Prepared: Robert Allen Approved: Corey Meunier

Course Code: Title	ELN115: DIGITAL INTEGRATED ELECTRONICS
Program Number: Name	4029: ELECTRICAL TY-PROCES
Department:	ELECT./INSTRUMENTATION PS
Semester/Term:	17F
Course Description:	This course is the study of digital logic circuits and pulse circuits. The student will study pulse fundamentals, basic digital gates, flip flops counters and registers, A/D and D/A conversion. Practical exercises include circuit analysis, testing, troubleshooting and applications.
Total Credits:	6
Hours/Week:	5
Total Hours:	75
Prerequisites:	ELN109, ELR100
This course is a pre-requisite for:	ELN335, ELR251
Vocational Learning Outcomes (VLO's): **Please refer to program web page for a complete listing of program outcomes where applicable.**	#1. Analyze, interpret, and produce electrical and electronics drawings, technical reports including other related documents and graphics. #6. Design, assemble, analyze, and troubleshoot electrical and electronic circuits, components, equipment and systems under the supervision of a qualified person. #12. Apply and monitor health and safety standards and best practices to workplaces.
Essential Employability Skills (EES):	#1. Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience. #2. Respond to written, spoken, or visual messages in a manner that ensures effective communication. #3. Execute mathematical operations accurately. #4. Apply a systematic approach to solve problems. #5. Use a variety of thinking skills to anticipate and solve problems. #6. Locate, select, organize, and document information using appropriate technology and information systems. #7. Analyze, evaluate, and apply relevant information from a variety of sources. #8. Show respect for the diverse opinions, values, belief systems, and contributions of others. #9. Interact with others in groups or teams that contribute to effective working relationships and

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	the achievement of goals. #10. Manage the use of time and other resources to complete projects. #11. Take responsibility for ones own actions, decisions, and consequences.
Course Evaluation:	Passing Grade: 50%, D
Other Course Evaluation & Assessment Requirements:	To successfully pass this course, the student must receive passing grades for both the Test and Evaluation portion of the class AND the Laboratory portion. Grade Definition Grade Point Equivalent A+ 90 – 100% 4.00 A 80 – 89% B 70 - 79% 3.00 C 60 - 69% 2.00 D 50 – 59% 1.00 F (Fail) 49% and below 0.00 CR (Credit) Credit for diploma requirements has been awarded. S Satisfactory achievement in field /clinical placement or non-graded subject area. U Unsatisfactory achievement in field/clinical placement or non-graded subject area. X A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course. NR Grade not reported to Registrar`s office. W Student has withdrawn from the course without academic penalty.
Evaluation Process and Grading System:	**Evaluation Type** / **Evaluation Weight** Laboratory Assignements. / 30% Tests and Quizes / 70%
Books and Required Resources:	Digital Systems Principles and Applications by Neal S. Widmer/Gregory L. Moss/Ronald J Tocci Publisher: Pearson Edition: 12 ISBN: 978-0-13-422013-0
Course Outcomes and Learning Objectives:	**Course Outcome 1.** Understand the terminology and characteristics associated with rectangular wave-shapes.

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Learning Objectives 1.

- Identify and Define Pulse Amplitude, Period Width, Pulse Space, Duty Cycle, Rise / Fall Times, Overshoot / Undershoot and Ringing.
- Set-up common test equipment to output and measure the above listed electrical characteristics of rectangular wave-shapes.

Course Outcome 2.

Understand Digital Numbering Systems.

Learning Objectives 2.

- Fluently count in Binary, Octal, Hexadecimal, Binary Coded Decimal up to 10,000.
- Convert between Decimal and Binary, Octal, Hexadecimal, Binary Coded Decimal
- Understand the Gray and ASCII codes.

Course Outcome 3.

Understand and troubleshoot circuits employing TTL & CMOS Logic Gates.

Learning Objectives 3.

- Construct and test circuits employing common digital logic functions
- Analyze and troubleshoot circuits employing digital logic functions using common test equipment (DVM, Oscilloscope, Logic Probe / Logic Pulser)

Date:	Friday, September 1, 2017
	Please refer to the course outline addendum on the Learning Management System for further information.