

BOARD OF TRUSTEES

Bylaw, Policy, and Curriculum Committee Agenda Items

To: Board of Trustees

From: Office of the President

Date: May 13, 2021

The following Bylaw, Policy, and Curriculum Committee items are recommended to the Ocean County College Board of Trustees for approval at its meeting on **Thursday**, **May 20**, **2021**:

- 1. Recommend approval of the following new policies:
 - a. Policy #3111C, Personnel, Academic Staff and Faculty, General, Qualifications for Embedded Adjunct Instructors (Exhibit B-1)
 - b. Policy #3111D, Personnel, Academic Staff and Faculty, General, Qualifications for WPE/CPE Instructors (Exhibit B-2)
- 2. Recommend rescission of the following policies:
 - a. Policy #3113, Personnel, Academic Staff and Faculty, General, Employment of Instructional Staff for Non-Credit Continuing and Professional Education Courses (Exhibit B-3)
 - b. Policy #3136.2, Personnel, Academic, Compensation and Benefits, Continuing and Professional Educational Faculty Salaries (Exhibit B-4)
- 3. Recommend approval of the following revised policy and name change:
 - a. Policy #3331, Personnel, Non-Academic, Compensation for Extra Work for Teaching Assignments to Compensation for Extra Work for Teaching Assignments Administrator and Re-employed Retirees (Exhibit B-5)
- 4. Recommend approval of the following items as accepted by the College Senate at its meetings on March 18, April 15, and May 6, 2021:
 - a. New Courses
 - 1) CSIT 124, Introduction to Programming (Exhibit B-6)
 - 2) CSIT 175, Digital Logic and Circuits (Exhibit B-7)

Bylaw, Policy, and Curriculum Agenda May 13, 2021 Page 2

- 3) ENGR 253, Electronic Circuits (Exhibit B-8)
- 4) ENGR 255, Digital Circuits (Exhibit B-9)
- 5) ENGR 271, Introduction to Biomechanics (Exhibit B-10)
- 6) ENGT 127, Introduction to Robotics (Exhibit B-11)
- 7) ENVI 121, Renewable Energy (Exhibit B-12)
- 8) ENVI 220, Life Cycle Analysis (Exhibit B-13)

Ocean County College, Toms River, NJ

River, NJ PERSONNEL Academic Staff and Faculty General Qualifications for Embedded Adjunct Instructors #3111C

POLICY

Embedded Adjunct Instructors

All candidates for Embedded Adjunct Instructors within the Early College Program (or similar) at Ocean County College shall meet the following educational and experiential criteria for hire:

Educational and Experiential Criteria

All degrees listed below are to have been awarded from a regionally accredited institution of higher education at the time of application.

- A. <u>A Master's degree in the discipline for which he/she is making application; and prior teaching or training experience</u>
- B. <u>OR a Masters Degree in a related field with at least 18 graduate credits earned</u> towards the teaching discipline and prior teaching or training experience
- C. <u>OR a Master's Degree outside of the teaching discipline with a certification at the undergraduate level within the teaching discipline, combined with five (5) years of teaching experience at the high school or college level</u>

Experiential Requirements

- 1. Proven communication and interpersonal skills.
- 2. <u>Recent technology experience as required of the position.</u>

ADOPTED: May 20, 2021

Ocean County College, Toms River, NJ

J PERSONNEL Academic Staff and Faculty General Qualifications for WPE/CPE Instructors #3111D

POLICY

WPE/CPE Instructors

All candidates for WPE and CPE Instructors within the Workforce and Professional Education Department at Ocean County College shall meet educational and experiential criteria as required based on the course or program being taught, prevailing market standards, and as determined by the Executive Director, Workforce and Professional Education in conjunction with the Office of Human Resources.

