

# KELLOGG COMMUNITY COLLEGE

## INDUSTRIAL HEATING, VENTILATION, AIR CONDITIONING AND REFRIGERATION COURSE OPTIONS

**SPRING 2024**

Certificate: 25 credits

Associate in Applied Science: 60 credits (combination of industrial HVAC-R, technical electives, and general education credit requirements)

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Module Subject Code and Number	Module Title	Credit	Contact Hours	Lab Fees	Tuition	Total Cost
<input type="checkbox"/> INHR C910-7201	HVAC-R ORIENTATION		2	0.00	0.00	0.00
The orientation must be completed at the RMTTC in Battle Creek prior to registration. Please call 269.965.4137 to verify available orientation times.						
<b>UNIT 05 REFRIGERATION TOOLS/PLANT SAFETY</b>						
<input type="checkbox"/> INHR 05011-7201	HVAC-R SAFETY	0.83	20	41.00	223.69	264.69
<input type="checkbox"/> INHR 05021-7201	HVAC-R TOOLS	0.08	2	31.00	21.56	52.56
<b>UNIT TOTAL</b>		<b>0.91</b>	<b>22</b>	<b>72.00</b>	<b>245.25</b>	<b>317.25</b>
<b>UNIT 10 REFRIGERATION FUNDAMENTALS</b>						
<input type="checkbox"/> INHR 10011-7201	INTRODUCTION TO HVAC-R	0.33	8	55.00	88.94	143.94
<input type="checkbox"/> INHR 10021-7201	TRADE MATHEMATICS	0.42	10	16.00	113.19	129.19
<input type="checkbox"/> INHR 10031-7201	COPPER PLASTIC PIPING PRACTICE	0.21	5	26.00	56.60	82.60
<input type="checkbox"/> INHR 10041-7201	SOLDERING AND BRAZING	0.33	8	44.00	88.94	132.94
<input type="checkbox"/> INHR 10051-7201	FERROUS METAL PIPING PRACTICES	0.63	15	31.00	169.79	200.79
<b>UNIT TOTAL</b>		<b>1.92</b>	<b>46</b>	<b>172.00</b>	<b>517.46</b>	<b>689.46</b>
<b>UNIT 12 ELECTRICAL FUNDAMENTALS FOR HVAC/R</b>						
<input type="checkbox"/> INHR 12011-7201	ELEC SAFETY & HAZARD AWARENES	0.33	8	41.00	88.94	129.94
<input type="checkbox"/> INHR 12021-7201	BASIC ELEC THEORY & TERMINOLGY	0.67	16	41.00	180.57	221.57
<input type="checkbox"/> INHR 12031-7201	BASIC ELECTRICAL CIRCUITS	0.50	12	46.00	134.75	180.75
<input type="checkbox"/> INHR 12041-7201	ELECTRICAL MEASUREMENT	0.50	12	46.00	134.75	180.75
<input type="checkbox"/> INHR 12051-7201	CIRCUIT ANALYSIS	1.00	24	46.00	269.50	315.50
<input type="checkbox"/> INHR 12061-7201	INDUCTANCE & CAPACITANCE	0.67	16	46.00	180.57	226.57
<input type="checkbox"/> INHR 12071-7201	COMBINATION CIRCUITS	0.50	12	11.00	134.75	145.75
<input type="checkbox"/> INHR 12081-7201	TRANSFORMERS	0.50	12	11.00	134.75	145.75
<input type="checkbox"/> INHR 12091-7201	FUSES & CIRCUIT BREAKERS	0.25	6	16.00	67.38	83.38
<input type="checkbox"/> INHR 12101-7201	RELAYS & CONTACTORS	0.25	6	16.00	67.38	83.38
<input type="checkbox"/> INHR 12111-7201	MAGNETISM AND AC FUNDAMENTALS	0.50	12	16.00	134.75	150.75
<input type="checkbox"/> INHR 12121-7201	ELECTRIC MOTORS & CONTROLS	0.50	12	16.00	134.75	150.75
<input type="checkbox"/> INHR 12131-7201	SYMBOLS AND WIRING DIAGRAMS	0.50	12	16.00	134.75	150.75
<b>UNIT TOTAL</b>		<b>6.67</b>	<b>160</b>	<b>368.00</b>	<b>1797.59</b>	<b>2165.59</b>
<b>UNIT 15 REFRIGERATION SYSTEMS &amp; COMPONENTS</b>						
<input type="checkbox"/> INHR 15011-7201	INTRODUCTION TO COOLING	1.25	30	16.00	336.88	352.88
<input type="checkbox"/> INHR 15021-7201	COMPRESSORS	0.63	15	23.00	169.79	192.79
<input type="checkbox"/> INHR 15031-7201	REFRIGERANTS AND OILS	0.42	10	24.00	113.19	137.19
<input type="checkbox"/> INHR 15041-7201	METERING DEVICES	0.33	8	16.00	88.94	104.94
<input type="checkbox"/> INHR 15051-7201	LEAK EVAC RECOVERY CHARGING	0.83	20	71.00	223.69	294.69
<input type="checkbox"/> INHR 15061-7201	TROUBLESHOOTING COOLING	0.83	20	27.00	223.69	250.69
<input type="checkbox"/> INHR 15071-7201	RETAIL REFRIGERATION SYSTEMS	0.83	20	31.00	223.69	254.69
<input type="checkbox"/> INHR 15081-7201	COMMERCIAL INDUSTRIAL REFRIG	1.00	24	18.00	269.50	287.50
<b>UNIT TOTAL</b>		<b>6.12</b>	<b>147</b>	<b>226.00</b>	<b>1649.37</b>	<b>1875.37</b>
<input type="checkbox"/> *INHR C410-7201	EPA CERTIFICATION (STUDENT MUST ARRANGE DATE/TIME WITH INSTRUCTOR.)		3	90.00	0.00	90.00
<b>UNIT 20 HEATING SYSTEMS &amp; TROUBLESHOOTING</b>						
<input type="checkbox"/> INHR 20011-7201	INTRODUCTION TO HEATING	0.63	15	21.00	169.79	190.79

