

Correlation of the textbook *Computer Engineering: An Activities-Based Approach Second Edition* to the Ontario Computer Engineering Curriculum Policy Document for Grade 11 ICE3M

| Expectation Code | Expectation | Page Number in textbook |
|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|------------------------------|
| Theory and Foundation | | |
| Overall Expectations | | |
| TVF.01U | - identify the function and interaction of basic computer components and peripherals; | Pages 23 – 25 |
| TVF.02U | - describe the relationship among computer hardware, networks, and operating systems; | Pages 25 – 29, 52 – 56 |
| TVF.03U | - explain internal number and character representation systems and how to make conversions among them; | Pages 13, 20 – 23, 298 – 311 |
| TVF.04U | - explain the function of logic gates and combinations of gates; | Pages 106 – 111, 127 – 140 |
| TVF.05U | - describe a problem-solving model and the fundamental programming constructs required to implement it. | Pages 32 – 35, 331 – 376 |
| Specific Expectations | | |
| Computer Logic and Electronics | | |
| TF1.01U | - explain how binary, decimal, and hexadecimal number systems relate to computer logic; | Pages 10 – 14, 301 – 311 |
| TF1.02U | - identify standard ways of representing characters (e.g. ASCII, EBCDIC); | Pages 298 – 301 |
| TF1.03U | - describe the function of decoder and timer chips and the fundamental logic gates AND, NAND, OR, NOR, XOR, and NOT; | Pages 108 – 124, 218 – 223 |
| TF1.04U | - explain how Boolean algebra relates to the fundamental logic gates; | Pages 108 – 124 |
| TF1.05U | - describe how combinations of logic gates interact. | Pages 125 – 140, 230 – 234 |
| Hardware, Interfaces, and Networking Systems | | |
| TF2.01U | - explain the function and interaction of the basic components (e.g., CPU, I/O devices, memory) of a computer system; | Pages 23 – 25 |
| TF2.02U | - describe the function and interaction of computer peripherals (e.g., mouse, keyboard, screen, printer); | Pages 23 – 25 |
| TF2.03U | - identify differences between stand-alone and network hardware; | Pages 52 – 53 |
| TF2.04U | - describe similarities and differences | Pages 28 - 29, 52 |

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| | between network and desktop operating systems. | |
| Programming Concepts | | |
| TF3.01U | - define constants, variables, expressions, and assignment statements, including the order in which the operations are performed; | Pages 331 – 338 |
| TF3.02U | - describe how computers store and work with different types of data, including numbers, characters, and arrays; | Pages 300 – 302, 331 – 368 |
| TF3.03U | - explain how selection and repetition structures are used in computer programs; | Pages 338 – 352 |
| TF3.04U | - describe how subroutines are used in computer programs; | Pages 352 – 357 |
| TF3.05U | - explain parameter passing and scope. | Pages 336 – 376 |
| Skills and Processes | | |
| Overall Expectations | | |
| SPV.01U | - use internal numbering, character representation systems, and logic gates; | Pages 246 – 279, 298 – 303 |
| SPV.02U | - construct systems that use computer programs to interact with hardware components; | Pages 378 – 422 |
| SPV.03U | - properly install and configure key computer hardware and software components; | Pages 4-5, 18-20 |
| SPV.04U | - use network services to facilitate intranetworking among workstations. | Pages 79 - 84 |
| Specific Expectations | | |
| Computer Logic and Electronics | | |
| SP1.01U | - perform base-to-base conversions; | Pages 301 – 311 |
| SP1.02U | - perform simple arithmetic with whole numbers in binary; | Pages 230 – 232, 246 – 252 |
| SP1.03U | - build an interface that visually displays internal representations of numbers and characters; | Pages 395 – 408 |
| SP1.04U | - generate truth tables to represent logic gates and Boolean equations; | Pages 106 – 140 |
| SP1.05U | - assemble electronic circuits using a series of logic gates | Pages 195 – 208, 246 – 277 |
| Hardware, Interfaces, and Networking Systems | | |
| SP2.01U | - build interfaces that control hardware components (e.g., LEDs, direct current motors, and stepper motors); | Pages 378 - 421 |
| SP2.02U | - verify the correctness of the input and output of a system consisting of a computer, interface, and a hardware | Pages 32 – 35, 388 – 393 |

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| | device; | |
| SP2.03U | - properly install and configure key software and hardware components and peripherals; | Pages 4 - 7, 18 - 20 |
| SP2.04U | -properly install and configure a workstation operating system, including a network connection; | Pages 69 – 75 |
| SP2.05U | - demonstrate an ability to download freeware utilities; | Pages 86 – 87 |
| SP2.06U | - use utilities to compress and expand files; | Pages 86 – 87 |
| SP2.07U | - properly implement standard network protocols for file transfer. | Pages 77 – 86 |
| Programming Concepts | | |
| SP3.01U | - use design tools to plan programming solutions (e.g., flow charts, pseudo-code, structure charts); | Pages 33 - 35 |
| SP3.02U | - apply fundamental programming constructs by writing, testing, and debugging programs | Pages 314 - 376 |
| Impact and Consequences | | |
| Overall Expectations | | |
| ICV.01U | - describe examples of rapid change in information technology; | Pages 2 – 28 |
| ICV.02U | - describe the impact of computer technology on society; | Pages 35 – 41 |
| ICV.03U | - describe issues relating to the ethical use of computers; | Pages 34, 37 – 39 |
| ICV.04U | - identify computer engineering career paths. | Pages 42 - 43 |
| Specific Expectations | | |
| IC1.01U | - describe the evolution and historical impact of developments in computer hardware; | Pages 2 – 14, 16 – 19, 23 – 28 |
| IC1.02U | - explain how computer technology affects daily life; | Pages 35 – 41 |
| IC1.03U | - describe issues that arise from the growing use of networked systems (e.g., complexity, compatibility, security); | Pages 52 – 53, 87 - 88 |
| IC1.04U | - examine a number of available sources of information using a computer network and evaluate their ease of use and reliability; | Page 86 - 87 |
| IC1.05U | - describe the computer expertise required for engineering and technology careers; | Pages 37 - 41 |
| IC1.06U | - identify post-secondary educational | Pages 37 - 41 |

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| | opportunities leading to careers in engineering and technology, as well as their entry requirements; | |
| IC1.07U | - use a variety of software applications to make class presentations on ethical issues in computing; | Pages 37 - 41 |
| IC1.08U | - use appropriate strategies to avoid potential health and safety problems associated with computer use, such as musculo-skeletal disorders and eyestrain | Pages 94 – 103 |