Discipline: Engineering Technology / Applied Technology

Date Submitted: April 2015

STATEWIDE CAREER PATHWAYS

Cerritos College
ARTICULATION AGREEMENT

Cerritos College Course:
ET 102: Electronics for Engineering Technologists (3 units)
Cerritos College
11110 Alondra Blvd.
Norwalk, CA 90650

John Muir High School Course:
Digital Electronics (10 units)
John Muir High School
1905 Lincoln Ave.
Pasadena, CA 91103

General Course Description:
This course introduces the student to principles of engineering technology by the use of activity-based learning, project-based learning, and problem-based learning. The student will learn about the design process, communication and documentation, engineering systems, statics and strength of materials, properties of materials and materials testing, reliability, and kinematics.

College Prerequisite(s): None	**HS/ROCP Prerequisite(s):** None

Advisories/Recommendations: This course may be taught in 10th, 11th or 12th grade and has Algebra I and Algebra II as prerequisites. Most students taking this course are expected to be taking a typical college prep curriculum throughout high school

Course Content:

- Electrical Engineering Career Awareness
- Social responsibility and ethics
- Safety practices and standards in the digital engineering environment
- Communication, presentation skills and teamwork
- Historical review of Digital Engineering
- Visualization and sketching techniques
- Digital engineering components, symbols, drawings and standards
- Research skills using Internet
- Engineering units, digital instruments, measurement instruments and construction/assembly tools
- Boolean Algebra as it is used and required in Digital Engineering
- Digital devices (SSI, MSI, LSI, LEDs , Programmable Logic Devices, Logic families, Microcontrolers, Microprocessors)
- Digital Engineering Systems (Waveforms, Truth Tables, Logic Diagrams, Timing Diagrams, Boolean Algebra)
- Digital Terminology (Rise Time, Fall Time, Propagation Delay, Fan-In, Fan-Out, Bandwidth, Proper Termination)
- Data Collection and Analysis
- Use of Digital Simulation Software such as National Instruments LabView and Pspice
- Interfacing techniques when using Analog and digital sensors

- Interfacing techniques when using digital devices to drive motors
- Demonstrate the ability to work as a team member and collaborate in a diverse environment.

Competencies and Skill Requirements (Use additional pages as necessary.) Where appropriate, please incorporate standards being used (e.g. CTE standards).
At the conclusion of this course, the student should be able to:

- Define various careers available and terminology used in the fields of Digital Engineering
- Demonstrate understanding of social, economical, environmental and ethical impacts of Digital Engineering
- Demonstrate safety practices and standards in the Digital Engineering environment
- Demonstrate ability to effectively communicate verbally, visually and in written format
- Collaborate in a diverse environment
- Apply visualization and sketching techniques in solving Digital Engineering problems
- Create and interpret Digital Engineering drawings utilizing industry standards
- Use Internet search to determine technical specifications of components
- Use simulation software to demonstrate digital logic solutions to Digital Engineering design problems
- Given a design of a digital engineering system, analyze and explain performance using logic diagrams, Boolean algebra and truth tables.
- Given word problems, design a digital engineering system to solve the problem
- Given digital engineering systems acquire data using Signal Generators, Multimeters, Logic Probes and Oscilloscopes to analyze and verify performance
- Analyze and Interpret data using Boolean equations, schematics, Karnaugh Maps and Timing diagrams
- Create, build, test and evaluate logic circuits to solve word problems involving interfacing to sensors and electromechanical devices
- As a team effort develop, build, test and prepare a Capstone Project supported with both written and oral presentations

Measurement Methods (include any industry certification or licensure):

- Written tests
- Essay Exam
- Objective Exam
- Project(s)
- Portfolio
- Classroom Discussion
- Reports
- Problem Solving Exam
- Skill demonstration
- Technical Presentations

***Sample* Textbooks or Other Support Materials (including Software):** The entire curriculum is supplied in electronic format by Project Lead the Way along with all required support and evaluation materials.

Software:

- MultiSim
- Pspice
- National Instuments LabView
- Parallax, Stamps in Class

Procedures for Course Articulation:
Cerritos College credit for the articulated course listed above may be received when the following criteria are met:

1. The student has completed the articulated course listed above with a "B" grade or higher in *Electronics for Engineering Technologists*.
2. The student must enroll at Cerritos College within two (2) years from the semester date in which the course was completed.
3. The student will present verification of successful completion of the articulated course by presenting a *Cerritos College Articulation Card* to a Cerritos College Counselor. The *Cerritos College Articulation Card* should be completed and signed by the student's high school counselor or teacher.
4. No more than 12 units of credit may be accepted for credit by examination.

This Agreement will be reviewed annually and will remain in effect until cancelled by either party giving 30 days written notice

Eugene Y D Mahmmud 5/4/15

High School/ROP District Signatures		**Cerritos College Signatures**	
	5/4/15		5/9/15
Faculty/Department Chair	Date	Instructor/Division Chair	Date
	5/4/15		4/9/15
Principal	Date	Dean of Instruction	Date
	5/4/15		
Superintendent	Date	Vice President	Date
			4/13/15