FAIRMONT STATE UNIVERSITY

MEMORANDUM

TO: Curriculum Committee

FROM: Jack Kirby

DATE: April 17, 2013

SUBJECT: Curriculum Proposal #12-13-57, REVISION #2
AS Civil Engineering Technology
Final Faculty Senate Approval 4/9/2013

I recommend approval of the attached REVISION #2 of Curriculum Proposal #12-13-57 from the College of Science and Technology, Department of Technology. This is the final draft of the proposal.

be First

FAIRMONT STATE UNIVERSITY

MEMORANDUM

TO: Curriculum Committee

FROM: Jack Kirby

DATE: March 28, 2013

SUBJECT: Curriculum Proposal #12-13-57, REVISION #1
AS Civil Engineering Technology

I recommend approval of the attached REVISION #1 of Curriculum Proposal #12-13-57 from the College of Science and Technology, Department of Technology. This proposal is now ready for Faculty Senate.

be First

FAIRMONT STATE UNIVERSITY

MEMORANDUM

TO: Curriculum Committee

FROM: Jack Kirby

DATE: March 4, 2013

SUBJECT: Curriculum Proposal #12-13-57
AS Civil Engineering Technology

I recommend approval of the attached Curriculum Proposal #12-13-57 from the College of Science and Technology, Department of Technology.

This proposal reduces the AS in Civil Engineering Technology to sixty hours and creates CIVL 1100, a one- hour introduction course to CET.

c: Dr. Christina Lavorata
Dr. Anthony Gilberti
Mr. James Vassil
Ms. Evie Brantmayer
Ms. Leslie Lovett

be First

CURRICULUM PROPOSAL (Submit one hard copy and an electronic copy to the Associate Provost by the second Tuesday of the month.)

Proposal Number: 12-13-57

School/Department/Program: College of Science and Technology, School of Technology, Civil Engineering Technology

Preparer/Contact Person: James Vassil

Telephone Extension: 4794

Date Originally Submitted:

Revision (Indicate date and label it Revision #1, #2, etc.): REVISION #2 04/17/2013

Implementation Date Requested: August 2013

I. **PROPOSAL**. Write a brief abstract, not exceeding 100 words, which describes the overall content of the proposal.

Reduce required hours to 60 by conforming to the new General Studies requirements. Create a one credit hour introduction to CET course, CIVL 1100, similar to a freshman seminar.

II. **DESCRIPTION OF THE PROPOSAL**. Provide a response for each letter, A-H, and for each Roman Numeral II–V. If any section does not apply to your proposal, reply N/A.

A. Deletion of course(s) or credit(s) from program(s)

DRFT 2200 Introduction to AutoCad

Total hours deleted. 3

B. Addition of course(s) or credit(s) from program(s)

CIVL 1100 Introduction to Civil Engineering Technology (1 hour)
TECH 1108 Engineering Graphics *Refer to proposal 12-12-54*

Total hours added. 4

C. Provision for interchangeable use of course(s) with program(s)

N/A

D. Revision of course content. Include, as an appendix, a revised course description, written in complete sentences, suitable for use in the university catalog.

N/A

E. Other changes to existing courses such as changes to title, course number, and elective or required status.

N/A

F. Creation of new course(s). For each new course

1. Designate the course number, title, units of credit, prerequisites (if any), ownership (FSU or shared) and specify its status as an elective or required course. If you are creating a shared course, attach a memo from the Deans of the affected Schools explaining the rationale for the course being shared.

CIVL 1100 Introduction to Civil Engineering Technology, 1-credit, CR-CIVL 2210, FSU owned course. This course will be required in the curriculum and will serve as a freshman seminar.

TECH 1108 Engineering Graphics. (FSU owned) This course was developed by the TECH Department to replace DRFT2200, a Pierpont owned course. A syllabus is provided in the appendix.

2. Include, as an appendix, a course description, written in complete sentences, suitable for use in the college catalog.
See Appendix B

3. Include, as an appendix, a detailed course outline consisting of at least two levels.

See Appendix B

4. In order to meet the requirements as outlined in Goal One of the Strategic Plan, please include Outcome Competencies and Methods of Assessment as an appendix. Examples are available upon request from the Chair of the Curriculum Committee.

