

KELLOGG COMMUNITY COLLEGE
INDUSTRIAL ELECTRICITY AND ELECTRONICS
COURSE OPTIONS

FALL 2024

Certificate: 30 credits

Associate in Applied Science: 60 credits (combination of industrial electricity/electronics, technical electives, and general education credit requirements)

All costs are subject to change without notice. Please call 269-965-4137 to verify.

Module Subject Code and Number	Module Title	Credit	Contact Hours	Lab Fees	Tuition	Total Cost
<input type="checkbox"/> INEL C910-2201	ELECTRIC ELECTRONICS ORIENTAT The orientation must be completed at the EAC in Albion prior to registration. Please call 517-630-8169 to verify available orientation times.		2	0.00	0.00	0.00
UNIT 05 ELECTRICAL SAFETY						
<input type="checkbox"/> INEL 05010-2201	ELECTRICAL SAFETY	0.17	4	3.00	46.50	49.50
UNIT TOTAL		0.17	4	3.00	46.50	49.50
UNIT 10 MATHEMATICS FOR ELECTRICIANS						
<input type="checkbox"/> INEL 10010-2201	ELECTRICAL MATH 1	0.08	2	13.00	21.88	34.88
<input type="checkbox"/> INEL 10020-2201	ELECTRICAL MATH 2	0.25	6	3.00	68.38	71.38
<input type="checkbox"/> INEL 10030-2201	ELECTRICAL MATH 3	0.25	6	3.00	68.38	71.38
UNIT TOTAL		0.58	14	19.00	158.64	177.64
UNIT 15 ELECTRICAL THEORY						
<input type="checkbox"/> INEL 15010-2201	ELECTRICAL THEORY	0.25	6	23.00	68.38	91.38
<input type="checkbox"/> INEL 15020-2201	STATIC ELECTRICITY	0.25	6	23.00	68.38	91.38
<input type="checkbox"/> INEL 15030-2201	CALCULATORS AND ELECTRONICS	0.25	6	23.00	68.38	91.38
<input type="checkbox"/> INEL 15040-2201	DEVICES AND SYMBOLS	0.25	6	23.00	68.38	91.38
<input type="checkbox"/> INEL 15050-2201	MULTIMETER	0.33	8	23.00	90.26	113.26
<input type="checkbox"/> INEL 15060-2201	OHM'S LAW	0.33	8	23.00	90.26	113.26
<input type="checkbox"/> INEL 15070-2201	SERIES CIRCUITS	0.33	8	23.00	90.26	113.26
<input type="checkbox"/> INEL 15080-2201	PARALLEL CIRCUITS	0.33	8	23.00	90.26	113.26
<input type="checkbox"/> INEL 15090-2201	COMBINATION CIRCUITS	0.33	8	23.00	90.26	113.26
<input type="checkbox"/> INEL 15100-2201	MAGNETISM	0.25	6	23.00	68.38	91.38
<input type="checkbox"/> INEL 15110-2201	ALTERNATING CURRENT	0.25	6	23.00	68.38	91.38
<input type="checkbox"/> INEL 15120-2201	OSCILLOSCOPE	0.33	8	23.00	90.26	113.26
<input type="checkbox"/> INEL 15130-2201	INDUCTANCE	0.42	10	23.00	114.87	137.87
<input type="checkbox"/> INEL 15140-2201	CAPACITANCE	0.42	10	23.00	114.87	137.87
<input type="checkbox"/> INEL 15150-2201	RLC CIRCUITS	0.33	8	23.00	90.26	113.26
<input type="checkbox"/> INEL 15160-2201	CONDUCTION	0.33	8	23.00	90.26	113.26
<input type="checkbox"/> INEL 15170-2201	THEORY OVERVIEW	0.21	5	23.00	57.44	80.44
UNIT TOTAL		5.19	125	391.00	1,419.54	1,810.54
UNIT 20 ELECTRICAL MOTOR CONTROLS 1						
<input type="checkbox"/> INEL 20010-2201	ELECTRICAL MOTOR CONTROLS	0.42	10	23.00	114.87	137.87
<input type="checkbox"/> INEL 20020-2201	MANUAL MOTOR CONTROLS	0.50	12	23.00	136.75	159.75
<input type="checkbox"/> INEL 20030-2201	CONTROL TRANSFORMERS	0.42	10	23.00	114.87	137.87
<input type="checkbox"/> INEL 20040-2201	CONTROL LADDER LOGIC	0.67	16	23.00	183.25	206.25
<input type="checkbox"/> INEL 20050-2201	CONTROL RELAYS MOTOR STARTERS	0.50	12	23.00	136.75	159.75
<input type="checkbox"/> INEL 20060-2201	INTRODUCTION TROUBLESHOOTING	0.33	8	23.00	90.26	113.26
<input type="checkbox"/> INEL 20070-2201	SYSTEMS TROUBLESHOOTING	0.42	10	23.00	114.87	137.87
<input type="checkbox"/> INEL 20080-2201	AUTOMATIC INPUT DEVICES	0.42	10	23.00	114.87	137.87
<input type="checkbox"/> INEL 20090-2201	ELECTRONIC SENSORS	0.33	8	23.00	90.26	113.26
<input type="checkbox"/> INEL 20100-2201	BASIC TIMER CONTROL	0.33	8	23.00	90.26	113.26
<input type="checkbox"/> INEL 20110-2201	TIMERS AND COUNTERS	0.25	6	23.00	68.38	91.38
UNIT TOTAL		4.59	110	253.00	1,255.39	1,508.39
UNIT 25 ELECTRICAL MOTOR CONTROLS 2						
<input type="checkbox"/> INEL 25010-2201	REVERSING MOTOR CONTROL	0.33	8	23.00	90.26	113.26
<input type="checkbox"/> INEL 25020-2201	BRAKING METHODS	0.42	10	23.00	114.87	137.87

