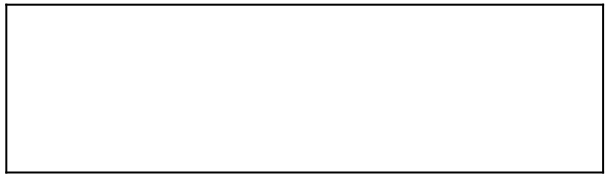
Introduction to Electrical and Mechanical Contr

Course title:	**Introduction to Electrical and Mechanical Control Schematics**
Course Description:	This course will investigate how blueprints are used for show process
Is this course a new development or refresh?	new
Is there anything you would like to share?	The course will be taught in a hybrid format. Prerequisite of Trade

ol Schematics



Intro to Electr Cou

Trade Title	Appendix B competencies	Employer input (Importance/Frequency)
Machine Builder	I.2 Reading and interpreting detail and assembly drawings and schematic drawings	Important/Once a Week
Fiber Optic Calibration Technician	A.4 Plan sequence of testing using blueprints, schematics, technical manuals, procedures, specifications, manufacturers' websites	Very Important/Everyday
Building Maintenance Mechanic	C.8 Inspecting; performing preventative maintenance; troubleshooting	Extremely Important/Everyday
Electronics-Mechanic	B.2 Read and interpret mechanical drawings, including Geometric Dimensioning & Tolerancing (GD&T) callouts; demonstrate ability to interpret tolerance stack-up of parts and assemblies B.5 Read hydraulic and pneumatic prints B.7 Utilize reference materials to aid repair	Extremely Important/Once a Week
Electro-Mechanical Technician	A.7 Describe production process(es) of workplace	
Maintenance Mechanic	F.2 Accurately reading blueprints, sketches, diagrams, technical manuals	Extremely Important/Everyday
Plant Maintenance-Electrician	C.1 Reading and understanding blueprints, codes, specifications	
Plant Maintenance-Mechanic	J.1 Reading rough sketches and blueprints	

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rse Planning/Alignment

Learning Objectives	Course Assessment(s)	Learning Activities
Understand the general information and standards used on electrical and mechanical drawings.	Test understanding of drawing symbols, format and logic. Recognize system components.	Lecture (see pptx.); Handot: Drawing Pedigree; problem solving; Developing a process flow diagram; Equipment Schedules
Understanding the types of drawings, scales and drawing format	Describe format, revision, scales using specific example	Lecture (see pptx.); Handout: Symbols and Circuits Exercises
Reading mechanical and electrical schematic drawings.	Test students ability to follow circuits, component assemblies and systems on drawings.	Lecture (see pptx); Handout: Identifying Instrumentation symbols, Reading Assignment: Ladder diagram print reading
Understand how engineering drawings and schematics are used in manufacturing products and processes	Test students ability to follow circuits, component assemblies and systems on drawings.	Lecture (see pptx); Task students in teams to troubleshoot a system malfunction. Apply critical thinking skills to address problem.
Demonstrate how engineering schematics can be used to troubleshoot	Use schematic to trace and trouble shoot discrepancies and problems.	Trace a piping system.
		Trace a complex circuit sys
		Read and interpret HVAC system drawings.

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Resources (Content)	Completed
Piping, electrical circuit literature, ANSI Standards, demonstration videos	
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1. Use actual system/ piping/ circuit/ component drawings 2. Use online articles and videos.	
Piping, electrical circuit literature, ANSI Standards, demonstration videos	
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Template [OSCQR 3.1]

			Sufficiently Present	Minor Revision *1/2 hour or less*	Moderate Revision *1/2-2 hours*	Major Revision *2+ hours*	Not Applicable	Action Plan
		Estimated time needed for revision:						
RSI	1	Course includes Welcome and Getting Started content. (welcome video from Instructor)						
RSI	2	Course provides an overall orientation or overview, as well as module-level overviews to make course content, activities, assignments, due dates, interactions, and assessments, predictable and easy to navigate/find.						
RSI	2.a	Course calendar is populated with due dates for assignments						
RSI	3	Course includes a Course Information area that deconstructs the syllabus for learners in a clear and navigable way.						
	4	A printable syllabus is available to learners (PDF, HTML).						
	5	Course includes links to relevant campus policies on plagiarism, computer use, filing grievances, accommodating disabilities, etc.						
RSI	6	Course provides access to learner success resources (technical help, orientation, tutoring).						
	7	Course information states whether the course is fully online, blended, or web-enhanced.						
	8	Appropriate methods and devices for accessing and participating in the course are communicated (mobile, publisher websites, secure content, pop-ups, browser issue, microphone, webcam).						
RSI	9	Course objectives/outcomes are clearly defined, measurable, and aligned to learning activities and assessments.						
RSI	10	Course provides contact information for instructor, department, and program.						
	11	Requisite skills for using technology tools (websites, software, and hardware) are clearly stated and supported with resources.						
	11.a	If revising an existing course: Course materials do not reference 'SLN' SUNY Learning Network						
	12	Technical skills required for participation in course learning activities scaffold in a timely manner (orientation, practice, and application - where appropriate).						
	13	Frequently used technology tools are easily accessed. Any tools not being utilized are removed from the course menu.						
	14	Course includes links to privacy policies for technology tools.						
	15	Any technology tools meet accessibility standards.						