See Appendix B

G. Attach an itemized summary of the present program(s) affected, if any, and of the proposed change(s).

Describe how this proposal affects the hours needed to complete this program. Specifically, what is the net gain or loss in hours? Use the format for Current and Proposed Programs in Appendix A.

III. **RATIONALE FOR THE PROPOSAL.**

A. **Quantitative Assessment**: Indicate the types of assessment data, i.e., surveys, interviews, capstone courses, projects, licensure exams, nationally-normed tests, locally developed measurements, accreditation reports, etc., that were collected and analyzed to determine that curricular changes were warranted. Quantitative data is preferred.

The Civil ET program is accredited by ETAC of ABET. Changes were a result of the effort to meet current university requirements for credit hours and general studies.

B. **Qualitative Assessment**: Based upon the assessment data above, indicate why a curricular change is justified. Indicate the expected results of the change. Be sure to include an estimate of the increased cost, or reduction in cost of implementation. FOR EXAMPLE: Will new faculty, facilities, equipment, or library materials be required?

The rationale for adding CIVL1100 is to better prepare CET students for course work, continuing education, and requirements of Professional Engineers.

TECH1108 Engineering Graphics. This course was developed by the TECH Department to replace DRFT2200, a Pierpont owned course. The Civil ET program collects outcome measures for ABET accreditation and the FSU owned course will ensure the needs of the ABET programs are being met.

No new faculty, facilities, equipment or materials will be needed. The added course load will be handled by the existing CET faculty without causing overload.

IV. Should this proposal affect any course or program in another school, a memo must be sent to the Dean of each school impacted and a copy of the memo(s) must be included with this proposal. In addition, the Deans of the affected schools must sign below to indicate their notification of this proposal.

By signing here, you are indicating your college's/school's notification of this proposal.

College/School	Dean	Signature
Science & Technology	D. Gilbert	

V. Should this proposal affect any course to be added or deleted from the general studies requirements, a memo from the chair of the General Studies Committee indicating approval of the change must be included with this proposal.

VI. ADDITIONAL COMMENTS.

New model schedule provided as Appendix C showing any prerequisite changes.

APPENDIX A

A.S. Degree in Civil Engineering Technology

Current Program

Required Major Courses				HRS
CIVL 2200			Intro to Surveying	3
CIVL 2210			Light Construction	4
CIVL 2220			Construction Materials	4
CIVL 2230			Construction Estimating	3
CIVL 2240			Land and Route Surveying	3
CIVL 2275			Civil Engineering Graphics	3
CIVL 2280			Environmental Engineering Technology I	3
CIVL 2290			Introduction to Structures	3
ENGL 1104			Written English I	X
DRFT 2200	Fundamentals of CADD		3	
ECON 2200	Economics		X	
ENGL 1109	Technical Report Writing		X	
MATH 1101	Applied Technical Math I		X	
MATH 1102	Applied Technical Math II		3	
TECH 2290	Engineering Analysis I		4	
CHEM 1101	Chemistry I		X	
COMM 2202			Communication in the world of work	X
INFO 1100			Computer concepts and Applications	X
MECH 1100			Statics	3
MECH 2200			Strength of Materials	4
TOTAL HOURS FOR MAJOR				**43**
Required General Studies Courses				
First Year Experience				15
ENGL		1104	Written English I	3
ENGL		1109	Written English II	3
INFO		1100	Computer Concepts and Applications	3
MATH				3
COMM	2200, 2201, OR 2202		Communication	3
Scientific Discovery				4
Cultural / Civilization Exploration				0
Society / Human Interactions				3
Artistic / Creative Expression				0
TOTAL GENERAL STUDIES HOURS				**22**
TOTAL FREE ELECTIVES				**2**
TOTAL HOURS				**67**

