**COURSE OUTLINE**

APPRENTICESHIP PROGRAM / ADVANCED TECHNOLOGY DIVISION

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| COURSE TITLE | INDUSTRIAL INSTRUMENTATION TECHNICIAN SPECIALIZED CONTROL SYSTEMS 2 | COURSE HOURS PER WEEK: | 4 |
| COURSE NUMBER: | APR 270 | Lecture: | 4 |
| COURSE CREDITS: | 4 | Lec/Lab: | |
| COURSE PREREQUISITES: | Indentured apprentice | Lab: | |

COURSE DESCRIPTION:
Designed for Oregon state-recognized apprentices employed in a trade or industry related occupation. This course explores control elements trasducers and transmitters commonly used in process control. Students will learn a knowledge base consisting of the basic theory, vocabulary and safety practices commonly used in process control systems.

GENERAL COURSE OUTCOMES:

| **Upon completion of this course, the successful student will be able to:** | **These outcomes will be verified by one or more of the following assessments:** |
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| Address open, closed, and visual loop tuning. | Weekly assignments, Mid-term and Final Examinations. |
| Explain how data network devices and computers are interconnected for communication purposes. | Weekly assignments, Mid-term and Final Examinations. |
| Describe how open connectivity is used in industrial data networks. | Weekly assignments, Mid-term and Final Examinations. |
| Discuss the application of PLCs in industrial process control. | Weekly assignments, Mid-term and Final Examinations. |
| Identify components of PLCs, including power supplies, I/O modules and processor modules. | Weekly assignments, Mid-term and Final Examinations. |
| Describe how DCS was developed by combining the technologies of single loop control, direct digital control, and supervisory control. | Weekly assignments, Mid-term and Final Examinations. |

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COURSE OUTLINE BY MAJOR TOPIC:
Process Control Loops and Tuning
Data Networks
Programmable Logic Controllers
Distributed Control Systems