located?
How do they later decide whether the new franchises are a success?
How do they tell, as early as possible, if any of them have potential problems?*

Week 12 - Decision Making

Sample Question

- Why is Business Intelligence So Important?
- What is unstructured data? How to process unstructured texts?
- Do you think majority of Bbusiness information exists as unstructured data? Justify your answer

Yes

Week 12

Important Topics/Contents List for Short Questions

- Components/Elements of a BI System and Benefits of BI tools
- ETL Process
- Data Warehouse & its benefits
- OLAP & Types of OLAP Operations (Concepts, Example, Difference between them)
- Decision Making process

Thank you!

I hope you have enjoyed the semester. And more importantly, have achieved strong learning that proves to be valuable for you.

And all the best for the final exam