STATE UNIVERSITY OF NEW YORK
COLLEGE OF TECHNOLOGY
CANTON, NEW YORK

MASTER SYLLABUS

COURSE NUMBER – COURSE NAME
SOET 480 - FE Exam Review

Created by: Michael J. Newtown, P.E.

Updated by:

Canino School of Engineering Technology

Department: Mechanical and Energy Systems

Semester/Year: Spring 2019
A. **TITLE:** FE Exam Review

B. **COURSE NUMBER:** SOET 480

C. **CREDIT HOURS:** (Hours of Lecture, Laboratory, Recitation, Tutorial, Activity)
   
   # Credit Hours: 0
   # Lecture Hours: 2 per week
   # Lab Hours: per week
   Other: per week
   
   Course Length: 15 Weeks

D. **WRITING INTENSIVE COURSE:** Yes ☐ No ☒

E. **GER CATEGORY:** None: ☒ Yes: GER
   If course satisfies more than one: GER

F. **SEMESTER(S) OFFERED:** Fall ☐ Spring ☒ Fall & Spring ☐

G. **COURSE DESCRIPTION:**
   
   This course is a review the necessary knowledge to pass the Fundamentals of Engineering exam.

H. **PRE-REQUISITES:** None ☐ Yes ☒ If yes, list below:

   Senior Status

   **CO-REQUISITES:** None ☐ Yes ☐ If yes, list below:

   An Engineering Technology Capstone course
I. **STUDENT LEARNING OUTCOMES**: *(see key below)*

By the end of this course, the student will be able to:

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<th>Course Student Learning Outcome [SLO]</th>
<th>Program Student Learning Outcome [PSLO]</th>
<th>GER if Applicable</th>
<th>ISLO &amp; SUBSETS</th>
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<td>Solve and evaluate the correctness of engineering problems from many topics.</td>
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<td>Practice time management skills necessary to solve problems in six minute or less.</td>
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| 1    | Communication Skills  
Oral [O], Written [W] |
| 2    | Critical Thinking  
Critical Analysis [CA], Inquiry & Analysis [IA], Problem Solving [PS] |
| 3    | Foundational Skills  
Information Management [IM], Quantitative Lit./Reasoning [QTR] |
| 4    | Social Responsibility  
Ethical Reasoning [ER], Global Learning [GL], Intercultural Knowledge [IK], Teamwork [T] |
| 5    | Industry, Professional, Discipline Specific Knowledge and Skills |

*Include program objectives if applicable. Please consult with Program Coordinator.*
J. **APPLIED LEARNING COMPONENT:**

If YES, select one or more of the following categories:

- [x] Classroom/Lab
- [ ] Internship
- [ ] Clinical Placement
- [ ] Practicum
- [ ] Service Learning
- [ ] Community Service
- [ ] Civic Engagement
- [ ] Creative Works/Senior Project
- [ ] Research
- [ ] Entrepreneurship (program, class, project)

K. **TEXTS:**


Choose a book package based on discipline

L. **REFERENCES:**

M. **EQUIPMENT:** None [ ] Needed: enhanced classroom or flex classroom

N. **GRADING METHOD:** P/F

O. **SUGGESTED MEASUREMENT CRITERIA/METHODS:**

- Participation
- Homework

P. **DETAILED COURSE OUTLINE:**

I. Mathematics
   A. Algebra
   B. Calculus
   C. Differential Equations
   D. Statistics and Probabilities
   E. Numerical Methods

II. Fluid Mechanics (Civils – Hydraulics and Hydrology)
   A. Fluid Properties
   B. Fluid Statics
   C. Fluid Dynamics
   D. Fluid Measurement and Similitude
   E. Compressible Fluid Dynamics
   F. Fluid Power

III. Thermodynamics (Mechanicals)
    a. Properties of substances
    b. Laws of Thermodynamics
c. Power Cycles and Entropy
d. Mixtures of Gases, Vapors and Liquids
e. Combustion
f. HVAC

IV. Heat Transfer (Mechanicals)
a. Conduction
b. Convection
c. Radiation

V. Statics
a. System of forces and moments
b. Trusses
c. Pulleys, Cables, and Friction
d. Centroids and Moments of Inertia

VI. Materials
a. Material Properties and Testing
b. Engineering Materials

VII. Mechanics of Materials
a. Stress and strain
b. Thermal, Torsional Stress
c. Beams
d. Columns

VIII. Electricity and Magnetism
a. Electrostatics
b. Direct-current
c. Alternating-current
d. Rotating machines

IX. Dynamics, and Vibrations
a. Kinematics
b. Kinetics
c. Kinetics of Rotation
d. Energy and work
e. Vibrations

X. Design and Analysis
a. Fasteners
b. Design
c. Quality and reliability

XI. Measurement, instrumentation, and controls
a. Measurement and instrumentation
b. Controls

XII. Computational tools
a. Software (Excel)

XIII. Engineering Economics
a. Economics
b. Cost present values
c. Future values
d. Rate of return

XIV. Ethics and Professional Practice
a. Professional Practice
b. Ethics
c. Licensure
Q. LABORATORY OUTLINE: None X Yes □