Wharton County Junior College

Administrative Master Syllabus

Course Information

Course Title	Applied Petrochemical Technology
Course Prefix, Num. and Title	CTEC 1401 Applied Petrochemical Technology
Division	Vocational Science
Department	Process Technology
Course Type	WECM Course
Course Catalog Description	Instruction in the basic principles of physics and their application to process facilities. Topics include physical laws and properties and how these relate to the operations of processes.
Pre-Requisites	Credit for or concurrent enrollment in MATH 1314
Co-Requisites	Credit for or concurrent enrollment in MATH 1314

Semester Credit Hours

Total Semester Credit Hours (SCH): Lecture Hours: Lab/Other Hours	4:3:2
Equated Pay Hours	4
Lab/Other Hours Breakdown: Lab Hours	2
Lab/Other Hours Breakdown: Clinical Hours	Enter Clinical Hours Here.
Lab/Other Hours Breakdown: Practicum Hours	Enter Practicum Hours Here.
Other Hours Breakdown	List Total Lab/Other Hours Here.

Approval Signatures

Title	Signature	Date
Prepared by:	Willie Myles — Digitally signed by Willie Myles DN: cn=Willie Myles, o, ou, email=mylesw@wcjc.edu, c=US Date: 2020.09.03 13:02:47 -05'00'	9/3/2020
Department Head:	Willie Myles — Digitally signed by Willie Myles DN: cn=Willie Myles, o, ou, email=mylesw@wcjc.edu, c=US Date: 2020.09.03 13:03:10 -05'00'	9/3/2020
Division Chair:	Timothy Guin — Digitally signed by Timothy Guin DN: cn=Timothy Guin, o=Division Chair, ou=VOCS, email=guint@wcjc.edu, c=US Date: 2020.09.03 13:46:31 -05'00'	9/3/2020
Dean/VPI:	Leigh Ann Collins — Digitally signed by Leigh Ann Collins Date: 2020.09.29 10:18:12 -05'00'	
Approved by CIR:		

Additional Course Information

Topical Outline:

a. Units of Measure
b. Areas and Volumes
c. Gas Laws: P/V/T
d. Thermodynamics
e. Shell Balances
f. Reaction Kinetics
g. Transport Phenomena: Fluid Flow
h. Transport Phenomena: Heat Transfer
i. Transport Phenomena: Mass Transfer
j. Business Economics

Course Learning Outcomes:

Upon successful completion of this course, students will:

Define terms and principles of applied physics

Solve problems using basic laws of physics

Use principles of physics to perform calculations on the operation of plant equipment

The student will learn how to calculate and understand the effects of temperature and pressure on the volume of process gasses.

The student will learn how to calculate equivalence of thermodynamics with work.

The student will learn how to calculate equilibrium of chemical process components in various phases (gas-liquid, liquid-liquid, gas-solid and liquid solid).

The student will learn the calculation of various material and energy balances of a process.

The student will learn a descriptive understanding of transport phenomena pertaining to fluid flow, heat transfer and mass transfer between multiple phases.

Methods of Assessment:

Written Exam
Lab Practicals
Class and homework
Final Exam

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

Physics in Context - an integrated approach
ISBN13: 9781578372751
ISBN10: 1578372755

Suggested Course Maximum: 20

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

Course Requirements/Grading System:

Written Exam	60%	A: 100-90
Lab Practicals	10%	B: 89-80
Class and homework	10%	C: 79-70
Final Exam	20%	D: 69-60
		F: 59 and below

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