



RENEWABLE ENERGY MINOR

PROGRAM OFFICE: SEM 132
(775) 784-6925

The interdisciplinary minor program in renewable energy is open to all students. This minor has two tracks. Students may elect either track but for most students majoring in engineering, Track I will be most suitable as it will further enhance their degree to include a specialization in alternative energy. For most students majoring in areas other than engineering, Track II will be most suitable. Regardless of the track chosen, the program is designed to ensure that students are exposed to the technical, economic, and social issues relevant to renewable energy.

Track I is designed for students in engineering who seek additional specialization in the interdisciplinary studies of alternative energy sources, improved generation technologies, energy policy and the economics of various energy sources. Students in chemical engineering, electrical engineering, materials science and mechanical engineering will find that this minor complements their major discipline and provides them with the background needed to address many issues associated with renewable energy. Students in environmental engineering, computer science, computer information engineering, chemistry, and physics may also find this track useful. Students in engineering and computer science must consult with their advisor to ensure that the maximum number of credits will count toward their degree.

Track II is designed primarily for students in disciplines other than engineering. These students will receive training in the basic technical aspects of renewable energy as well as learning about energy policy and the economics of various energy sources. Students in any major may pursue this track. This track may be particularly appropriate for students interested in science, environmental studies, political science and business. It may also be appropriate for those who are technically oriented with a focus on geothermal energy.

The objective of the interdisciplinary renewable energy minor is to provide students with technical skills, economic and political background, and analysis and design skills that will help them to apply the knowledge gained in their major to the important national issues of alternative and renewable energy. Students will be exposed to a broad range of technical and social/political disciplines necessary to understand the sources of renewable energy, technical and economic decisions involved in using alternative energy sources and the policy and regulator issues influence adoption of alternative energy resources.

The coursework requirements for the renewable energy minor are as follows:

1. All students must take a minimum of 18 credits of coursework from the lists below. Substitutions for courses on this list must be approved by the Associate Dean of the College in which the student is obtaining the minor (for example: a course in solar energy offered by TMCC may be an appropriate substitute for some students in some majors).
2. All students must take:
 - a. ENGR/PSC 110—Introduction to Renewable Energy (3 credits)
3. Track I & II students must take a minimum of 6 additional credits outside their area of specialization from the following courses. Track II students take 9 additional credits at the upper division level from any of the following courses in lists 3 or 4. (Engineering and Computer Science students must consult with their advisor before selection of credits from this list.)

Lower Division:

- a. EE 240—Fundamentals and Economics of Renewable and Nonrenewable Energy (3 credits)
- b. GEO 101—General Geology (3 credits)
- c. GEO 206—Geology of Geothermal Energy Resources (TMCC course) (3 credits)
- d. RECO 100—Society of the Economic Value of Nature (3 credits)
- e. RECO 240—Environmental Economics (3 credits)
- f. PSC 210—American Public Policy (3 credits)



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Upper Division:

- a. CHE 301—Introduction to Sustainable Energy Resources (3 credits)
 - b. ENGR 308—Impact of Global Economy (3 credits)
 - c. RECO 340—Natural Resource Economics (3 credits)
 - d. PHYS 400—Energy: Principles, Sources and Problems (3 credits)
 - e. PSC 403B—Energy, Politics and Policy (3 credits)
 - f. PSC 403C—Environmental Policy (3 credits)
 - g. PSC 403D—Global Environmental Policy (3 credits)
 - h. PSC 403G—Land and Water Resource Policy (3 credits)
4. Track I students take a minimum of 9 upper-division credits in either the student's major area or from an elective area with approval of their advisor using the following list (all courses are 3 credits unless otherwise listed):
- a. CHE 361—Chemical Engineering Thermodynamics (4 credits)
 - b. CHE 410 R—Renewable Energy Systems
 - c. CHE 475—Principles of Bioengineering
 - d. EE 340—Power System Fundamentals
 - e. EE 440—Power Systems Analysis
 - f. EE 441—Electrical Machines
 - g. EE 442—Power Electronics
 - h. EE 443—Electric Power Distribution
 - i. EE 444—Power System Protection
 - j. ME 312 & 312L—Engineering Thermodynamics II & Lab (4 credits)
 - k. ME 473—Refrigeration
 - l. ME 474—Active Solar Engineering
 - m. ME 476—Internal Combustion Engines
 - n. ME 493—Basic Economics of Geotherm Power Plants
 - o. CEE 390—Fundamentals of Environmental Engineering
 - p. CEE 411—Environmental Law
 - q. CEE 413—Water Resources Engineering
 - r. CEE 453—Environmental Microbiology
 - s. CEE 459 R—Hazardous and Solid Waste Management

For further information, please contact the Engineering Program Office for Track I questions, or Associate Professor, Chris Simon on (775) 682-7769 or by email at casimon@unr.nevada.edu for Track II questions.