

# RCTC PROGRAM PLAN

## FACILITY AND SERVICE TECHNOLOGY

Diploma

### I. MINNESOTA TRANSFER CURRICULUM (MnTC)/

#### GENERAL EDUCATION REQUIREMENTS.....5 CREDITS

AOP 2870, Employment Strategies, 1 cr

COMM 1000, Introduction to Workplace Communication, 3 cr OR

COMM 1114, Fundamentals of Public Speaking, 3 cr OR

COMM 1130, Interpersonal Communication (MnTC Goal 1, Goal 7), 3 cr

MATH 1015, Applied Technical Math, 3 cr OR

MATH 1016, Technical Math Essentials, 1 cr OR

MATH 1115, College Algebra, 3 cr

### II. PROGRAM CORE REQUIREMENTS.....53 CREDITS

#### Semester I

FST 1500, Boiler Theory, 4 cr

FST 1530, Plumbing Plant Theory, 1 cr

FST 1540, Operation, 4 cr

FST 1550, Plumbing Lab, 2 cr

FST 1560, Basic Pneumatic/Hydraulics, 2 cr

#### Semester II

FST 1611, Basic Electricity, 2 cr

FST 1621, Electrical Theory I, 3 cr

FST 1631, Electrical Lab I, 3 cr

FST 1641, Electrical Theory II, 3 cr

FST 1651, Electrical Lab II, 3 cr

FST 1661, Electrical Safety National Electric Code, 1 cr

#### Semester III

FST 1520, Welding and Equipment Repair, 1 cr

FST 2500, Refrigeration Theory, 2 cr

FST 2506, Refrigeration Lab, 3 cr

FST 2512, Commercial Refrigeration, 3 cr

FST 2518, Commercial Refrigeration Lab, 2 cr

FST 2555, Facility and Service Technology Internship III, 2 cr

#### Semester IV

FST 2602, HVAC/Refrigeration Systems Theory, 3 cr

FST 2612, HVAC/Refrigeration Systems Lab, 2 cr

FST 2622, HVAC/Control Systems Lab, 2 cr

FST 2632, HVAC Control Systems Theory, 3 cr

FST 2655, Facility and Service Technology Internship IV, 2 cr

**TOTAL .....58 CREDITS**

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## **PROGRAM OUTCOMES:**

Upon completion of the Facility and Service Technology program at RCTC, students will achieve the following outcomes:

- Identify and work with boiler types and their related systems. Feedwater, steam, condensate, turbine, combustion and related controls.
- Identify and work with different welding processes. GTAW, GMAW, SMAW, Oxy-Acetylene, plasma and different applications.
- Identify and work with different plumbing fixtures and their repair. Understand potable, non-potable, DWV systems and their usages.
- Identify and work with hydraulic and pneumatic systems and their repair. Understand the application and working properties of each.
- Identify and work with electrical components, symbols and systems. Understand properties of electricity, diagnose, troubleshoot and repair electrical systems.
- Identify and work with different refrigeration systems. (Commercial and Domestic) Understand properties of Physics and Chemistry involved. Learn to diagnose, troubleshoot, maintain and repair the different systems.
- Identify and work with different residential and commercial HVAC systems and building computerized controls. Understand properties of each system, diagnose, troubleshoot, maintain and repair each system.
- In each step of education understand the trade related tools, personal protection equipment, and on the job, safety related to each system.
- Demonstrate professional ethics and accountability in each subject. Demonstrate job ready skills.
- In each area test and obtain state and federal licensing in each area of knowledge and practiced skill set. (if available)

## **ADDITIONAL NOTES:**

**PURPOSE:** The Facility and Service Technology major is designed to prepare students for careers requiring skills in the operation, maintenance, troubleshooting, and repair of electrical and mechanical equipment found in commercial buildings. Instruction the first year includes courses in boiler operation, electricity, plumbing, tool usage, welding, electrical controls, and programmable controls. Courses in residential and commercial refrigeration, air conditioning, pneumatics, heating and cooling controls, and computerized energy management systems comprise the second year instruction. In the second year, students complete an internship to gain hands-on work experience.

After initial training, students may take the state examination for a special steam engineer's license. After completion of the second year, students who qualify may take the state examination for second class "A" steam engineer's license and/or refrigeration certifications. Graduates usually start at entry-level positions in various educational, manufacturing, processing, and industrial facilities. Graduates have been employed as service technicians in the heating/ventilation/air conditioning (H.V.A.C.) field, building trades, and some are self-employed in the H.V.A.C. field.

## **PROGRAM ENTRANCE REQUIREMENTS:**

Students must test at READ 0900 level before enrolling or obtain instructor permission. Students must have successfully completed MATH 1015 or MATH 1016 before beginning Semester II courses or obtain instructor permission.

Revised: 03/20/2025

Implementation: Fall 2025