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UNIT 25 ELECTRICAL MOTOR CONTROLS 2 (CONTINUED)						
<input type="checkbox"/> INEL 25030-2201	REDUCED VOLTAGE STARTING	0.33	8	23.00	90.26	113.26
<input type="checkbox"/> INEL 25040-2201	INTRO FREQUENCY DRIVES (AC)	0.33	8	23.00	90.26	113.26
<input type="checkbox"/> INEL 25050-2201	AC DRIVES SPEED TORQUE CNT	0.33	8	23.00	90.26	113.26
<input type="checkbox"/> INEL 25060-2201	AC DRIVES ACCEL AND DECEL	0.33	8	23.00	90.26	113.26
<input type="checkbox"/> INEL 25070-2201	AC DRIVES TROUBLESHOOTING	0.33	8	23.00	90.26	113.26
<input type="checkbox"/> INEL 25080-2201	SCR MOTOR CONTROL	0.42	10	23.00	114.87	137.87
UNIT TOTAL		2.82	68	184.00	771.30	955.30
UNIT 35 NATIONAL ELECTRICAL CODE (NEC)						
<input type="checkbox"/> INEL 35010-2201	GENERAL WIRING FUNDAMENTALS	0.25	6	17.00	68.38	85.38
<input type="checkbox"/> INEL 35020-2201	WIRE RACEWAY AND BOX SIZING	0.33	8	17.00	90.26	107.26
<input type="checkbox"/> INEL 35030-2201	BRANCH CIRCUITS	0.33	8	17.00	90.26	107.26
<input type="checkbox"/> INEL 35040-2201	SERVICE FEEDER CALCULATIONS	0.25	6	17.00	68.38	85.38
<input type="checkbox"/> INEL 35050-2201	GROUNDING AND BONDING	0.33	8	17.00	90.26	107.26
<input type="checkbox"/> INEL 35060-2201	OVERCURRENT PROTECTION	0.33	8	17.00	90.26	107.26
<input type="checkbox"/> INEL 35070-2201	MOTOR CIRCUIT WIRING	0.25	6	17.00	68.38	85.38
<input type="checkbox"/> INEL 35080-2201	TRANSFORMERS	0.25	6	17.00	68.38	85.38
<input type="checkbox"/> INEL 35090-2201	GENERAL HAZARDOUS LOCATIONS	0.25	6	17.00	68.38	85.38
<input type="checkbox"/> INEL 35100-2201	HEALTH CARE FACILITIES	0.25	6	17.00	68.38	85.38
<input type="checkbox"/> INEL 35110-2201	EMERGENCY POWER SYSTEMS	0.33	8	17.00	90.26	107.26
<input type="checkbox"/> INEL 35120-2201	INDUSTRIAL APPLICATIONS	0.33	8	17.00	90.26	107.26
<input type="checkbox"/> INEL 35130-2201	SPECIAL APPLICATION WIRING	0.25	6	17.00	68.38	85.38
<input type="checkbox"/> INEL 35140-2201	NEC REVIEW	0.17	4	17.00	46.50	63.50
