

Electrical Controls and Maintenance

Diploma

The Electrical Controls and Maintenance program provides training in the areas of electrical maintenance, industrial electronics, process control, instrumentation, fluid power, electrical-mechanical systems, and integrated computer control.

The first semester of the program focuses on the fundamentals of electrical/electronic theory in lecture and practical applications performed in lab exercises. The second semester of the program teaches the basics of industrial control, including motor control, instrumentation/process control, programmable logic controllers, and the national electrical code. In the second year of the program, lecture-based lab work builds on the basics with additional technology continually being introduced.

Career Opportunities

In order for industries to remain competitive, they must adapt to modern technology. Automation of equipment and processes is increasingly used to accomplish this goal. A need exists for personnel trained in servicing and maintaining high technology equipment. The job outlook for service and technical personnel is expanding. Opportunities exist in plant engineering/maintenance in almost all sectors of industry including paper/pulp, manufacturing, assembly, mining, transportation, warehousing/distribution, utilities, graphics/publishing, chemical processing, and petroleum refining.



www.mesabirange.edu

Enrollment Office - Eveleth Campus
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This document is available in alternative formats to individuals with disabilities by email – k.langdon@mesabirange.edu or calling the Minnesota Relay Service at 1-800-627-3529.

MESABI
Range College



MINNESOTA STATE

Mesabi Range College,
a member of Minnesota State

PROGRAM PLANNING FORM

STUDENT _____

STUDENT ID _____

**ELECTRICAL CONTROLS AND MAINTENANCE
DIPLOMA
(67 credits minimum) Eveleth**

**Effective Semester/Year
Fall 2017**

SEMESTER I		17 Credits	Cr	Lec/Lab	Grade
ECM 1253	Introduction to DC/AC Electronics		4	1/3	
ECM 1233	Introduction to Solid State Electronics		4	1/3	
ECM 1243	Introduction to Digital Electronics		3	1/2	
ECM 1295	Basic Soldering		1	0/1	
ECM 1244	Industrial Pneumatics		2	0/2	
GEDM 1175	Applied Technical Math		2	2/0	
GECL 1155	College Seminar		1	1/0	

SEMESTER II		18/19 Credits	Cr	Lec/ Lab	Grade
ECM 1251	Programmable Logic Controllers		3	1/2	
ECM 1265	National Electrical Code		2	2/0	
ECM 1266	Industrial Motor Control		6	2/4	
ECM 1275	Introduction to Process Control		2	1/1	
ECM 1276	Electrical/Mechanical Tools, Equipment and Systems		2	0/2	
ECM 1260	Electrical Safety		1	1/0	
ENGL 1532 -	Technical Writing or		3	3/0	
GEDC 2176 -	Technical Communications		2	2/0	

SEMESTER III		16/18 Credits	Cr	Lec/Lab	Grade
ECM 2264	Automation Components and Equipment		2	1/1	
ECM 2266	Temperature, Strain, and Analytical Instruments		3	1/2	
ECM 2267	Pressure, Flow, and Level Instruments		3	1/2	
ECM 2268	Automation Lab		2	0/2	
ECM 2252	Advanced Programmable Logic Controllers		4	1/3	
GECL 2175	Job Search Strategies		1	0/1	
GECL 2185 -	Human Dynamics or		1	0	
SOC 1558 -	Human Relations		3	3/0	

SEMESTER IV		16 Credits	Cr	Lec/Lab	Grade
ECM 2295	Computer Aided Design		2	2/0	
ECM 2235	Industrial Data Communications		4	1/3	
ECM 2245	Industrial PC Applications		3	1/2	
ECM 2276	Automated Industrial Control		5	0/5	
ECM 2277	Controllers and Control Loops		2	1/1	

Submitted 12/9/16

Form Revision Date - 3/2/12

Approval by _____ Date _____

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