A.S. Degree in Civil Engineering Technology
Proposed Program

Required Major Courses		HRS
CIVL 1100	Introduction to Civil Engineering Technology	1
CIVL 2200	Intro to Surveying	3
CIVL 2210	Light Construction	4
CIVL 2220	Construction Materials	4
CIVL 2230	Construction Estimating	3
CIVL 2240	Land and Route Surveying	3
CIVL 2275	Civil Engineering Graphics	3
CIVL 2280	Environmental Engineering Technology I	3
CIVL 2290	Introduction to Structures	3
TECH 1108	Engineering Graphics	3
MATH 1101	Applied Technical Math I	X
MATH 1102	Applied Technical Math II	3
TECH 2290	Engineering Analysis I	4
CHEM 1101	Chemistry I	X
MECH 1100	Statics	X
MECH 2200	Strength of Materials	4
TOTAL HOURS FOR MAJOR		41

Required General Studies Courses	
Attribute IA – Critical Analysis	3
MECH 1100	
Attribute IB – Quantitative Literacy	3
MATH 1101	
Attribute IC – Written Communication	3
ENGL 1104	
Attribute ID - Teamwork	X
CIVL 2200	
Attribute IE – Information Literacy	3
ENGL 1108	
Attribute IF – Technology Literacy	X
CIVL 2210	
Attribute IG – Oral Communication	3
COMM 2202	
Attribute III - Citizenship	0
XXXXX	
Attribute IV - Ethics	0
XXXXX	
Attribute V - Health	0
XXXXX	
Attribute VI - Interdisciplinary	0
XXXXX	
Attribute VIIA - Arts	0

	XXXXX	
Attribute VIIB - Humanities		0
	XXXXX	
Attribute VIIC – Social Sciences		0
	XXXXX	
Attribute VIID - Natural Science		4
	CHEM 1101	
Attribute VIII – Cultural Awareness		0
	XXXXX	
Additional General Studies hours		X
TOTAL GENERAL STUDIES HOURS		**19**
TOTAL TECHNICAL ELECTIVES		**0**
TOTAL HOURS		**60**

Appendix B CIVL 1100

CIVL 1100 – Introduction to Civil Engineering Technology – 1 Credit

This course is designed to expose the students to the broad field of Civil Engineering Technology and the various options at their disposal during their academic tenure, and after graduation. It will explore the many design tools required, and writing techniques necessary to foster academic success, and provides an introduction to professional societies, internships, and students role as professionals in the work force. It is highly recommended students take this course freshman year. PR: None. CR: CIVL 2210.

Course Outline

a) Academic Introduction

   i) Professional versus Technological course options

   ii) The many facets of Civil Engineering Technology

b) Design Tools

   i) Microsoft office packages: Word, Excel and Power point

   ii) Scales, Calculators, Dimensional Analysis, Problem Set up

c) Technical Report Writing

   i) Memos, abstracts, referencing & plagiarism

   ii) Technical report outlines and numbering systems

d) Professional Roles

   i) Fundamentals of Engineering Exam

   ii) Resumes and Internships

   iii) Professional Societies and Life Long Learning

Outcome Competencies and Methods of Assessment

At the end of this course, the student should be able to:

1. Select appropriate courses aligned with their career goals
2. Compare the various branches of Civil Engineering Technology
3. Demonstrate the use of Word, Excel and Power point
4. Apply the Engineers, Architect, and Metric Scales to drawings
5. Assess a problem based on dimensional analysis and logical steps
6. Prepare a memo and abstract
7. Create a list of references
8. Compile a technical report outline using an appropriate numbering system
9. Discuss the steps to becoming a professional engineer, and the requirements for qualifying for the fundamentals of engineering exam, along with the resources available for preparing for this exam.
10. Create a resume
11. Discuss professional societies and the need for life-long learning

Assessments will be conducted through homework assignments, quizzes, exams, and individual and small group projects. Some of the outcomes will be life lessons that can only be measured by tracking their progress throughout their tenure.

Civil Engineering Technology

Model Schedule for Associate of Science Degree

FRESHMAN

Semester 1		*Semester 2*	
CIVL 2210 Light Construction *(PR: NONE, CR: CIVL 1100)*	4	**CIVL 2200 Intro. to Surveying** *(PR: MATH 1101 or Math EQ)*	3
****MATH 1101 Applied Tech. Math I** *(**See Notes on back for PR and Math EQ)*	3	****MATH 1102 Applied Tech. Math II** *(PR: MATH 1101 with a "C" or better, or Math EQ)*	3
TECH 1108 Engineering Graphics *(PR: NONE)*	3	**ENGL 1108 Written English II** *(PR: ENGL 1104 with a "C" or better)*	3
CIVL 1100 Intro to CET *(PR: NONE, CR: CIVL 2210)*	1	**CIVL 2220 Construction Materials** *(PR: CIVL 2210, MATH 1101 or Math EQ)*	4
ENGL 1104 Written English I *(See Notes on back for PR)*	3	**MECH 1100 Statics** *(CR: MATH 1102 or Math EQ)*	3
Total	*14*	*Total*	*16*

