

ASSOCIATE OF APPLIED SCIENCE - ENERGY TECHNOLOGIES - GEOTHERMAL ENERGY EMPHASIS

The geothermal energy program is designed to provide students with the skills necessary to enter the workforce in the renewable energy field as Geothermal Power Plant Operators (GPO). GPOs control and monitor geothermal production for power plants. They regulate and distribute power among generators, monitor instruments to maintain voltage, and regulate electricity current from the plant. GPOs need strong mechanical, electrical, technical, and computer skills.

Degree Outcomes

Students completing the degree will:

- Fulfill the requirements of the Associate of Applied Science.
- Demonstrate competency in their specified emphasis.

Emphasis Outcomes

Students completing the emphasis will:

- Synthesize the design and operational aspects of the operation of a geothermal power plant.
- Identify, analyze, and solve technical problems associated with the operation of a geothermal power plant.
- Identify and apply the appropriate environmental regulations in the operation of a geothermal power plant.

AAS degrees are generally non-transfer degrees that are designed for students to enter the workforce.

To earn an AAS degree, students must:

1. Maintain a minimum cumulative GPA of 2.0 (see requirements for graduation.)
2. Complete a minimum of 15 units within the college.
3. Satisfy General Education requirements for the AAS (<http://catalog.tmcc.edu/degrees-certificates/general-education/aas>).
4. Have no financial or library obligation to the college.

General Education Requirements

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|---|-----|
| <i>Diversity</i> ¹ | [3] |
| <i>Communications/English</i> | [6] |
| Required: | |
| ENG 101 Composition I | 3 |
| or ENG 113 Composition I for International Students | |
| ENG 107 Technical Communications I | 3 |
| <i>Fine Arts/Humanities/Social Science</i> | 3 |
| <i>Human Relations</i> | 3 |
| Recommended: | |
| CE 201 Workplace Readiness | |
| <i>Mathematics</i> | 3 |

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|---|-----------|
| Required: | |
| MATH 126 Pre-Calculus I (or higher) | |
| <i>Science</i> | [3] |
| Required: | |
| GEOL 101 Geology: Exploring Planet Earth | 4 |
| <i>U.S. and Nevada Constitutions</i> | 3 |
| Degree Requirements | |
| ENGR 100 Introduction to Engineering Design | 3 |
| ENGR 110 Introduction to Renewable Energy | 3 |
| ENGR 244 Introduction to Engineering Economics | 2 |
| ENRG 110 Basic Electricity | 3 |
| IS 101 Introduction to Information Systems | 3 |
| OSH 222 General Industry Safety | 1 |
| Emphasis Requirements | |
| ELM 127 Introduction to AC Controls | 3 |
| ELM 129 Electric Motors and Drives | 3 |
| ELM 134 Programmable Logic Controllers I | 3 |
| ENGR 243 Fluid Mechanics, Hydraulics and Hydrology | 3 |
| ENRG 171 Well Design, Construction, and Geology | 1 |
| ENRG 172 Fluids, Piping, Valves and Pumps | 4 |
| ENRG 173 Geothermal Plants, Turbines, and Generators | 3 |
| ENRG 174 Environmental Regulations for Geothermal Plant Operators | 1 |
| GEOL 206 Geology of Geothermal Energy Resources | 3 |
| Total Units | 61 |

¹ Course may also count toward degree requirement. Please consult with Academic Advisement.

| Course | Title | Units |
|--|--|-------|
| 1st semester | | |
| ENGR 100 | Introduction to Engineering Design | 3 |
| ENGR 110 | Introduction to Renewable Energy | 3 |
| ENRG 110 | Basic Electricity | 3 |
| IS 101 | Introduction to Information Systems | 3 |
| Mathematics ³ | | 3 |
| OSH 222 | General Industry Safety | 1 |
| Semester Total | | 16 |
| 2nd semester | | |
| Fine Arts/Humanities/Social Science/Diversity ² | | 3 |
| ENG 101 | Composition I | 3 |
| ELM 127 | Introduction to AC Controls | 3 |
| ENGR 244 | Introduction to Engineering Economics | 2 |
| ENRG 171 | Well Design, Construction, and Geology | 1 |
| ENRG 172 | Fluids, Piping, Valves and Pumps | 4 |
| Semester Total | | 16 |
| 3rd semester | | |
| U.S. and Nevada Constitutions ² | | 3 |
| ELM 129 | Electric Motors and Drives | 3 |
| ENG 107 | Technical Communications I | 3 |
| ENGR 243 | Fluid Mechanics, Hydraulics and Hydrology | 3 |
| ENRG 174 | Environmental Regulations for Geothermal Plant Operators | 1 |

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|---------------------|---|----|
| GEOL 101 | Geology: Exploring Planet Earth | 4 |
| Semester Total | | 17 |
| 4th semester | | |
| ELM 134 | Programmable Logic Controllers I | 3 |
| ENRG 173 | Geothermal Plants, Turbines, and Generators | 3 |
| GEOL 206 | Geology of Geothermal Energy Resources | 3 |
| Human Relations | ³ | 3 |
| Semester Total | | 12 |
| Total Units | | 61 |

² See approved General Education list for the AAS Degree. (<http://catalog.tmcc.edu/degrees-certificates/general-education/aas>)

³ See program recommendations or requirements.