

# PPT - PROCESS PLANT TECHNOLOGY

PPT 101 Fund of Process Technology. Introduces the student to the fundamentals of process/refinery technology. Areas covered are the mechanics of fluids, hydrocarbons, gases, heat, and chemistry. The student realizes how each plays a significant role in the refining distillation process. Lecture Hours 4 Department: Engineering & Industrial - COT	4 Credits	PPT 151 Process Plant Safety I. Examines the regulatory safety programs instituted by OSHA and other regulatory agencies which are specific to the processing industry. Covers a variety of topics such as hazards safety, personal protective equipment, emergency response and safe work practices. Lecture Hours 2 Department: Engineering & Industrial - COT	2 Credits
PPT 102 Fund of Process Technology Lab. Corequisite(s): PPT 101. Provides students exposure to major concepts of industry through hands-on laboratory investigations and application of principles learned in PPT 101. Lab Hours 1 Department: Engineering & Industrial - COT	1 Credit	PPT 161 Process Plant Safety II. Prerequisite(s): PPT 151. Provides the student with detailed instruction in the field of safety and health within the Process industry. In this course, the student will complete an in-depth study in the use of gas detection equipment, the use of the permitting system including lock out/tag out, the use of OSHA logs, the use of advanced safety equipment, and study the importance of industrial hygiene in an industrial setting. Lecture Hours 2 Department: Engineering & Industrial - COT	2 Credits
PPT 120 Environ Awareness. Provides the student with the history behind certain environmental policies, the creation of OSHA, and key environmental issues. Provides learning in treatment processes, waste water units, vapor recovery systems, cleanup, and an overview of the specialty equipment necessary for an ecologically sound process plant. Lecture Hours 2 Department: Engineering & Industrial - COT	2 Credits	PPT 175 Process Plant Sciences. Prerequisite(s): PPT 101. Provides the fundamentals necessary for an in-depth look at the distillation process. Examines the concepts of heat and thermodynamics, as well as the chemical bonds, organic chemistry, the periodic table and hydrocarbon concepts. Gives students the necessary tools for a better understanding of the process taking place in the refining and power industries. Lecture Hours 4 Department: Engineering & Industrial - COT	4 Credits
PPT 130 Process Diagrams for Proc Tech. Provides the student with an introduction in the use of process flow and instrument drawings. Upon completion of this course, students will be familiar with using P&ID (Process and Instrument Drawings) drawings in the course of their work as process technicians. In addition, students will obtain the skills necessary to produce process flow diagrams. Lecture Hours 2 Department: Engineering & Industrial - COT	2 Credits	PPT 176 Process Plant Sciences Lab. Corequisite(s): PPT 175. Provides students exposure to major concepts of industry through hands-on laboratory investigations and application of principles learned in PPT 175. Lab Hours 1 Department: Engineering & Industrial - COT	1 Credit
PPT 135 Instrument & Control Systems. Prerequisite(s): PPT 101, PPT 130, TRID 185. Familiarizes the student with the vocabulary surrounding the instrument and control field as well as examining the function of each instrument. The topics of process measurements, analytical instrumentation, process controls, and instrument systems are also covered in this course. Lecture Hours 4 Department: Engineering & Industrial - COT	4 Credits	PPT 207 Boilers, Access & Basic Oprtns. Offers an introduction to boiler equipment, controls, and systems. Instruction includes the function and operation of all major components and control devices, common troubleshooting problems, and common maintenance concerns. Lecture Hours 3 Department: Engineering & Industrial - COT	3 Credits
PPT 136 Instrument & Controls Lab. Corequisite(s): PPT 135. Provides students exposure to major concepts of industry through hands-on laboratory investigations and application of principles learned in PPT 135. Lab Hours 1 Department: Engineering & Industrial - COT	1 Credit	PPT 208 Equipment and Operations Lab. Corequisite(s): PPT 210. Provides students exposure to major concepts of industry through hands-on laboratory investigations and application of principles learned in PPT 210. Lab Hours 2 Department: Engineering & Industrial - COT	2 Credits
PPT 140 Brewing Process Technology. Term Typically Offered: Spring Introduces the student to actual brewing processes, taking an in-depth look at each process, unit variables, equipment design and function, process control methodologies, and unit specific operating and safety considerations. Various types of equipment are discussed, including heaters, coolers, pumps, filters, fermentation reactors, distillation columns, reboilers, and condensers. The course is designed to provide classroom time balanced with hands-on review of the various processes. Department: Engineering & Industrial - COT	2 Credits	PPT 210 Equipment and Operations. Prerequisite(s): PPT 175. Covers the equipment necessary for the operation of a process/refining plant. A few topics of discussion include pumps, compressors, valves, heat exchangers, distillation towers, cooling towers, as well as auxiliary systems. Some of the operations principles reviewed are pneumatics, boilers, hydraulic functions, furnace processes, reactor systems, and distillation. Reading process flows and instrument diagrams is also included. Lecture Hours 4 Department: Engineering & Industrial - COT	4 Credits

PPT 211 Advanced Operations. 2 Credits

Prerequisite(s): PPT 210.

Introduces the student to actual refining processes, taking an in-depth look at each process, as well as the unit variables, equipment, critical control areas, product and unit specific safety considerations. Various types of processes are discussed, including Fluid Catalytic Cracking, Alkylation, Catalytic Reforming, De-sulfurization, Crude/Vacuum Systems, Amine, Coking, and Hydro treating. The course is also designed to provide classroom time balanced with field review of the various processes.

Lecture Hours 2

Department: Engineering & Industrial - COT

PPT 212 Advanced Operations Lab. 1 Credit

Corequisite(s): PPT 211.

Provides students exposure to major concepts of industry through hands-on laboratory investigations and application of principles learned in PPT 211.

Lab Hours 1

Department: Engineering & Industrial - COT

PPT 220 Quality Control Practices. 2 Credits

Prerequisite(s): PPT 210.

Provides the student with an overview of the field of quality within the Process industry. Within this course, students will be introduced to many industry-related quality concepts including operating consistency, continuous improvement, plant economics, team skills, and statistical process control (SPC).

Lecture Hours 2

Department: Engineering & Industrial - COT

PPT 225 Plant Investigation. 2 Credits

Prerequisite(s): PPT 210.

Provides the student with an overview of the various troubleshooting models used by process technicians. Process troubleshooting involves different types of troubleshooting techniques, procedures, and methods used to solve process problems. Topics include application of data collection and analysis, cause-effect relationships, and reasoning. The student is exposed to many different trouble situations similar to those encountered in the process plant experience. The student is taught a systematic way to solve problems, using measured process variables and personal knowledge of how they affect each other (cause and effect).

Lecture Hours 2

Department: Engineering & Industrial - COT

PPT 291 Independent Study. 1-3 Credits

Department: Engineering & Industrial - COT

PPT 292 Independent Study. 1-3 Credits

Department: Engineering & Industrial - COT

PPT 293 Workshop. 1-5 Credits

Department: Engineering & Industrial - COT

PPT 298 Cooperative Educ/Internship. 1-6 Credits

(45 hours/credit) Provides university credit for a sophomore experience in the area of Process Plant Technology, supervised by faculty. Learning agreement must be completed prior to registration (restricted).

Department: Engineering & Industrial - COT