

## Administrative Master Syllabus

### Course Information

<b>Course Title</b>	Overview of Energy Industry
<b>Course Prefix, Num. and Title</b>	ENER 1350 Overview of Energy Industry
<b>Division</b>	Vocational Science
<b>Department</b>	Nuclear Power Technology
<b>Course Type</b>	WECM Course
<b>Course Catalog Description</b>	Introduction to the major sectors of the energy industry. Includes a comparison of energy industry careers. The student will be introduced to the equipment and operating systems used to generate electric power from a variety of energy sources. Special attention is given to practical application of the principles of mathematics and physics used in the plant environment.
<b>Pre-Requisites</b>	TSI math requirements met.
<b>Co-Requisites</b>	None

### Semester Credit Hours

<b>Total Semester Credit Hours (SCH): Lecture Hours: Lab/Other Hours</b>	3:3:0
<b>Equated Pay Hours</b>	3
<b>Lab/Other Hours Breakdown: Lab Hours</b>	Enter Lab Hours Here.
<b>Lab/Other Hours Breakdown: Clinical Hours</b>	Enter Clinical Hours Here.
<b>Lab/Other Hours Breakdown: Practicum Hours</b>	Enter Practicum Hours Here.
<b>Other Hours Breakdown</b>	List Total Lab/Other Hours Here.

### Approval Signatures

Title	Signature	Date
<b>Department Head:</b>		
<b>Division Chair:</b>		
<b>VPI:</b>		

## **Additional Course Information**

**Topical Outline:** Each offering of this course must include the following topics (be sure to include information regarding lab, practicum, and clinical or other non-lecture instruction).

Lecture:

1. Overview of the electric power generation industry 2.5 Weeks
2. Power Plant Operation and Control 2.5 Weeks
3. Steam Generation and Use in the Power Plant 2.0 Weeks
4. Electric Power and Systems Fundamentals 2.5 Weeks
5. Measurement Principles 1.5 Weeks
6. Blueprints and Technical Diagrams 1.0 Weeks
7. Piping Systems 2.0 Weeks
8. Introduction to Hydraulics and Pneumatics 2.0 Weeks

Lab Work:

None, except as required for lecture demonstration

### **Course Learning Outcomes:**

**Learning Outcomes – Upon successful completion of this course, students will:**

1. Describe exploration, extraction, refining, marketing and transportation of fossil fuels; describe installation, operation and maintenance of various alternative energy systems; describe the design, operation and maintenance of various power generation facilities; explain electrical transmission and the development of regional and national energy grids; and compare and contrast power generation careers.
2. Have knowledge of the electric power generating industry; its history, regulation, technology, terminology, systems and operating procedures.
3. Have knowledge of the fundamentals of steam generation and its conversion to electric power.
4. Have knowledge of the principles of mathematics & physics to apply in problems encountered by a technician in the plant environment.
5. Be able to identify symbols, views, and common features of blueprints and schematics used in the industrial environment.
6. Be able to apply measurement principles and systems to the industrial environment.
7. Have knowledge of the principles of hydraulics and pneumatics.

**Methods of Assessment:**

#1, 2, 3, 4, 5, 6, 7----Research presentations, exams and quizzes (both oral and written).

#1,2,3,4,5,6,7-----Assignments, exams and quizzes (both oral and written).

**Required text(s), optional text(s) and/or materials to be supplied by the student:**

“Introduction to Electric Power Generation Technology”, presented by Wharton County Junior College, Schoolcraft Publishing, 750 Lake Cook Road, Suite 250, Buffalo Grove, Illinois 60089

**Suggested Course Maximum:**

35

**List any specific or physical requirements beyond a typical classroom required to teach the course.**

None, except lab use as needed for lecture demonstration

**Course Requirements/Grading System:** Describe any course specific requirements such as research papers or reading assignments and the generalized grading format for the course.

1. Quizzes, homework assignments, and class participation 25%
2. Cross Disciplinary Skills (work ethic, safety, teamwork, housekeeping, attitude) 25%
3. Mid-term Exam 25%
4. Final Examination 25%

90 to 100: A

80 to 89: B

70 to 79: C

60 to 69: D

0 to 59: F

Note: For the additional NUCP certificate, the student must complete the course with a minimum of 80%.

**Curriculum Checklist:**

- Administrative General Education Course** (from ACGM, but not in WCJC Core) – No additional documents needed.
- Administrative WCJC Core Course** – Attach the Core Curriculum Review Forms
  - Critical Thinking
  - Communication
  - Empirical & Quantitative Skills
  - Teamwork
  - Social Responsibility
  - Personal Responsibility
- WECM Course** – If needed, revise the Program SCANS Matrix and Competencies Checklist