SOFTWARE DEVELOPMENT

UNIT 4 OUTCOME 2



REVISION NOTES

**Unit 4 Outcome 2**

On completion of this unit the student should be able to recommend and justify strategies for evaluating the effectiveness and efficiency of solutions that operate in a networked environment.

**1. Technical underpinnings** of intranets, the Internet and virtual private networks

**2.** Characteristics of wired and wireless **networks**

**3. Techniques for** **measuring the reliability and maintainability of networks**, including audits, errors and software tracking tools

**4.** Criteria and techniques for **testing** the security of networked environments

**5.** Characteristics of efficient and effective **solutions**

**6.** Strategies and techniques for **acquiring evaluation data** about the quality of solutions

**7.** Criteria and techniques for **testing acceptance by users** of solutions

**8. Types of training** for the users of solutions, and **techniques for measuring** the suitability of training programs

**9. Types of system support documentation** offered to users and **criteria for determining** their appropriateness for users

**10. Practices that cause conflict** between stakeholders who use, or are affected by, solutions that operate within networked environments

**11.** Suitability of setting codes of ethics, imposing sanctions, education programs and the use of decision-support frameworks as strategies for **managing ethical dilemmas**

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| **1. Technical underpinnings** of intranets, the Internet and virtual private networks |

**1. Discuss**, in technical terms,how the ‘Internet’ functions

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**2. Explain** how an Intranet functions differently to the Internet

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**3. Discuss** how a ‘Virtual Private Network’ functions

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**4. Explain** the relationship between the Internet and a VPN

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| **2.** Characteristics of wired and wireless **networks** |

**1. Explain** the function of a ‘Network Interface Card’

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**2. Explain** three advantages a ‘wired’ network has over a ‘wireless’ network

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3. For each of the following **describe** how the transmission media functions, data transfer rate, distance travelled and if the signal is susceptible to interference

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| **Transmission Media** | **Function** | **Data Transfer Rate** | **Distance Travelled** | **Interference** |
| Fibre Optic |  |  |  |  |
| Twisted Pair |  |  |  |  |
| Microwave |  |  |  |  |
| Satellite |  |  |  |  |
| RadioWaves |  |  |  |  |

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| **3. Techniques for** **measuring the reliability and maintainability of networks**, including audits, errors logs and software tracking tools |

**1. Explain** what is meant by the ‘Reliability’ of a network

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**2. Explain** what is meant by the term ‘Maintainability’ of a network

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**3. Define** the term ‘Network Audit’

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**4.** **Explain** how an ‘Error Log’ helps measure the reliability of a network

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**5. Discuss** the purpose of ‘Software Tracking Tools’

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| **4.** Criteria and techniques for **testing** the security of networked environments |

**1.** In terms of testing **explain** the difference between ‘Criteria’ and ‘Techniques’

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**2. Complete** the following table

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| **Criteria** | **Technique** |
| Password Policy Is Adequate | Attempt to hack into Users accounts |
| Spam Email is blocked |  |
| Anti-Virus Software is effective |  |
| Encryption is used when data transferred |  |
| Firewall blocks unusual data |  |
| Staff can only access authorised files |  |
| Alert message is sent when security breached |  |

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| **5.** Characteristics of efficient and effective **solutions** |

**1. Explain** the difference between ‘Efficiency’ and ‘Effectiveness’

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**2. Complete** the following table:

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| **Solution** | **Efficient/Effective** | **Attribute** |
| The solution contains all the information necessary |  |  |
| The new solution will produce the same information using less processing speed |  |  |
| The solution will make available the required information on time |  |  |
| The new solution will be easier to use than the old system |  |  |
| The current system is needed to be replaced as it is difficult to use |  |  |
| Larger fonts will be used in the new system to assist older users |  |  |
| Less data entry will be required in the new system |  |  |

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| **6.** Strategies and techniques for **acquiring evaluation data** about the quality of solutions |

**1. Explain** the difference between ‘Testing’ and ‘Evaluating’

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**2. Define** the term ‘Strategy’

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An example of an evaluation strategy is shown below:

 1. Have users of the system conduct user acceptance testing

 2. Install the solution on the network

 3. Gather feedback on how the new solution is working

**3. List** and **justify** one technique that could be used to gather evaluation data from each of the following groups

 Employees

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 Management

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IT Support Staff

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Customers

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| **7.** Criteria and techniques for **testing acceptance by users** of solutions |

**1. Discuss** what occurs when ‘User Acceptance Testing’ occurs

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**2. Refer** to the PSM, **state** when ‘User Acceptance Testing’ occurs

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**3. Complete** the following table:

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| **Criteria** | **Technique** |
| Is the solution easy to use | Observe users using the software |
| Does the solution contain all the features required |  |
| Does the solution require less effort from the previous solution |  |
| Is the user interface usable and intuitive |  |
| Does the solution produce accurate information |  |
| Does the solution produce reports on time |  |

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| **8.** **Types of training** for the users of solutions, and **techniques for measuring** the suitability of training programs |

**1. Complete** the following table:

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| **Training** | **Description** | **Techniques for Measuring Suitability** |
| Off-Site Training |  |  |
| On-Site Training |  |  |
| Train the Trainer |  |  |
| On-Line Training |  |  |

**2. Explain** the advantage of ‘Off-Site Training” compared to “On-Site Training”

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**3. Explain** a disadvantage with “Train the Trainer” method

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| **9. Types of system support documentation** offered to users and **criteria for determining** their appropriateness for users |

**1. Complete** the following table:

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| **User****Documentation** | **Description** | **Three** **Appropriateness****Criteria** |
| User Guide (Manual) |  |  |
| Technical Reference Manual |  |  |
| Quick Start Guide |  |  |
| Content Sensitive Help |  |  |
| Tutorial |  |  |

**2. Explain** when a ‘Tutorial’ is likely to be used compared to a ‘Quick Start Guide’

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| **10. Practices that cause conflict** between stakeholders who use, or are affected by, solutions that operate within networked environments |

**1. Define** the term ‘Stakeholder’

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**2. List** three common reasons for conflict

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Steven wants to download a snippet of code from the internet to use in a project his organisation is currently working on, but his supervisor has told him that all code used must be original code developed ‘in-house’. Steven is planning to use the code anyway as it will save him lots of time and his supervisor will probably not notice.

**3. Outline** the ‘two sides’ to this conflict

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| **11.** Suitability of setting codes of ethics, imposing sanctions, education programs and the use of decision-support frameworks as strategies for **managing ethical dilemmas** |

**1. Define** the term ‘Code of Ethics’

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**2. Define** the term “Decision Support Framework’

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**3. Explain** how both a ‘Code of Ethics’ and a ‘Decision Support Framework’ can help solve the situation when conflict occurs

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**4. Explain** why ‘Imposing Sanctions’ is considered a last resort when managing conflict

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