

Correlation of the textbook *Networks, Interfaces , and Integrated Circuits* to the Ontario Computer Engineering Curriculum Policy Document for Grade 12 ICE4M

Expectation Code	Expectati on	Page Number in textbook
Theory and Foundation		
TVF.01U	- describe mechanism for information movement and storage	Pages 25-56, 137-86
TVF.02U	- document network configuration and their services	Pages 25-56
TVF.03U	- explain the operation of sophisticated systems that interact with real-world devices	Pages 357-390
TVF.04U	- compare high level and low level languages	Pages 201-214
Specific Expectations		
Computer Logic and Electronics		
TF1.01U	- describe how signed and unsigned numbers are represented	Pages124-135
TF1.02U	- explain how to determine memory requirements for information storage	Pages 141-144
TF1.03U	- describe the function and interaction of a control unit, arithmetic logic unit, and memory registers in a simple central processing unit(CPU)	Pages 148-181
TF1.04U	- use a diagram to illustrate how busses move data and instructions between memory and the CPU	Pages 178-179
TF1.05U	- analyse the role of flip- flops in the flow of data	Pages 257-270
Hardware, Interfaces, and Networking Systems		
TF2.01U	- explain the function and interaction of the basic components of network configuration	Pages 26-52
TF2.02U	- identify similarities and differences among several network topologies and protocols	Pages 27-30
TF2.03U	- explain several computer- controlled systems that interact with real- world devices (e.g., traffic management systems, automotive systems, robotic systems).	Pages 360-361
Programming Concepts		
TF3.01U	- describe the constructs of a simple assembly or machine – level language	Pages 187-249
TF3.02U	- identify similarities and differences among memory addressing techniques	Pages 214-222
TF3.03U	- identify high- level and low-level commands hat perform similar operations	Pages 205-214

Skills and Processes		
Overall Expectations		
SPV.01U	- analyse information storage mechanisms	Pages 144-157
SPV.02U	- use Boolean equations to represent computer logic circuits	Pages 252-287
SPV.03U	- construct systems and interfaces that use computer programs to interact with real-world devices	Pages 372-504
SPV.04U	- design effective network configurations	Pages 57-102
SPV.05U	- develop programs using the software life cycle (problem definition, analysis, design, implementation, testing, and maintenance)	Pages 371-504
Specific Expectations		
Computer Logic and Electronics		
SP1.01U	- convert between decimal and binary numbers	Pages 108-115
SP1.02U	- build flip-flops using simple logic gates from schematics	Pages 289-323
SP1.03U	- incorporate flip-flops in a clocked circuit to demonstrate information storage	Pages 324-356
SP1.04U	- use electronic instruments (e.g., multimeter, logic probe) to troubleshoot circuits	Pages 290-293, 289-356, 371-504
SP1.05U	- simplify Boolean equations accurately	Pages 289-356
SP1.06U	- draw circuits that represent Boolean equations	Pages 289-356
SP1.07U	- draw truth tables to represent Boolean equations	Pages 289-356
Hardware, Interfaces, and Networking Systems		
SP2.01U	- analyse existing systems designs that use computers and interfaces to send and receive information	Pages 358-361
SP2.02U	- design an effective system consisting of a computer and interface that integrates input devices (e.g., motion sensitive alarm, light-activated switch, LED sign, environmental control)	Pages 371-504
SP2.03U	- construct a system consisting of a computer and interface to communicate with external sources	Pages 371-504
SP2.04U	- identify network problems and troubleshoot procedures	Pages 26-102
SP2.05U	- describe network hardware and software and their relationship	Pages 25-56
Programming Concepts		
SP3.01U	- write programs to process input and control	Pages 371-350

	output devices through interfaces	
SP3.02U	- trace the execution of simple machine level programs	Pages 189-249
SP3.03U	- write low level programs	Pages 187-249
SP3.04U	- document all programs to a specified standard	Pages 371-504
Impact and Consequences		
Overall Expectations		
ICV.01U	- identify issues related to the ethical use of computers	Pages
ICV.02U	- explain the importance of post secondary education, employability skills, and lifelong learning to computer engineering carriers	Pages
ICV.03U	-describe the use of computer technologies and their impact on community	Page
ICV.04U	- demonstrate project management skills	Pages 469-504
Specific Expectations		
IC1.01U	- use appropriate presentation software to explain issues relating to computer ethics (e.g., privacy, security, information access)	Pages
IC1.02U	- describe industry certification designations and requirements	Pages
IC1.03U	- analyse the potential impact of emerging technologies on society	Pages
IC1.04U	- use time management skills and constructive criticism in project settings	Pages 469-504
IC1.05U	- communicate the results of projects effectively both orally and in writing	Pages 469-504
IC1.06U	- use appropriate strategies to avoid potential health and safety problems associated with computer use, such as musculo-skeletal disorders and eyestrain	Pages 291-293, 395