UNIT TOTAL		3.90	94	238.00	1,066.72	1,304.72
UNIT 50 ELECTRICAL CONTROL WIRING						
<input type="checkbox"/> INEL 50010-2201	ELECTRICAL CONTROL WIRING	0.42	10	65.00	114.87	179.87
<input type="checkbox"/> INEL 50020-2201	ELECTRICAL CONTROL SYSTEMS	1.00	24	75.00	273.50	348.50
UNIT TOTAL		1.42	34	140.00	388.37	528.37
UNIT 55 INDUSTRIAL ELECTRONICS						
<input type="checkbox"/> INEL 55010-2201	USING THE OSCILLOSCOPE	0.67	16	21.00	183.25	204.25
<input type="checkbox"/> INEL 55020-2201	METERS FOR ELECTRONICS	0.33	8	21.00	90.26	111.26
<input type="checkbox"/> INEL 55030-2201	ELECTRONIC SOLDERING	0.25	6	21.00	68.38	90.26
<input type="checkbox"/> INEL 55040-2201	SOLDERING PRINTED CIRCUIT BOAR	0.25	6	21.00	68.38	90.26
<input type="checkbox"/> INEL 55050-2201	DIODES	0.25	6	21.00	68.38	90.26
<input type="checkbox"/> INEL 55060-2201	POWER SUPPLIES	0.50	12	21.00	136.75	157.75
<input type="checkbox"/> INEL 55070-2201	PHOTO DEVICES	0.33	8	21.00	90.26	111.26
<input type="checkbox"/> INEL 55080-2201	SOLID STATE DEVICES	0.83	20	21.00	227.01	248.01
<input type="checkbox"/> INEL 55090-2201	ELECTRONIC TIMING	0.33	8	21.00	90.26	111.26
<input type="checkbox"/> INEL 55100-2201	AMPLIFIERS	0.83	20	21.00	227.01	248.01
<input type="checkbox"/> INEL 55110-2201	DIGITAL LOGIC FUNDAMENTALS	0.50	12	21.00	136.75	157.75
<input type="checkbox"/> INEL 55120-2201	DIGITAL LOGIC APPLICATIONS	0.42	10	21.00	114.87	135.87
<input type="checkbox"/> INEL 55130-2201	PROXIMITY SWITCHING	0.17	4	21.00	46.50	67.50
<input type="checkbox"/> INEL 55140-2201	PHOTOELECTRIC DEVICES	0.17	4	21.00	46.50	67.50
<input type="checkbox"/> INEL 55150-2201	FIBER OPTIC FUNDAMENTALS	0.33	8	21.00	90.26	111.26
<input type="checkbox"/> INEL 55160-2201	FIBER OPTIC LAB	0.25	6	21.00	68.38	89.38
UNIT TOTAL		6.41	154	336.00	1,753.20	2,089.20
UNIT 75 INTRODUCTION TO CONTROL LOGIX						
<input type="checkbox"/> INEL 75010-2201	INTRO TO COMPACT LOGIX PLCS	0.25	6	15.00	68.38	83.38

