

## Heating, Ventilation, Air Conditioning, and Refrigeration Technology - Stackable Credential Alignment

| HVAC Specialized Diploma                                          |                                       |                | HVAC/R Certificate                                                |                                       |                | HVAC/R Associates in Applied Science (AAS)                        |                                       |                |
|-------------------------------------------------------------------|---------------------------------------|----------------|-------------------------------------------------------------------|---------------------------------------|----------------|-------------------------------------------------------------------|---------------------------------------|----------------|
| Course #                                                          | First Semester                        | Credits        | Course #                                                          | First Semester                        | Credits        | Course #                                                          | First Semester                        | Credits        |
| COLS101                                                           | College Success                       | 1              | COLS101                                                           | College Success                       | 1              | COLS101                                                           | College Success                       | 1              |
| <b>Certificate/AAS ONLY Course Addition -----&gt;&gt;&gt;&gt;</b> |                                       |                | <b>Certificate/AAS ONLY Course Addition -----&gt;&gt;&gt;&gt;</b> |                                       |                | <b>Certificate/AAS ONLY Course Addition -----&gt;&gt;&gt;&gt;</b> |                                       |                |
| ELTC 101                                                          | Electrical Fundamentals               | 3              | ELTC 101                                                          | Electrical Fundamentals               | 3              | ELTC 101                                                          | Electrical Fundamentals               | 3              |
| EMEC 114                                                          | Mechanical Skills for the Trades      | 2              | EMEC 114                                                          | Mechanical Skills for the Trades      | 2              | EMEC 114                                                          | Mechanical Skills for the Trades      | 2              |
| HVAC 101                                                          | Fundamentals of HVAC/R I              | 4              | HVAC 101                                                          | Fundamentals of HVAC/R I              | 4              | HVAC 101                                                          | Fundamentals of HVAC/R I              | 4              |
| MATH 103                                                          | Technical Mathematics                 | 3              | MATH 103                                                          | Technical Mathematics                 | 3              | MATH 103                                                          | Technical Mathematics                 | 3              |
| OSAH 101 or<br>(OSAH102**)                                        | Industry Outreach Safety Education    | <u>1</u><br>14 | OSAH 101 or<br>(OSAH102**)                                        | Industry Outreach Safety Education    | <u>1</u><br>17 | OSAH 101 or<br>(OSAH102**)                                        | Industry Outreach Safety Education    | <u>1</u><br>17 |
| <b>Second Semester</b>                                            |                                       |                | <b>Second Semester</b>                                            |                                       |                | <b>Second Semester</b>                                            |                                       |                |
| CMGT 104                                                          | Construction Print Reading            | 3              | CMGT 104                                                          | Construction Print Reading            | 3              | CMGT 104                                                          | Construction Print Reading            | 3              |
| ELTC 107                                                          | Wiring I                              | 3              | ELTC 107                                                          | Wiring I                              | 3              | ELTC 107                                                          | Wiring I                              | 3              |
| <b>Certificate/AAS ONLY Course Addition -----&gt;&gt;&gt;&gt;</b> |                                       |                | <b>Certificate/AAS ONLY Course Addition -----&gt;&gt;&gt;&gt;</b> |                                       |                | <b>Certificate/AAS ONLY Course Addition -----&gt;&gt;&gt;&gt;</b> |                                       |                |
| HVAC 102                                                          | Fundamentals of HVAC/R II             | 3              | HVAC 102                                                          | Fundamentals of HVAC/R II             | 3              | HVAC 102                                                          | Fundamentals of HVAC/R II             | 3              |
| HVAC 124                                                          | Heating: Gas, Oil, Solar Thermal. . . | 4              | HVAC 124                                                          | Heating: Gas, Oil, Solar Thermal. . . | 4              | HVAC 124                                                          | Heating: Gas, Oil, Solar Thermal. . . | 4              |
| HVAC 140                                                          | Heat Pump Systems                     | <u>2</u>       | HVAC 140                                                          | Heat Pump Systems                     | <u>2</u>       | HVAC 140                                                          | Heat Pump Systems                     | <u>2</u>       |
|                                                                   |                                       | <u>15</u>      |                                                                   |                                       | 18             |                                                                   |                                       | 18             |
| <b>Total Credits</b>                                              |                                       |                | <b>Total Credits</b>                                              |                                       |                | <b>Total Credits</b>                                              |                                       |                |
| <b>29</b>                                                         |                                       |                | <b>51-53</b>                                                      |                                       |                | <b>66</b>                                                         |                                       |                |
| <b>Third and Fourth Semesters (Sequence varies)</b>               |                                       |                | <b>Third and Fourth Semesters (Sequence varies)</b>               |                                       |                | <b>Third and Fourth Semesters (Sequence varies)</b>               |                                       |                |
| <b>Third Semester</b>                                             |                                       |                | <b>Third Semester</b>                                             |                                       |                | <b>Third Semester</b>                                             |                                       |                |
| <i>CMTH 102</i>                                                   |                                       |                | <i>CMTH 102</i>                                                   |                                       |                | <i>CMTH 102</i>                                                   |                                       |                |
| <i>Intro to Communication</i>                                     |                                       |                | <i>Intro to Communication</i>                                     |                                       |                | <i>Intro to Communication</i>                                     |                                       |                |
| <b>3</b>                                                          |                                       |                | <b>3</b>                                                          |                                       |                | <b>3</b>                                                          |                                       |                |
| <b>ELTC 135</b>                                                   |                                       |                | <b>ELTC 135</b>                                                   |                                       |                | <b>ELTC 135</b>                                                   |                                       |                |
