Network Engineer - Mapping

Module columns (left to right):
- SOUD1412 Client-Side Web Development (cols 1–4)
- SOUD1413 Database: Analysis, Design and Development (cols 5–8)
- SOUD1414 Computer Systems infrastructure (cols 9–12)
- SOUD1415 Fundamentals of Computer Networks (cols 13–15)
- SOUD2368 Enterprise Networks (cols 16–19)
- SOUD1416 Programming Concepts (cols 20–23)
- SOUD2365 Introduction to Computer Security (cols 24–28)
- SOUD1411 Employability and Professional Development (cols 29–32)
- SOUD2363 Server-side Web Development (cols 33–36)
- SOUD2364 Object Oriented Programming (OOP) (cols 37–40)
- SOUD2366 Advanced Project (cols 41–44)

Column (outcome) key:

1. Design a website to meet defined user requirements
2. Implement webpages that are enhanced by client-side scripts
3. Test a website using appropriate testing procedures
4. Review a website in terms of design considerations, meeting user requirements and recommending future improvements
5. Explain database terminology
6. Apply moderately complex database queries
7. Analyse and design a database solution to meet specific requirements
8. Implement a moderately complex database solution
9. Explain the principle components, and the operations of a computer system
10. Apply logic to solve problems
11. Write programs to control computer hardware for a given requirement
12. Employ commands to manipulate operating systems
13. Explain the fundamental principles of computer networking.
14. Apply IP Addressing schemes.
15. Configure, troubleshoot and resolve common issues with network equipment.
16. Design and implement a solution to a real world networking problem.
17. Analyse the underlying infrastructure of enterprise networks
18. Examine the technologies used to configure and maintain enterprise networks
19. Configure enterprise networks
20. Use tools and techniques to administrate a network
21. Apply fundamental programming structures in the implementation of simple software applications
22. Design a software application for specified requirements
23. Implement an moderately complex software application to meet specified requirements
24. Utilise test strategies in the testing of a software application
25. Examine comon threats and vulnerabilities of modern systems.
26. Compare mechanisms that may be used to control access and authentication to systems.
27. Critically analyse the security risks of a local business in regards to both their computer and networked systems and advise on suitable remedial actions for prevention of threats.
28. Apply security mechanisms of complexity.
29. Demonstrate the ability to reflectively examine own practice for strengths and weaknesses and apply this to the development of a continuing Personal Development Plan (PDP).
30. Analyse own PDP to inform employability prospects and opportunities.
31. 1. Demonstrate and evidence a variety of acquired interpersonal and transferable skills
32. Evidence self-awareness and reflection on own practice
33. Analyse defined requirements to design a server-side application
34. Implement a moderately complex server-side scripted application to defined requirements
35. Integrate a back-end data store to a server-scripted application
36. Critically evaluate the use of server-side scripting and recommend future improvements
37. Explain and apply object oriented concepts and design considerations.
38. Analyse defined user requirements to design an object oriented application
39. Create a moderately complex object oriented application.
40. Critically evaluate an object oriented application.
41. Analyse a real business problem and devise a project plan
42. Develop the project in line with the agreed specification and plan
43. Critically evaluate the project in line with the agreed specification and plans
44. Present findings in an appropriate format for a wider audience

Technical Competencies / Learning Outcomes

Knowledge

Outcome	Mapped column(s) (module outcomes marked "X")
K1: the causes and consequences of network and IT infrastructure failures	11, 16
K2: the architecture of typical IT systems, including hardware, OS, server, virtualisation, voice, cloud, and applications	9, 13, 17
K3: the techniques for systems performance and optimisation	18, 24
K4: diagnostic techniques and tools to interrogate and gather information regarding systems performance	18, 20, 25
K5: organizational procedures to deal with recording information effectively and in line with protocols	21, 25
K6: Service Level Agreements (SLAs) and their application to delivering network engineering activities in line with contractual obligations and customer service	31
K7: their role in Business Continuity and Disaster Recovery	29, 31
K8: the purposes and uses of ports and protocols	13, 15, 19
K9: devices, applications, protocols, and services at their appropriate OSI and/or TCP/IP layers.	13, 15, 19
K10: the concepts and characteristics of routing and switching	15, 17, 18, 19
K11: the characteristics of network topologies, types, and technologies.	15, 17, 18
K12: wireless technologies and configurations.	15, 17, 18
K13: cloud concepts and their purposes.	15, 17
K14: functions of network services	15, 17
K15: the different types of network maintenance	25
K16: how current legislation relates to or impacts occupation	25, 36
K17: troubleshooting methodologies for network and IT infrastructure	15
K18: how to integrate a server into a network	15, 18, 20
K19: the types of security threats to networks and IT infrastructure assets	15, 19, 20
K20: how to use tools to automate network tasks	16, 26, 28
K21: approaches to change management	(none)