ADOPTED: May 20, 2021

Ocean County College, Toms River, NJ	PERSONNEL
	Academic Staff And Faculty
	General
	Employment of Instructional
	Staff for Non-Credit Continuing &
	Professional Education Courses #3113
	<u></u>

POLICY

To facilitate the effective operation of Ocean County College's Continuing and Professional Education programs, the Dean of Continuing and Professional Education shall be responsible for recommending employment of instructional staff for all non-credit continuing and professional education courses and programs to the Vice President of Economic and Workforce Development for approval by the President.

ADOPTED: January 28, 1974 Revised: April 22, 1996 Revised: August 25, 1998 Revised: February 28, 2000 Revised: November 20, 2000

Ocean County College, Toms River, NJ	PERSONNEL
	ACADEMIC
	Compensation & Benefits
	Continuing & Professional Educational
	Faculty Salaries #3136.2

Policy

The College Shall Develop Procedures For Compensation For Services Rendered To Continuing and Professional Education Programs.

- 1. The rate of compensation for services rendered to continuing and professional education programs shall be established when the proposal for each program is approved by the President.
- 2. The rate of compensation for teaching in continuing and professional education programs shall be determined through one of the following:
- A. For programs of general interest and/or need, the compensation (honorarium) shall not exceed \$100. For those programs calling for greater than a \$100 honorarium, a special request shall be made to the Dean of Continuing and Professional Education for his/her and the Vice President of Economic and Workforce Development's approval.
- B. Where possible and for programs containing three or more sessions, the salary will be established by pro-rating the faculty overload salary at the appropriate rank where established.
- C. When using individuals who have not adjunct or full-time status and do not meet the classification stated in Section 2A above, a rate of \$10 to \$12.50 per hour shall be established per qualification and effort necessary as determined by the Dean of Continuing and Professional Education.

ADOPTED: February 25, 1974 Revised: April 22, 1996 Revised: August 24, 1998 Revised: February 28, 2000 Revised: January 29, 2004

PERSONNEL NON-ACADEMIC Compensation for Extra Work for Teaching Assignments – Administrator and Re-employed Retirees #3331

POLICY

Ocean County College and the Board of Trustees recognize the value that current Administrators and returning retired employees can provide to students and the College in Part Time Teacher and CPE/WPE Instructor assignments.

Part Time Teacher Definition:

<u>A Part-Time Teacher is defined as a non-instructional, exempt college Administrator or a returning retired</u> <u>employee who has been approved by the Board of Trustees to teach credit sections.</u>

Credit Teaching Assignments

<u>The Dean</u>Teachers are non-academic college employees who have been approved by the Board of the School for which the Part-Time Teacher is being considered and the Vice President of Academic Affairs, Trustees to teach. Teachers will not accept a teaching assignment that infringe upon or overlap their regular work schedules. Regular work schedules will not be changed to allow for the acceptance of otherwise conflicting teaching assignments.

designee,

Department Deans will review qualifications and determine the courses the <u>Part Time</u> Teacher is qualified to teach in accordance with Policy #<u>3111B</u>. The <u>Part-Time Teacher's supervisor and Area Vice</u> <u>President3111</u>. Courses must reviewbe assigned by Deans and approve approved in advance of assignments and the start of the semester in accordance with the attached procedure. -The <u>course teaching</u> load for Teachers will not exceed eight (8) credits in each of the fall and spring semesters or any combination of summer sessions. -If Quick Term teaching assignment(s) assignments are accepted they shall be considered as being part of the <u>Fallfall</u> or <u>Springspring</u> semesters.

CPE/WPE Instructors Definition:

<u>A CPE/WPE Instructor is defined as a non-instructional, exempt College Administrator or a returning former</u> <u>employee or retiree who hasNon-credit Continuing Education Teaching Assignments</u> <u>Non-academic college employees who have</u> been approved by the Board of Trustees to be Continuing <u>Education Instructors will be eligible to teach non-credit courses</u>.