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UNIT 75 INTRODUCTION TO CONTROL LOGIX (CONTINUED)						
<input type="checkbox"/> INEL 75020-2201	CREATING RS LOGIX 5000 PROJEC	0.25	6	15.00	68.38	83.38
<input type="checkbox"/> INEL 75030-2201	ETHERNET COMMUNICATION PROTO	0.42	10	15.00	114.87	129.87
<input type="checkbox"/> INEL 75040-2201	CREATING RS LOGIX 5000 PROGRA	0.42	10	15.00	114.87	129.87
<input type="checkbox"/> INEL 75050-2201	TON TOF RTO COUNTER INSTRUCTI	0.42	10	15.00	114.87	129.87
<input type="checkbox"/> INEL 75060-2201	CU AND CD COUNTER INSTRUCTION	0.42	10	15.00	114.87	129.87
UNIT TOTAL		2.18	52	90.00	596.24	686.24
UNIT 76 ADVANCED PROGRAMMING FOR CONTROL LOGIX						
<input type="checkbox"/> INEL 76010-2201	INTRO TO PLC TROUBLESHOOTING	0.33	8	19.00	90.26	109.26
<input type="checkbox"/> INEL 76020-2201	PLC SYSTEMS TROUBLESHOOTING	0.33	8	19.00	90.26	109.26
<input type="checkbox"/> INEL 76030-2201	EVENT SEQUENCING	0.33	8	19.00	90.26	109.26
<input type="checkbox"/> INEL 76040-2201	APPLICATION DEVELOPMENT	0.50	12	19.00	136.75	155.75
<input type="checkbox"/> INEL 76050-2201	PROGRAM CONTROL INSTRUCTIONS	0.50	12	19.00	136.75	155.75
<input type="checkbox"/> INEL 76060-2201	MATH DATA MOVE INSTRUCTIONS	0.58	14	19.00	158.63	177.63
UNIT TOTAL		2.57	62	114.00	702.91	816.91
UNIT 70 PANEL VIEW						
<input type="checkbox"/> INEL 70010-2201	INTRODUCTION TO PANEL VIEW	0.17	4	10.00	45.82	55.82
<input type="checkbox"/> INEL 70020-2201	TERMINAL OVERVIEW	0.25	6	10.00	67.38	77.38
<input type="checkbox"/> INEL 70030-2201	WIRING AND SET UP	0.25	6	10.00	67.38	77.38
<input type="checkbox"/> INEL 70040-2201	TERMINAL CONFIGURATION	0.25	6	10.00	67.38	77.38
<input type="checkbox"/> INEL 70050-2201	TROUBLESHOOTING MAINTENANCE	0.25	6	10.00	67.38	77.38
<input type="checkbox"/> INEL 70060-2201	PROGRAMMING PANEL VIEW	0.83	20	10.00	223.69	233.69
<input type="checkbox"/> INEL 70070-2201	PANEL VIEW PLC APPLICATIONS	1.04	25	10.00	280.28	290.28
<input type="checkbox"/> INEL 70080-2201	PANEL VIEW PLC COMMUNICATION	0.21	5	10.00	56.60	66.60
UNIT TOTAL		3.25	78	80.00	875.91	955.91
UNIT 85 ROBOTICS PROGRAMMING AND MAINTENANCE						
<input type="checkbox"/> INEL 85010-2201	ROBOTICS INTRODUCTION	0.67	16	29.00	183.25	212.25
<input type="checkbox"/> INEL 85020-2201	PROGRAMMING ROBOTICS	1.29	31	29.00	352.82	381.82
UNIT TOTAL		1.96	47	58.00	536.07	594.07
TOTAL		35.04	844	1,906.00	9,583.79	11,489.79

ASSESSMENTS/CERTIFICATIONS

<input type="checkbox"/> *INEL C201-2201	SACA C-201 CERTIFICATION		4	108.00	0.00	108.00
<input type="checkbox"/> *INEL C202-2201	SACA C-202 CERTIFICATION		4	108.00	0.00	108.00
<input type="checkbox"/> *INEL C203-2201	SACA C-203 CERTIFICATION		4	108.00	0.00	108.00
<input type="checkbox"/> *INEL C204-2201	SACA C-204 CERTIFICATION		4	108.00	0.00	108.00
<input type="checkbox"/> *INEL C205-2201	SACA C-205 CERTIFICATION		4	108.00	0.00	108.00
<input type="checkbox"/> *INEL C206-2201	SACA C-206 CERTIFICATION		4	108.00	0.00	108.00

*Module(s) cannot be paid for using certain types of financial aid. Please direct all inquiries to the staff at the RMTC registration desk.

FOR OFFICE USE ONLY

Instructor Approval _____ Date _____
 Total Credit _____ Total Contact _____ Total Cost _____