

COURSE ELT3060: DIGITAL TECHNOLOGY 3**Level:** Advanced**Theme:** Computer Logic Systems**Prerequisite:** ELT2060 Digital Technology 2**Description:** Students demonstrate knowledge of digital principles by using medium-scale transistor–transistor logic (TTL) and complementary metal oxide semiconductor (CMOS) integrated technology.**Parameters:** Digital logic trainer, logic probe, oscilloscope, function generator and related resources.**Curriculum and Assessment Standards**

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • identify, interface and experiment with medium-scale integrated circuit (IC) families 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • identifying medium-scale integrated circuits using data manuals, disks and CD-ROM programs on a given a manufactured chip • explaining the difference between typical and complex networks such as: <ul style="list-style-type: none"> – decoders – encoders – multiplexers – parity generators – subtractors – shift registers • prototyping, measuring and evaluating medium-scale integrated (MSI) circuits such as: <ul style="list-style-type: none"> – keyboard encoder – binary coded decimal (BCD) decoder – comparators – arithmetic circuits. <p><i>Assessment Tool</i> <i>ELTLAB–3: Assessment Checklist: Laboratory Practice, Parts 1, 2 and 3</i></p> <p><i>Standard</i> <i>Performance rating of 3 for each applicable task</i></p>	40

COURSE ELT3060: DIGITAL TECHNOLOGY 3 (continued)

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> create a profile of a trade or occupation within the field of digital technology demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> completing career profile chart within the field of digital technology. <p><i>Assessment Tool</i> <i>ELTCPC: Assessment Guide: Career Profiles</i></p> <p><i>Standard</i> <i>Completing all sections of profile chart</i></p> <ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>5</p> <p>Integrated throughout</p>

Concept	Specific Outcomes	Notes
Safety/Resource Management	<p><i>The student should:</i></p> <ul style="list-style-type: none"> demonstrate correct handling of MSIC chips describe antistatic procedures. 	<p>Demonstrate use of wristwraps.</p> <p>MSIC=medium-scale integrated circuits, wristwraps.</p>
Fundamentals	<ul style="list-style-type: none"> explain the difference between typical and complex logic networks. 	<p>Decoder, encoder, code converter, multiplexers, parity generators, subtractors.</p>
Designing and Prototyping	<ul style="list-style-type: none"> fabricate digital circuitry using medium-scale integration construct, experiment and solve real-world applications, using medium-scale integration. 	<p>Tachometer, DHTA decoder, Music Box.</p> <p>Electronic keyboard to seven-segment display.</p> <p>Could be linked to ELT2010 or ELT3010 for printed circuit board.</p>
Testing	<ul style="list-style-type: none"> measure and evaluate medium-scale integrated circuits. 	<p>Keyboard endcoder, BCD decimal decoder, four-bit magnitude comparators.</p>

COURSE ELT3060: DIGITAL TECHNOLOGY 3 (continued)

Concept	Specific Outcomes	Notes
Careers	<i>The student should:</i> <ul style="list-style-type: none">• research employment opportunities in medium-scale TTL and CMOS integrated technology.	