Skills

Outcome	Mapped column(s) (module outcomes marked "X")
S1: apply the appropriate tools and techniques when securely operating and testing Networks	15, 18, 19

Software Dev - Mapping

Technical Competencies / Learning Outcomes	SOUD1412 Client-Side Web Development				SOUD1413 Database: Analysis, Design and Development				SOUD1414 Computer Systems infrastructure				SOUD1415 Fundamentals of Computer Networks			SOUD2368 Enterprise Networks					SOUD1416 Programming Concepts				SOUD2365 Introduction to Computer Security				SOUD1411 Employability and Professional Development				SOUD2363 Server-side Web Development				SOUD2364 Object Oriented Programming (OOP)				SOUD2366 Advanced Project			
	1. Design a website to meet defined user requirements	2. Implement webpages that are enhanced by client-side scripts	3. Test a website using appropriate testing procedures	4. Review a website in terms of design considerations, meeting user requirements and recommending future improvements	5. Explain database terminology	6. Apply moderately complex database queries	7. Analyse and design a database solution to meet specific requirements	8. Implement a moderately complex database solution	9. Explain the principle components, and the operations of a computer system	10. Apply logic to solve problems	11. Write programs to control computer hardware for a given requirement	12. Employ commands to manipulate operating systems	13. Explain the fundamental principles of computer networking.	14. Apply IP Addressing schemes.	15. Configure, troubleshoot and resolve common issues with network equipment.	16. Design and implement a solution to a real world network problem.	17. Analyse the underlying infrastructure of enterprise networks	18. Examine the technologies used to configure and maintain enterprise networks	19. Configure enterprise networks	20. Use tools and techniques to administrate a network	21. Apply fundamental programming structures in the implementation of simple software applications	22. Design a software application for specified requirements	23. Implement an moderately complex software application to meet specified requirements	24. Utilise test strategies in the testing of a software application	25. Examine common threats and vulnerabilities of moderate complexity.	26. Compare mechanisms that may be used to control access and authentication to systems.	27. Critically analyse the security risks of a local business in regards to both their computer and networked systems and advise on suitable remedial actions for prevention of threats.	28. Apply security mechanisms of moderate complexity.	29. Demonstrate the ability to reflectively examine own practice for strengths and weaknesses and apply this to the development of a continuing Personal Development Plan (PDP).	30. Analyse own PDP to inform employability prospects and opportunities.	31. Demonstrate and evidence a variety of acquired interpersonal and transferrable skills	32. Evidence self-awareness and reflection on own practice	33. Analyse defined requirements to design a server-side scripted application	34. Implement a moderately complex server-side scripted application to defined requirements	35. Integrate a back-end data store to a server-side scripted application	36. Critically evaluate the use of server-side scripting in a solution and recommend future improvements	37. Explain and apply object oriented concepts and design considerations.	38. Analyse defined user requirements to design an object oriented application.	39. Create a moderately complex object oriented application.	40. Critically evaluate an object oriented application.	41. Analyse a real business problem and devise a specific project plan	42. Develop the project to the agreed specification and plan	43. Critically evaluate the project in line with the agreed specification and plans	44. Present findings in an appropriate format for a wider audience
Knowledge																																												
K1: all stages of the software development life cycle (what each stage contains, including the inputs and outputs)									X												X																X							
K2: roles and responsibilities within the software development lifecycle (who is responsible for what)									X												X																X							
K3: the roles and responsibilities of the project life cycle within your organisation, and your role									X																												X				X	X		
K4: how best to communicate using the different communication methods and how to adapt appropriately to different audiences																														X														X
K5: the similarities and differences between different software development methodologies, such as agile and waterfall.									X												X																X							
K6: how teams work effectively to produce software and how to contribute appropriately		X				X																																		X				
K7: software design approaches and patterns, to identify reusable solutions to commonly occurring problems																					X	X					X	X																
K8: organisational policies and procedures relating to the tasks being undertaken, and when to follow them. For example, the storage and treatment of GDPR sensitive data.																													X					X								X		
K9: principles of algorithms, logic and data structures relevant to software development					X																X																X							
Skills																																												
S1: create logical and maintainable codes		X				X		X		X											X													X					X					