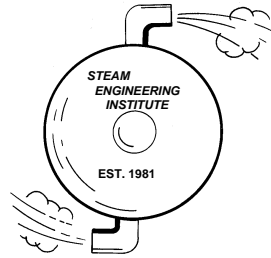


STEAM ENGINEERING INSTITUTE



SECOND CLASS ENGINEER'S COURSE

Length of course:	Thirty Lessons
Completion time:	Twenty two weeks. Students are expected to complete all assignments of this course in twenty two weeks. Extensions will be granted for legitimate reasons by writing to the School.
Course Hours:	145 Hours
Diploma requirements:	Students are required to complete all lessons, assignments, quizzes and tests. A diploma will be granted to all students with a a final grade of 70% or above.
Text:	STEAM PLANT OPERATIONS, by Woodruff & Lammers, Eight Ed. Pub. McGraw-Hill Co.
Notebook	700+ pages of course descriptive notes and assignments.
Testing:	Ten quizzes; two tests and a final examination.
Videos:	Over eight and one half hours of video tape instruction.

Course outline:

- Lesson 1
Chapter 146 Mass General Laws
- Lesson 2
Steam fundamentals, steam tables, properties of steam. Video: **What is Steam**
- Lesson 3
Steam tables. Mollier Chart.
- Lesson 4
Steam and its importance. Video: **Water Hammer**
- Lesson 5
Boilers, types, superheaters, air preheaters, economizers.
- Lesson 6
Boilers construction and design.
- Lesson 7
Combustion of fuels; flue gas analysis. Video: **Fuels & Combustion**
- Lesson 8
Boiler settings & combustion systems.

STEAM ENGINEERING INSTITUTE

Lesson 9

Boiler accessories

Lesson 10

Boiler operation and maintenance; feed water treatment. Video: **Low Water Safeguards**

Lesson 11

Boiler operation and maintenance. Video: **Boiler Entry**

Lesson 12

Power plant formulas and calculations; turbine and boiler efficiency.

Lesson 13

Steam turbines and staging fundamentals. Video: **Co-Gen & Other Turbine Cycles**

Lesson 14

Turbine governors: types, operation, control valves. Video: Video: **Steam Turbine Construction**

Lesson 15

Steam Condensers, construction, operation.

Lesson 16

Turbine condenser operation and maintenance

Lesson 17

Turbine operation and maintenance

Lesson 18

Reheat turbines; turbine staging; turbine classification; regenerative cycle.

Lesson 19

Hydrogen cooled generators, synchronizing, turbine overspeed testing. Video: **Generators**

Lesson 20

Condenser problems and solutions. Loosing vacuum and solutions.

Lesson 21

Review turbines and condensers.

Lesson 22

Turbine balancing, turning gears, auxiliary oil pumps.

Lesson 23

Auxiliary steam plant equipment: water softeners; demineralizers; deaerators, boiler residuals.
Video: **Steam Traps** Video: **Humidity**

Lesson 24

Environmental control systems.

Lesson 25

National Board & pressure inspection code, welding. Video: **ASME**

Lesson 26

ASME code : Video **National Board**

Lesson 27

ASME code

Lesson 28

Boiler safe working pressure calculations

Lesson 29

Steam plant problem. Video: **Gas Turbines: Major Components**

Lesson 30

Gas Turbines Video: **Gas Turbine Control & Protection**