## Curriculum Committee

FLORIDA SOUTHWESTERN STATE COLLEGE

# Change of Program or Certificate Proposal

***Note required information:*** *Program or certificate changes require a change to the catalog page. All change of program or certificate proposals must include the new catalog page, with all proposed changes, at the end of this document. All changes that affect the courses, words, numbers, symbols, program description, admissions requirements, and graduation requirements must be documented. Note before completing this proposal that all new courses and current prerequisite, co-requisite, core, or elective courses changes must have already been reviewed (or submitted for the same meeting) by the Curriculum Committee and approved by the Provost. The Track Changes feature in Word must be used to illustrate all changes to the catalog page.*

| | |
|---|---|
| **School or Division** | School of Pure and Applied Sciences |
| **Program or Certificate** | Science and Engineering Technology AS degree |
| **Proposed by (faculty only)** | George Manacheril |
| **Presenter (faculty only)** | George Manacheril |
| Note that the presenter (faculty) listed above must be present at the Curriculum Committee meeting or the proposal will be returned to the School or Division and be resubmitted for a later date. | |
| **Submission date** | 11/30/2016 |

## Section I, Proposed Changes

| | |
|---|---|
| **Change of School, Division, or Department** | N/A |
| **Change to program or certificate name** | N/A |
| **List below, any changes to the program or certificate prerequisites. Include course titles and credits if applicable.** | |
| None | |
| **List below, any changes to the General Education requirements. Include course titles and credits if applicable.** | |
| None | |
| **List below, any changes to the program or certificate Core requirements. Include course titles and credits if applicable.** | |
| Change the course required for the Biomedical option from<br>BSC 1093C - Anatomy and Physiology I, *4 credits to* BSC 1085C - Anatomy and Physiology I, *4 credits*<br>BSC 1094C - Anatomy and Physiology II, *4 credits to* BSC 1086C - Anatomy and Physiology II, *4 credits* | |

| List below, any changes to the program or certificate Elective requirements. Include course titles and credits if applicable. | |
|---|---|
| N/A | |
| **List below, any other changes to the program or certificate requirements.** | |
| None | |
| **Change to program length (credits or clock hours to complete)** | N/A |

**Include complete new catalog page as an attachment. Proposals without the new catalog page will not be reviewed by the committee.**

## Section II, Justification for proposal

**Include state frameworks, accrediting or professional organization recommendations or requirements, workforce data, and/or crosswalks.**

| Provide justification (below) for each change on this proposed curriculum action. |
|---|
| The College changed from BSC1093C and BSC1094C as the Anatomy and Physiology sequence to BSC1085C and BSC1086C in the 2016-17 AY.<br>There are corrections to the catalog page resulting from a miscalculation of the number of credits in the Laboratory Science option. |

## Section III, Important Dates and Endorsements Required

| List all faculty endorsements below. (Note that proposals will be returned to the School or Division if faculty endorsements are not provided). |
|---|
| Science Department faculty unanimously endorsed this proposal. |

**NOTE:** Course and Program changes must be submitted by the dates listed on the published Curriculum Committee Calendar. Exceptions to the published submission deadlines must receive prior approval from the Provost's Office.

| | |
|---|---|
| **Term in which approved action will take place** | Fall 2017 |
| **Exception to term** | Fall 2017 |
| **Provide an explanation below for the requested exception to the effective date.** | |

These changes do not need to be approved by SCNS not SACS-COC; they are results of course number changes and small errors on the catalog page.

| **Any exceptions to the term start date requires the signatures of the Academic Dean or Associate Vice President and the Provost prior to submission to the Dropbox.** | | |
|---|---|---|
| **Dean or Associate Vice President** | **Signature** | **Date** |
| Dr. Martin McClinton | Mark A McClinL | 12.1.16 |
| **Provost** | **Signature** | **Date** |
| Dr. Jeff Stewart | Jeff Stewart | 12/7/16 |

| **Required Endorsements** | **Type in Name** | **Select Date** |
|---|---|---|
| **Department Chair or Program Coordinator/Director** | George Manacheril | 11/30/2016 |
| **Academic Dean or Associate Vice President** | Martin McClinton | 12/1/2016 |

All Curriculum proposals require approval of the Curriculum Committee and the Provost. Final approval or denial of a proposal is reflected on the completed and signed proposal.