Non-credit Teaching Assignments

The Area Vice President or designee will review the qualifications and determine the non-credit course(s) the CPE/WPE Instructor is qualified to teach in accordance with Policy #3111D and posted position requirements. The CPE/WPE Instructor's supervisor and Area Vice President must carefully review proposed course schedules to ensure a reasonable workload in light of an employee's primary position responsibilities and other paid or unpaid assignments prior to a formal assignment. Non-credit courses will be assigned by the Continuing and Professional Education Department once proper approval is received.

PERSONNEL NON-ACADEMIC Compensation for Extra Work for Teaching Assignments – Administrator and Re-employed Retirees #3331

Limitations:

Part Time Teachers and CPE/WPE Instructors may . Non-academic college employees will not accept any teaching assignments that infringe upon or overlap their regular work schedules. Regular work schedules and duties. Regular work schedules will not be changed to allow for the acceptance of otherwise conflicting teaching assignments.

Employees must meet all position requirements and will not be in good standing to be considered changed to allow for the acceptance of an otherwise conflicting teaching assignment. The teaching load for a Part - Time Teacher or CPE/WPE Instructor role and/or assignments made within the role. Good standing is defined asnon-academic employees approved as Continuing Education Instructors shall not being in any stage of a formal progressive discipline or performance improvement process.

Part Time Teacher and CPE/WPE Instructor assignments are made solely at the discretion of the College and there is no guarantee of the number or continuance of assignment(s) regardless of past assignments.exceed six (6) class hours per week.

Joint Credit and Non-credit Teaching Assignments

Non-academic college employees may not concurrently teach the maximums for both credit and Continuing Education courses. Employees wishing to accept both credit and <u>non-credit</u>continuing education assignments must have their tentative schedules reviewed and approved by their <u>supervisors</u> and <u>Area</u> Vice Presidents prior to any formal assignments being made.

Compensation:

Compensation for both credit and non-credit assignments is established in the non-affiliated Administrator Handbook. In instances

Instances where the specifics of this policy are at variance with the terms and conditions of a collective bargaining agreement, the terms and conditions of such relevant agreement shall take precedence.

PERSONNEL NON-ACADEMIC Compensation for Extra Work for Teaching Assignments – Administrator and Re-employed Retirees #3331

ADOPTED: _-February 26, 2007 Revised: ___-May 4, 2015 <u>Revised: May 20, 2021</u>

New Course Proposal

CSIT 124 : Introduction to Programming

1. Course Information

Subject

CSIT - Computer Science/ Information Technology

School Science, Technology, Engineering, Mathematics

Course Title Introduction to Programming

2. Hours

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Semester Hours
3
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Lecture

3

Lab 0

Practicum

0

3. Catalog Description

For display in the online catalog

This course addresses general programming concepts appropriate for all students (both non-STEM and STEM), who will use programming as a tool within their career field. Students are presented basic programming concepts and then exercise them with contextualized realworld problems. The application of programming theory will be done using computational programs such as Python and MatLab. Some prior programming experience is helpful, but not required, for students taking this course.

4. Requisites

Prerequisites

Corequisites

5. Course Type

Course Type for Perkins Reporting

vocational (approved for Perkins funding)

6. Justification

Describe the need for this course

As an introductory programming course for all majors, this course fills a common gap in general technology education and supports the emergence of programming as fundamental skills and knowledge of modern society. Many times, General Educational Technology courses fall into two basic categories: general computer literacy and programming for computer science majors. This course addresses general programming literacy for those students that will use programming as a tool, but will not make programming their full-time job. It is anticipated that the interdisciplinary approach for sourcing contextualized assignments for a wide spectrum of majors will attract a broader set of students, thus increasing diversity in the use and future of computing.

7. General Education

Will the college submit this course to the statewide General Education Coordinating Committee for approval as a course, which satisfies a general education requirement?

