Rethinking the Purpose of General Education Courses in CTE Programs

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So what’s the problem??

- History of the electrical program
- How do we really feel about gen eds in the tech department?
- How are tech gen eds thought of other departments?
- Timing is everything
- Student concerns / hesitations

…… *How can we reconsider gen ed courses in AAS degrees so that they are the most meaningful?*

When Things Come Together

- New Associate Dean in the Math, Science and Engineering Division
- Two of our best full time faculty members started teaching the tech gen ed math and science class
- Personalities aligned
- Program Update

New Tech Math Classes

Previously:

- Tech Math I – Skills, not for program credit
- Tech Math II – Vocational, program credit for multiple CTE programs
- Tech Math III – Transfer, for electrical students only

Now:

- Tech Math
  - Vocational, program credit for multiple CTE programs
  - No math prereq
  - Aligns with Transitional Math
- Tech Math for Electrical students

New Tech Math Class

Mathematics for the Trades, A Guided Approach, 11th ed. with MyMathLab Access Code, by Carman & Saunders, published by Pearson

Goals and Objectives

- Perform operations with real numbers in order to calculate quantities in formulas and use results to analyze reasonableness of answers.
- Summarize mathematical data using mean, median, and mode.
- Read, interpret and draw conclusions based on data.
- Analyze proportional relationships and use them to solve contextualized problems.
- Analyze solutions to equations and formulas, and give them contextual meaning.
- Use tools to find accurate measurements in both the standard and metric measurement systems.
- Perform unit conversions in both the standard and metric systems.
- Develop and solve linear equations and inequalities in one variable for technical problems.
- Apply appropriate formulas to solve applications.
- Apply geometric principles to the solution of problems as appropriate.
- Use the Pythagorean Theorem to solve right triangle applications.
- Apply basic trigonometric ratios to solve right triangle applications.

New Tech Science Class

Previously:

- PSCI 1514: Introduction to Physical Science
  - Transfer level, IAI general education physical science class *P1 900L Physical Science*. (Same code used for algebra based physics)
    - P1900L: General Education Physics (3-5 semester credits)
      A laboratory course that examines the concepts and methods of physics, with topics selected from mechanics, fluids, heat, electricity and magnetism, optics, waves and modern physics.? The panel has compared the IAI GECC P1 900L descriptor against the AP Physics 1 and Physics 2 exams and determined there is not a match as there is no method for documentation of lab activities or contact hours. Feb 2016
  - Serving AS (potentially), AA and AAS students
  - Focused half on physics and half on chemistry
  - Math prereq (old Tech Math I or basic algebra)

New: Applied Technical Science

Catalog description: Introduces physical concepts and theories pertaining to current applications and trends in physics. Applications to technology are emphasized. Basic concepts in chemistry with the focus on technical careers will also be illustrated. Includes lab.

Goals and Objectives

- Apply the scientific method of inquiry, including analysis based on scientific concepts and observation.
- Use and convert physical quantities and measurements in both the SI and USCS unit systems.
- Solve elementary problems in kinematics and dynamics: motion, force, friction, gravitation, energy, heat, work, power, and simple machines.
- Solve elementary problems involving vibrations, waves, optics, and sound.
- Solve elementary problems involving electricity and electromagnetism.
- Illustrate knowledge of basic concepts in chemistry, such as chemical identification, properties, common reactions, safety and industrial products as it applies to a technical career in the field.

The Realignment of the Program

Industrial Electrical Technology Track

Past

1st Semester 1st Year	CR HRs
COGT 2114 Auto CAD I	4
ELTR 1034 Fluid Power	4
ELTR 1064 Fundamentals Of Electricity	4
ENGL 1413 Fundamentals of Writing	3
Semester Hours	15
2nd Semester 1st Year	**CR HRs**
ELTR 1024 Basic Circuit Analysis	4
ELTR 1114 Digital Fundamentals	4
ELTR 1402 Industrial Safety	2
MATH 1123 Technical Math II	3
Semester Hours	13

Present

1st Semester 1st Year	CR HRs
ELTR 1302 - Electrical Installations Skills 1	2
ELTR 1073 -- Hydraulic Systems	3
ELTR 1004 - Fundamentals of Electricity	4
MATH 1103 - Technical Math	3
AIRC 1422 - Installation Skills	2
Elective	2 - 4
Semester Hours	16
2nd Semester 1st Year	**CR HRs**
ELTR 1023* Basic Circuit Analysis	3
MATH 2103 - Technical Mathematics for Electrical Circuitry	3
ELTR 1082 – Pneumatics Electro-Pneumatics	2
ELTR 1113* Digital fundamentals	3
PSCI 1114- Applied Technical Science	4
Semester Hours	15

The Realignment of the Program

Past

1st Semester 2nd Year	CR HRs
PSCI 1514 Intro to Physical Science	4
MATH 2113 Technical Math III	3
ELTR 1044 Semiconductor Electronics	4
ELTR 2414 Industrial Motor Control	4
Technical Elective	3
Semester Hours	18
2nd Semester 2nd Year	**CR HRs**
BSNS 1603 Business Communication	3
SOCY 2513 Sociology	3
ELTR 2074 DC & AC Rotating Machines	4
ELTR 2444 Programmable Controllers	4
ELTR 1174 Natl Electric Code & Wiring Method	4
Semester Hours	18
Summer Term 2nd Year	**CR HRs**
ELTR 2474 Adv. Programmable Controllers	4
Semester Hours	4

Present

1st Semester 2nd Year	CR HRs
ELTR 1043 Semiconductor Electronics	3
ELTR 2414* Motor Controls	4
COMM 1603* Business Communication	3
ELTR 1402 - Industrial Safety	2
ELTR 2303- Electrical Installations Skills 2	3
Semester Hours	15
2nd Semester 2nd Year	**CR HRs**
ELTR 2074* DC & AC Rotating Machines	4
ELTR 2444* Programmable Controllers	4
ELTR 1174* Code & Wiring Method	4
ELTR 1503* Survey of Renewable Energy	3
Semester Hours	15
Summer Term 2nd Year	**CR HRs**
ELTR 2474* Adv. Programmable Controllers	4
Semester Hours	4

Please reach out if you have questions!

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