☐ Approve ☐ Do not approve

_____ _____

*Curriculum Committee Chair Signature* Date

☐ Approve ☐ Do not approve

_____ _____

*Provost Signature* *Date*

VPAA: Revised 11/11, 6/12, 6/13, 7/14, 8/15, 8/16

# Science and Engineering Technology, AS

⇦ Return to: Programs of Study

## Purpose

The Associate in Science (AS) in Science and Engineering Technology program offers a sequence of courses that presents coherent and rigorous content needed to prepare for employment and/or promotion in occupations where a general knowledge of scientific and/or engineering methodologies are required. It also prepares students for entry into a variety of baccalaureate degree programs in related disciplines such as Biological Sciences, Engineering, Chemistry, Physics, and Environmental Science.

The content includes the communication and critical thinking skills essential for any employee, the fundamental procedures found in a scientific laboratory, and the scientific background of those procedures. Students will be able to specialize through program options in biological, chemical, environmental, and physical science, or may decide to study basic business concepts. Program electives support the students' studies (e.g. Trigonometry for those students wishing to take College Physics) and allow students to expand their understanding of other scientific disciplines.

## Program Structure

This program is a planned sequence of instruction consisting of 64 credit hours in the following areas: 18 credit hours of General Education Requirements, 15 credit hours of scientific and engineering Core Requirements, 15-19 credit hours of specialty Option coursework, and 12-16 credits hours of Technical Electives. The Scientific Workplace Preparation Certificate is a 26 credit hour certificate that prepares students for entry into employment and is comprised of core courses in the AS Science and Engineering Technology degree. As such, it can be earned before the student has earned the AS Science and Engineering Technology degree.

## Course Prerequisites

***Many courses require prerequisites.*** Check the description of each course in the list below to check for prerequisites, minimum grade requirements, and other restrictions related to the course. Students must complete all prerequisites for a course prior to registering for it.

## Graduation

Students must fulfill all requirements of their program major in order to be eligible for graduation. Students must indicate their intention to attend commencement ceremony, by completing the Commencement Form by the published deadline.

# General Education Requirements: 18 Credit Hours

ENC 1101 - Composition I **3 credits**
ENC 1102 - Composition II **3 credits**

SPC 1017 - Fundamentals of Speech Communication **3 credits**
**or**
SPC 2608 - Introduction to Public Speaking **3 credits**

Any General Education Humanities Course ( PHI 2600 - Ethics is recommended) - **3 credits**
Any General Education Mathematics Course ( MAC 1105 - College Algebra or STA 2023 - Statistical Methods I recommended), minimum of **3 credits**

VPAA: Revised 11/11, 6/12, 6/13, 7/14, 8/15, 8/16

Any General Education Social Sciences Course ( ECO 2023 - Principles of Microeconomics recommended) - **3 credits**

## Science and Engineering Technology, AS Degree Common Core Requirements: 15 Credit Hours

BSC 1010 - Biological Science I **3 credits**
BSC 1010L - Biological Science I Laboratory **1 credit**
CHM 2045 - General Chemistry I **3 credits**
CHM 2045L - General Chemistry I Laboratory **1 credit**
CHM 2046 - General Chemistry II **3 credits**
CHM 2046L - General Chemistry II Laboratory **1 credit**

CGS 1000 - Computer Literacy **3 credits** (or CLEP CGS 1077-**3 transfer credits**)
**or**
CGS 1100 - Computer Applications for Business **3 credits**
**or**
Any computer course with a CGS, CIS, COP, or CTS course - **3 credits**

## Laboratory Science Option: ~~16~~ 18 – 20 Credit Hours

### Complete 2 of the 3 science areas listed below

#### Biology

BSC 1011 - Biological Science II **3 credits**
BSC 1011L - Biological Science II Laboratory **1 credit**
Science coursework with BSC, MCB, OCB prefixes **or** Mathematics coursework with MAC prefix - **4 credits**

#### Chemistry

CHM 2210 - Organic Chemistry I **4 credits**
CHM 2210L - Organic Chemistry I Laboratory **1 credit**
CHM 2211 - Organic Chemistry II **4 credits**
CHM 2211L - Organic Chemistry II Laboratory **1 credit**

#### Physics

PHY 2048 - General Physics I **4 credits**
PHY 2048L - General Physics I Laboratory **1 credit**
PHY 2049 - General Physics II **4 credits**
PHY 2049L - General Physics II Laboratory **1 credit**
**or**
PHY 2053 - College Physics I **4 credits**
PHY 2053L - College Physics I Laboratory **1 credit**
PHY 2054 - College Physics II **4 credits**
PHY 2054L - College Physics II Laboratory **1 credit**