	16	A logical, consistent, and uncluttered layout is established. The course is easy to navigate (consistent color scheme and icon layout, related content organized together, self-evident titles).						
	16.a	Left navigation links are in a purposful organization, include all necessary links and does not include unused tools						
	17	Large blocks of information are divided into manageable sections with ample white space around and between the blocks.						
	18	There is enough contrast between text and background for the content to be easily viewed.						
RSI	19	Instructions are provided and well written.						
	20	Course is free of grammatical and spelling errors.						
	21	Text is formatted with titles, headings, and other styles to enhance readability and improve the structure of the document.						
	22	Flashing and blinking text are avoided.						
	23	A sans-serif font with a standard size of at least 12 pt is used.						
	24	When possible, information is displayed in a linear format instead of as a table.						
	25	Tables are accompanied by a title and summary description.						
	26	Table header rows and columns are assigned.						
	27	Slideshows use a predefined slide layout and include unique slide titles.						
	28	For all slideshows, there are simple, non-automatic transitions between slides.						
RSI	29	Course offers access to a variety of engaging resources to present content, support learning and collaboration, and facilitate regular and substantive interaction with the instructor.						
RSI	30	Course provides activities for learners to develop higher-order thinking and problem-solving skills, such as critical reflection and analysis.						
RSI	31	Course provides activities that emulate real world applications of the discipline, such as experiential learning, case studies, and problem-based activities.						
	32	Where available, Open Educational Resources, free, or low cost materials are used.						
	33	Course materials and resources include copyright and licensing status, clearly stating permission to share where applicable.						
	34	Text content is available in an easily accessed format, preferably HTML. All text content is readable by assistive technology, including a PDF or any text contained in an image. (all course material is at a 'green' level with Blackboard Ally)						
	35	A text equivalent for every non-text element is provided ("alt" tags, captions, transcripts, etc.).						

	36	Text, graphics, and images are understandable when viewed without color. Text should be used as a primary method for delivering information. (REWORD THIS TO IDENTIFY THAT THE TEXT ITSELF NEEDS TO DELIVER THE INFORMATION (ex bold or whatever) NOT THAT ALL INFORMATION/MATERIALS MUST BE TEXT.)						
	36.a	Assignments align to the learning goals/objectives						
	37	Hyperlink text is descriptive and makes sense when out of context (avoid using "click here").						
RSI	38	Regular and substantive instructor-to-student expectations, and predictable/scheduled interactions and feedback, are present, appropriate for the course length and structure, and are easy to find.						
RSI	39	Expectations for all course interactions (instructor to student, student to student, student to instructor) are clearly stated and modeled in all course interaction/communication channels						
RSI	40	Learners have an opportunity to get to know the instructor.						
RSI	41	Course provides activities intended to build a sense of class community, support open communication, promote regular and substantive interaction, and establish trust (e.g., ice-breaking activities, Course Bulletin Board, planned Office Hours, and dedicated discussion forums).						
	41.a	Instructions and discussion board starters do not contain regionally specific colloquialisms, slang, and other language that could be challenging for English as a Second Language learners.						
	42	Course offers opportunities for learner to learner interaction and constructive collaboration. (with a focus on building work ready skills like collaboration, teamwork,)						
	42.a	Learners are encouraged to share their learning goals for the course (why take the course, what do they want to get out of it, how does it connect to their life/program)						
RSI	43	Course provides learners with opportunities in course interactions to share resources and inject knowledge from diverse sources of information with guidance and/or standards from the instructor.						
RSI	44	Course grading policies, including consequences of late submissions, are clearly stated in the course information area or syllabus.						
RSI	45	Course includes frequent, appropriate, and authentic methods to assess the learners' mastery of content.						
RSI	46	Criteria for the assessment of a graded assignment are clearly articulated (rubrics, exemplary work).						
RSI	47	Learners have opportunities to review their performance and assess their own learning throughout the course (pre-tests, automated self-tests, reflective assignments, etc.).						

	48	Learners are informed when a timed response is required. Proper lead time is provided to ensure there is an opportunity to prepare an accommodation.						
	49	Learners have easy access to a well designed and up-to-date gradebook. (either weighted total or total column is used and the unused is deleted. Columns are ordered sequentially or type of assignment. Unused columns are deleted instead of hidden. Hidden columns are purposeful)						
	50	Learners have multiple opportunities to provide descriptive feedback on course design, course content, course experience, and ease of online technology.						

M-A	M-A	Hyperlinks are provided for embedded content.						
M-B	M-B	The course avoids the use of tables and multiple levels of indents.						
M-C	M-C	Text is not placed to the left or right of images.						
M-D	M-D	When specifying width, percentages are used instead of pixels.						
M-E	M-E	The course is tested on multiple mobile devices.						
M-F	M-F	Any apps that are required for students are available on both Android and iOS mobile platforms.						
M-G	M-G	Efforts are made to minimize the use of content that does not work on mobile devices (such as Flash and Java).						
M-H	M-H	When file attachments are necessary, PDF is used as much as possible.						
M-I	M-I	Content is divided into small, manageable chunks.						

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