SOPHOMORE

Semester 3		*Semester 4*	
		CIVL 2230 Construction Est. *(PR: CIVL 2220)*	3
CIVL 2240 Const., Land & Rt. Survey *(PR: CIVL 2200)*	3	**CIVL 2280 Environ. Eng. Tech I** *(PR: CHEM 1101, CR: TECH 2290 or Math EQ)*	3
MECH 2200 Strength of Materials *(PR: MATH 1102 & MECH 1100 with a "C" or better in both)*	4	**CIVL 2290 Intro. to Structures** *(PR: MECH 2200)*	3
CHEM 1101 General Chemistry *(See Notes on back for PR)*	4	**CIVL 2275 Civil Eng. Graphics** *(PR: TECH 1108)*	3
****TECH 2290 Engineering Analysis I** *(Math 1102 with a "C" or better, or Math EQ)*	4	***COMM 2202 Comm - World of Work*** *(PR: ENGL 1104 with a "C" or Better)*	*3*
Total	*15*	*Total*	*15*

Total =60 credits for the Associate of Science in Civil Engineering Technology Degree

**NOTE 1: To begin in Math 1101, you must have: 1) Completed one unit of high school algebra, AND 2) MATH scores of ACT 19, or SAT 460, or Compass 36, or, 3) Completed eight modules of MATH 0080.

PLEASE check your ACT/Compass scores. You may NOT need to start with MATH 1101! **Start in the highest math you qualify for!**

Advancing through the first three levels of Math require a "C" or better. Please consult the catalog for further information.

The Professional Track of Math Equivalents is suggested for those who want to go to graduate school and/or to better prepare themselves for the Fundamentals of Engineering Exam.

Math Equivalents (EQ) and other Professional Options		
CET Required Course	**Professional Track / Math EQ**	**Other options / Math EQ**
Math 1101		Math 1112: ACT 21 or SAT 500 or Compass 49
Math 1102		Math 1115: ACT 23 or SAT 540 or Compass 63
Tech 2290 – ACT 24 or SAT 560 or Compass 67, or Math 1102 or Math 1115 with a "C" or better	Math 1190 – Calculus I: ACT 25 or SAT 570 or Compass 73	Math 1185: Applied Calculus I ACT 24 or SAT 560 or Compass 67 Or Math 1115, or Math 1102 with a B or better
Tech 3300	Math 3315 – Calculus II	Math 1186: Applied Calculus II
	Math 3316 – Calculus III	
	Math 4401 – Differential Equations	
Chem 1101	Chem 1105 – See Catalog	
Chem 1102	Chem 1106 – See Catalog	
Physics 1101	Physics 1105 – See Catalog	

Note 2 - Pre-requisite for ENGL 1104: 1) A score of 18 on the ACT English Test, or 2) SAT Critical Reading – 450, or 3) 71 on the Compass Test, or 4) Successful completion of ENGL 0097.
A "C" in ENGL 1104 and 1108 is a graduation requirement for all BS degrees.

Note 3 – Pre-requisite for CHEM 1101: One year of high school algebra, AND, 1) Math scores of ACT 19, or SAT 460, or Compass 36, or 2) Successful completion of eight modules of Math 0080.

OTHER

1. It is the responsibility of the student to meet with the academic advisor to schedule all courses for the completion of these degrees.
2. To schedule hours above 18 per semester, the student must be graduating, or have at least a 3.0 average. Approval by the advisor and dean is required. To schedule hours above 21 per semester, approval from the provost is needed. Hours may not exceed 25 in any semester.
3. The semester before graduation, the student should schedule a Senior Evaluation through the Registrar's Office. The student must also apply for graduation at the Registrar's Office.
4. Exit interviews must be scheduled in your last semester with the Technology Office Assistant.