## Biomedical Science Option: 15 Credit Hours

~~BSC 1093C - Anatomy and Physiology I~~BSC 1085C - Anatomy and Physiology I **4 credits**
~~BSC 1094C - Anatomy and Physiology II~~BSC 1086C - Anatomy and Physiology II **4 credits**
MCB 2010C - Microbiology **4 credits**
HUN 1201 - Human Nutrition **3 credits**

## Environmental Science Option: 17 Credit Hours

BSC 1011 - Biological Science II **3 credits**
BSC 1011L - Biological Science II Laboratory **1 credit**
EVR 1001C - Introduction to Environmental Science **3 credits**

OCB 1000C - The Living Ocean **3 credits**
**or**
OCE 1001C - Introduction to Oceanography **3 credits**

BSC 1051C - Environmental Biology: Southwest Florida Ecosystems **3 credits**
OCB 2010 - Marine Biology **3 credits**
OCB 2010L - Marine Biology Laboratory **1 credit**

## Engineering Option: 19 Credit Hours

EGS 1001 - Introduction to Engineering **3 credits**
EGN 2312 - Engineering Mechanics - Statics (With Vectors) **3 credits**
EGN 2322 - Engineering Mechanics - Dynamics **3 credits**
PHY 2048 - General Physics I **4 credits**
PHY 2048L - General Physics I Laboratory **1 credit**
PHY 2049 - General Physics II **4 credits**
PHY 2049L - General Physics II Laboratory **1 credit**

## Scientific Business Option: 15 Credit Hours

ACG 2011 - Financial Accounting II **3 credits**
**or**
ACG 2021 - Financial Accounting **3 credits**

ACG 2071 - Managerial Accounting **3 credits**
ECO 2023 - Principles of Microeconomics **3 credits**
MAN 2021 - Management Principles **3 credits**
MAR 2011 - Marketing **3 credits**

## Technical Electives: ~~12 - 16~~11 -16 Credit Hours

Courses from any of the Options above as well as:

ACG 1001 - Financial Accounting I **3 credits**
AST 2002C - Astronomy **4 credits**
BSC 1005C - General Biology **4 credits**
BSC 1050C - Environmental Biology: Our Global Environment **3 credits**
CHM 1020C - Chemistry for a Sustainable Future **4 credits**
CHM 2025 - Introduction to College Chemistry **3 credits**
CHM 2025L - Introduction to College Chemistry Laboratory **1 credit**
ESC 1000C - Introduction to Earth Science **3 credits**

VPAA: Revised 11/11, 6/12, 6/13, 7/14, 8/15, 8/16

ECO 2013 - Principles of Macroeconomics **3 credits**
GIS 1040 - Geographic Information Systems (GIS) **3 credits**
GIS 1045 - Geographic Information Systems (GIS) Customization **3 credits**
GLY 1010C - Physical Geology **4 credits**
GLY 1100C - Historical Geology **4 credits**
HSC 1531 - Medical Terminology **3 credits**
ISC 1001C - Foundations of Interdisciplinary Science I **3 credits**
ISC 1002C - Foundations of Interdisciplinary Science II **3 credits**
MAC 1105 - College Algebra **3 credits**
MAC 1106 - Combined College Algebra/Pre-Calculus **5 credits**
MAC 1114 - Trigonometry **3 credits**
MAC 1140 - Pre-Calculus Algebra **3 credits**
MAC 1147 - Pre-Calculus Algebra/Trigonometry **5 credits**
MAC 2233 - Calculus for Business and Social Sciences I **4 credits**
MAC 2311 - Calculus with Analytic Geometry I **4 credits**
MAC 2312 - Calculus with Analytic Geometry II **4 credits**
MAC 2313 - Calculus with Analytic Geometry III **4 credits**
MAN 2582 - Principles of Project Management **3 credits**
MAP 2302 - Differential Equations I **4 credits**
MAT 1033 - Intermediate Algebra **4 credits**
MAT 1100 - Mathematical Literacy for College Students **4 credits**
PHY 1020C - Fundamentals of the Physical World **3 credits**
SLS 1101 - College Success Skills **3 credits**
STA 2023 - Statistical Methods I **3 credits**

## Total Degree Requirements: 64 Credit Hours

---

**Information is available online at: www.fsw.edu/academics or on the School of Pure and Applied Sciences Home Page at:**www.fsw.edu/sopa

⇦ Return to: Programs of Study

---