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<b>UNIT 20 HEATING SYSTEMS &amp; TROUBLESHOOTING (CONTINUED)</b>						
<input type="checkbox"/> INHR 20021-7201	TROUBLESHOOTING GAS HEATING	0.54	13	24.00	145.53	169.53
<input type="checkbox"/> INHR 20031-7201	TROUBLESHOOTING OIL HEAT SYS	0.42	10	21.00	113.19	134.19
<input type="checkbox"/> INHR 20041-7201	CHIMNEYS, VENTS AND FLUES	0.21	5	16.00	56.60	72.60
<input type="checkbox"/> INHR 20051-7201	TROUBLESHOOTING ACCESSORIES	0.42	10	21.00	113.19	134.19
<b>UNIT TOTAL</b>		<b>2.22</b>	<b>53</b>	<b>103.00</b>	<b>598.30</b>	<b>701.30</b>
<b>UNIT 25 HYDRONIC SYSTEMS</b>						
<input type="checkbox"/> INHR 25011-7201	INTRODUCTION HYDRONIC SYSTEMS	0.42	10	16.00	113.19	129.19
<input type="checkbox"/> INHR 25021-7201	COMMERCIAL HYDRONIC SYSTEMS	0.54	13	16.00	145.53	161.53
<b>UNIT TOTAL</b>		<b>0.96</b>	<b>23</b>	<b>32.00</b>	<b>258.72</b>	<b>290.72</b>
<b>UNIT 30 STEAM SYSTEMS</b>						
<input type="checkbox"/> INHR 30011-7201	STEAM SYSTEMS	0.63	15	24.00	169.79	193.79
<b>UNIT TOTAL</b>		<b>0.63</b>	<b>15</b>	<b>24.00</b>	<b>169.79</b>	<b>193.79</b>
<b>UNIT 35 HEAT PUMPS &amp; TROUBLESHOOTING</b>						
<input type="checkbox"/> INHR 35011-7201	HEAT PUMPS	0.83	20	16.00	223.69	239.69
<input type="checkbox"/> INHR 35021-7201	TROUBLESHOOTING HEAT PUMPS	0.54	13	19.00	145.53	164.53
<b>UNIT TOTAL</b>		<b>1.37</b>	<b>33</b>	<b>35.00</b>	<b>369.22</b>	<b>404.22</b>
<b>UNIT 40 AIR DISTRIBUTION &amp; INDOOR AIR QUALITY</b>						
<input type="checkbox"/> INHR 40011-7201	INDOOR AIR QUALITY	0.63	15	23.00	169.79	192.79
<input type="checkbox"/> INHR 40021-7201	AIR DISTRIBUTION SYSTEMS	0.63	15	19.00	169.79	188.79
<input type="checkbox"/> INHR 40031-7201	COMMERCIAL AIRSIDE SYSTEMS	0.54	13	23.00	145.53	168.53
<input type="checkbox"/> INHR 40041-7201	AIR QUALITY EQUIPMENT	0.33	8	16.00	88.94	104.94
<input type="checkbox"/> INHR 40051-7201	SYSTEM BALANCING	0.83	20	23.00	223.69	246.69
<b>UNIT TOTAL</b>		<b>2.96</b>	<b>71</b>	<b>104.00</b>	<b>797.74</b>	<b>901.74</b>
<b>UNIT 45 HVAC-R AUTOMATION CONTROLS</b>						
<input type="checkbox"/> INHR 45011-7201	DIGITAL CONTROLS HVAC TECHS	0.21	5	91.00	56.60	147.60
<input type="checkbox"/> INHR 45021-7201	BUILDING MANAGEMENT SYSTEMS	0.75	18	16.00	202.13	218.13
<b>UNIT TOTAL</b>		<b>0.96</b>	<b>23</b>	<b>107.00</b>	<b>258.73</b>	<b>365.73</b>
<b>UNIT 50 HVAC-R DUCT SYSTEMS</b>						
<input type="checkbox"/> INHR 50011-7201	SHEET METAL DUCT SYSTEMS	0.42	10	49.00	113.19	162.19
<input type="checkbox"/> INHR 50021-7201	FIBERGLASS FLEXIBLE DUCT SYS	0.21	5	16.00	56.60	72.60
<b>UNIT TOTAL</b>		<b>0.63</b>	<b>15</b>	<b>65.00</b>	<b>169.79</b>	<b>234.79</b>
<b>UNIT 55 HVAC-R PREVENTATIVE MAINTENANCE</b>						
<input type="checkbox"/> INHR 55011-7201	INSTALLATION AND MAINTENANCE	0.92	22	16.00	247.94	263.94
<input type="checkbox"/> INHR 55021-7201	PLANNED MAINTENANCE	0.83	20	29.00	223.69	252.69
<input type="checkbox"/> INHR 55031-7201	CONSTRUCTION DRAWINGS SPECIFI	1.04	25	18.00	280.28	298.28
<b>UNIT TOTAL</b>		<b>2.79</b>	<b>67</b>	<b>63.00</b>	<b>751.91</b>	<b>814.91</b>