| <b>Electrical Motors and Controls</b>                             |                                       |                | <b>Electrical Motors and Controls</b>                             |                                       |                | <b>Electrical Motors and Controls</b>                             |                                       |                |
| <b>4</b>                                                          |                                       |                | <b>4</b>                                                          |                                       |                | <b>4</b>                                                          |                                       |                |
| <i>ENGL 151T</i>                                                  |                                       |                | <i>ENGL 151T</i>                                                  |                                       |                | <i>ENGL 151T</i>                                                  |                                       |                |
| <i>English II +</i>                                               |                                       |                | <i>English II +</i>                                               |                                       |                | <i>English II +</i>                                               |                                       |                |
| <b>3</b>                                                          |                                       |                | <b>3</b>                                                          |                                       |                | <b>3</b>                                                          |                                       |                |
| <i>PHYS 152</i>                                                   |                                       |                | <i>PHYS 152</i>                                                   |                                       |                | <i>PHYS 152</i>                                                   |                                       |                |
| <i>Physical Science II</i>                                        |                                       |                | <i>Physical Science II</i>                                        |                                       |                | <i>Physical Science II</i>                                        |                                       |                |
| <b>3</b>                                                          |                                       |                | <b>3</b>                                                          |                                       |                | <b>3</b>                                                          |                                       |                |
| <b>Technical Elective ***</b>                                     |                                       |                | <b>Technical Elective ***</b>                                     |                                       |                | <b>Technical Elective ***</b>                                     |                                       |                |
| <b>3</b>                                                          |                                       |                | <b>6/8</b>                                                        |                                       |                | <b>3</b>                                                          |                                       |                |
| <b>16</b>                                                         |                                       |                | <b>16-18</b>                                                      |                                       |                | <b>16</b>                                                         |                                       |                |
| <b>Fourth Semester</b>                                            |                                       |                | <b>Fourth Semester</b>                                            |                                       |                | <b>Fourth Semester</b>                                            |                                       |                |
| <b>HVAC 204</b>                                                   |                                       |                | <b>HVAC 204</b>                                                   |                                       |                | <b>HVAC 204</b>                                                   |                                       |                |
| <b>Refrigeration Troubleshooting</b>                              |                                       |                | <b>Refrigeration Troubleshooting</b>                              |                                       |                | <b>Refrigeration Troubleshooting</b>                              |                                       |                |
| <b>3</b>                                                          |                                       |                | <b>3</b>                                                          |                                       |                | <b>3</b>                                                          |                                       |                |
| <i>General Education Elective</i>                                 |                                       |                | <i>General Education Elective</i>                                 |                                       |                | <i>General Education Elective</i>                                 |                                       |                |
| <b>3</b>                                                          |                                       |                | <b>3</b>                                                          |                                       |                | <b>3</b>                                                          |                                       |                |
| <i>General Education Elective</i>                                 |                                       |                | <i>General Education Elective</i>                                 |                                       |                | <i>General Education Elective</i>                                 |                                       |                |
| <b>3</b>                                                          |                                       |                | <b>3</b>                                                          |                                       |                | <b>3</b>                                                          |                                       |                |
| <b>Elective (Cert. Tech applies)</b>                              |                                       |                | <b>Elective (Cert. Tech applies)</b>                              |                                       |                | <b>Elective (Cert. Tech applies)</b>                              |                                       |                |
| <b>3</b>                                                          |                                       |                | <b>3</b>                                                          |                                       |                | <b>3</b>                                                          |                                       |                |
| <b>17</b>                                                         |                                       |                | <b>17</b>                                                         |                                       |                | <b>17</b>                                                         |                                       |                |
| <b>Total Credits</b>                                              |                                       |                | <b>Total Credits</b>                                              |                                       |                | <b>Total Credits</b>                                              |                                       |                |
| <b>66</b>                                                         |                                       |                | <b>66</b>                                                         |                                       |                | <b>66</b>                                                         |                                       |                |

\*\*OSAH101 is Recommended for Construction Trades

**Bold courses carry through Cert. and AAS programs**

*Italic courses must complete to achieve Cert or AAS*

\*\*\*Tech Elctvs: Any CADM, EMEC, ELEC, ELTC, ENGG, CHEM, CISC, or WELD.  
(Ineligible electives: CADM 100, CADM117, or EMEC 115)

\*In conjunction with HVAC101, the seminar/testing session: EPA Refrigerant Usage Certification is offered.

**\*\*\*\*SCHEDULING WITH HVAC ADVISOR IS CRITICAL FOR SUCCESS**

**E-mail: [dphilipps@northampton.edu](mailto:dphilipps@northampton.edu) Office: 610-332-6258**