Wayne County Community College District

COURSE SYLLABUS

GTT 105 Applications of Geothermal Systems

CREDIT HOURS: 4:00

CONTACT HOURS: 60.00

COURSE DESCRIPTION:
This course will explore the variety of geothermal systems installed around the world. The student will focus on emerging energy issues and challenges the nation and the geothermal REHC industry face in regard to economics, energy conservation, and energy use challenges to local economies. The course will emphasize how geothermal systems integrated with other renewable energy sources can play a significant role in successfully addressing these challenges. Students will learn how to systemically reduce the use of fossil fuels in local economies and municipalities while concurrently establishing sustainable local communities and buildings. Students will experience building sites or drilling sites geothermal/ground source heat.

PREREQUISITES: NONE

EXPECTED COMPETENCIES:
Upon completion of this course, the student will be familiar with:

- Describe geothermal fluid transmission systems and their operative benefits as well as disadvantages of them all.
- Demonstrate the main features of the absorption cycles used for air conditioning and industrial refrigeration in geothermal applications.
- Discuss the factors influencing greenhouse heating and how the characteristics of different low-temperature heating installations influence cultivation techniques and the economics of production.
- Explain specific examples of successful geothermal aquaculture projects and the typical species being raised in waters.
- Exemplify industrial plants that have been specifically designed or adapted to utilize geothermal heat in their operating cycle.
- Raise awareness of the principal environmental effects associated with geothermal development and exploitation.
- Explore the fundamental aspects of environmental legislation and its implementation.
- Understand the unique characteristics of geothermal projects relative to fuel supply and the multitude of other ways geothermal resources can be used; presenting their own set of economic factors.

ASSESSMENT METHODS:
Student performance may be assessed by examination, quizzes, case studies, oral conversation, group discussion, oral presentations. The instructor reserves the option to employ one or more of these assessment methods during the course.

GRADING SCALE:
90%-100% = A
80%-89.9%= B
70%-79.9%= C
60%-69.9%= D
<60% = E