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<b>UNIT 60 HVAC-R COMMISSIONING &amp; CONSERVATION</b>						
<input type="checkbox"/> INHR 60011-7201	SYSTEM STARTUP AND SHUTDOWN	0.96	23	21.00	258.72	279.72
<input type="checkbox"/> INHR 60021-7201	HEATING COOLING SYSTEM DESIGN	1.04	25	24.00	280.28	304.28
<input type="checkbox"/> INHR 60031-7201	ENERGY CONSERVATION EQUIPMENT	0.42	10	21.00	113.19	134.19
<input type="checkbox"/> INHR 60041-7201	ALTERNATIVE HEAT COOL SYSTEMS	0.42	10	24.00	113.19	137.19
<b>UNIT TOTAL</b>		<b>2.84</b>	<b>68</b>	<b>90.00</b>	<b>765.38</b>	<b>855.38</b>
<b>UNIT 65 WATER TREATMENT</b>						
<input type="checkbox"/> INHR 65011-7201	WATER TREATMENT	0.42	10	48.00	113.19	161.19
<b>UNIT TOTAL</b>		<b>0.42</b>	<b>10</b>	<b>48.00</b>	<b>113.19</b>	<b>161.19</b>
<b>UNIT 70 SUPERVISORY SKILLS</b>						
<input type="checkbox"/> INHR 70011-7201	INTRO TO SUPERVISORY SKILLS	0.63	15	41.00	169.79	210.79
<b>UNIT TOTAL</b>		<b>0.63</b>	<b>15</b>	<b>41.00</b>	<b>169.79</b>	<b>210.79</b>
<b>UNIT 75 WRITING FOR EMPLOYMENT</b>						
<input type="checkbox"/> INHR 75011-7201	WRITING FOR EMPLOYMENT	0.50	12	6.00	134.75	140.75
<b>UNIT TOTAL</b>		<b>0.50</b>	<b>12</b>	<b>6.00</b>	<b>134.75</b>	<b>140.75</b>
<b>TOTAL</b>		<b>32.53</b>	<b>785</b>	<b>1,646.00</b>	<b>8,766.98</b>	<b>10,412.98</b>

\*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 \_\_\_\_\_