The University of Texas of Permian Basin
Description for Chemical Engineering Courses for B.S. Degree

CENG 2333 – *Elementary Chemical Engineering:* Introduction to field of chemical engineering and profession. It covers fundamentals of engineering, tools and methods for analyzing problems with application in chemical processes. Computation tools used in chemical engineering are introduced. Pre-requisite or Co-requisite: MATH 2413.

CENG 3304 – *Chemical Engineering Fluid Operations:* Fundamentals of fluid mechanics with applications to design and analysis of process equipment. Pre-requisite: MATH 2414.

CENG 3313 – *Heat Transfer Operations:* Fundamentals of heat transfer with applications to design and analysis of process equipment. Pre-requisites: CENG 3304 and MATH 3320.

CENG 3320 – *Chemical Engineering Analysis:* Applications of numerical analysis techniques to mathematical models of processes common to chemical and associated industries; computational methods and software for analysis of chemical engineering processes. Pre-requisite: MATH 3320

CENG 3354 – *Chemical Engineering Thermodynamics:* Applications of thermodynamics to pure fluids and mixtures; phase and chemical equilibria and the behavior of real fluids. Pre-requisite: CENG 3313, ENGR 3375.

CENG 4324 – *Chemical Engineering Mass Transfer:* Fundamentals of mass transport, including gas absorption, extraction, membrane separation, binary and multicomponent distillation, with applications to design and analysis of processes.
Pre-requisite: CENG 3313.

CENG 4326 – *Chemical Engineering Plant Design*: Integration of topics from chemical engineering courses with applications to the design of industrial plants and processes representative of the chemical and related process industries. Pre-requisite: CENG 4324

CENG 4355 – *Process Safety Engineering*: Applications of engineering principles to process safety, hazard analysis, mitigation and prevention with special emphasis on the chemical process industries. Pre-requisite: Senior classification in any engineering major.

CENG 4372 – *Chemical Engineering Kinetics:* Kinetics of chemical reactions and an introduction to the design and analysis of chemical reactors and catalytic phenomena. Pre-requisites: CENG 4324.

CENG 4375 – *Stage-wise Separations:* Design of stage-wise and continuous separation processes with applications to absorption, distillation, liquid-liquid extraction, and stripping. Pre-requisite: CENG 3354.

CENG 3211 – *Chemical Engineering Lab I:* Representative lab experiments on fluid flow, mass transfer, heat transfer and heat exchanges. Pre-requisites or Co-requisites: CENG 3304, CENG 3313, CENG 4324.

CENG 4361 – *Process Dynamics and Control:* Analysis of process dynamics and methods for the design of automatic control systems for chemical processing plants. Pre-requisite: CENG 3320.

CENG 4369 – *Gas and Petroleum Processing:* Design and operation of petroleum and gas processing facilities including hydrate suppression, dehydration, sweetening, sulfur and liquid recovery, refining operations.
Pre-requisite: CENG 3320.

CENG 4211 – *Chemical Engineering Lab II:* Representative lab experiments on reaction engineering, distillation column and simulation, integrated process control and simulation. Pre-requisite or Co-requisite: CENG 4361.

CENG 4410 – *Senior Design:* Work on an extensive chemical engineering project covering many areas. Pre-requisite: Senior standing in Chemical Engineering.