Yes

General Education Category Technology

General Education Status Proposed

8. Consistency with the Vision and Mission Statements, the Academic Master Plan, and the strategic initiatives of the College

Please describe how this course is consistent with Ocean County College's current Vision Statement, Mission Statement, Academic Master Plan, and the strategic initiatives of the College:

Add i	tem
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1	Cultivating a technologically progressive and entrepreneurial spirit (Mission Statement)
2	Deliver Innovative Curricula Programs and Assess Current Programs - Develop both transfer and vocational programs (Academic Master Plan)

- 3 Optimize and expand enrollment of all learners (Strategic Goal 2)
 - Provide relevant programs to foster workforce development (objective 2.3)

9. Related Courses at Other Institutions

Comparable Courses at NJ Community Colleges

Institution Atlantic Cape CC

Course Title Problem Solving Using Scripting

Course Number CISM148

Number of Credits 4

Comments Similar course

Institution

Brookdale CC

Course Title

Course Number

Number of Credits

Comments

No equivalent course

Institution

Camden County College

Course Title

Course Number

Number of Credits

Comments

No equivalent course

Institution

Mercer County CC

Course Title

Course Number

Number of Credits

Comments

No equivalent course

Institution

Rowan College at Burlington County

Course Title

Introduction to Python

Course Number

CIS 139

Number of Credits

Comments

Transferability of Course

Georgian Court University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
		Unable to determine status
Kean University		
Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
		Unable to determine status
Monmouth University		
Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
		Unable to determine status
Rowan University		
Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
CS 01102: Introduction To		
Programming (3) or CS 01104 -		
Introduction To Scientific		
Programming (3)		
Rutgers - New Brunswick, Mason G	Gross School of the Arts	
		If non-transferable, solart

Status	
01:198:107 Computing for	
Math and the Sciences (3) or	
14:440:127 Introduction to	
Computers for Engineers (3)	

Stockton University

Course Code, Title, and Credits Transfer Catagory

If non-transferable; select status Unable to determine status

If not transferable to any institution, explain:

10. Course Learning Outcomes

Learning Outcomes

	Students who successfully complete this course will be able to:
CLO1	Identify the steps required in problem solving.
CLO2	Describe the properties of an algorithm in order to differentiate between an algorithm and a computer program.
CLO3	Design, code, test and debug simple programs and functions.
CLO4	Write programs that use conditional control and repetition structures and functions.
CLO5	Construct and manipulate arrays.
CLO6	Generate programs to analyze data and present results in the context of real-world problems.

11. Topical Outline

(include as many themes/skills as needed)

	Major Themes/ Skills	Assignments (Recommended but not limited to)	Assessments (Recommended but not limited to)	Course Learning Outcome(s)
T01	Problem Solving and Algorithms a) Problem Solving Techniques b) Algorithms c) Decomposition	Reading, discussion, programming assignments (generic and/or contextualized)	Quiz, exam, individual and/or group project	CL01, CL02
TO2	Data Representation a) Data Types b) Identifiers c) Arithmetic Operators d) Variable and Declaration Statements e) Data Type Conversions	Reading, discussion, programming assignments (generic and/or contextualized)	Quiz, exam, individual and/or group project	CL03, CL06

	Major Themes/ Skills	Assignments (Recommended but not limited to)	Assessments (Recommended but not limited to)	Course Learning Outcome(s)
тоз	 f) Assignment Statements Programming by Example a) Simple console input and output b) Formatting output c) Contextual real- world application programs d) Introduction to Integrated Development Environments Selection Structures 	Reading, discussion, programming assignments (generic and/or contextualized)	Quiz, exam, individual and/or group project	CL03, CL06
TO4	 a) Section Criteria – Relational and Logical Operators b) One and Two-way Selection c) Compound Conditions 	Reading, discussion, programming assignments (generic and/or contextualized)	Quiz, exam, individual and/or group project	CL03, CL04, CL06
TO5	Repetition Structures a) Pre-test & Post-test Loops b) Nested Loops	Reading, discussion, programming assignments (generic and/or contextualized)	Quiz, exam, individual and/or group project	CL03, CL04, CL06
TO6	Functions a) Creating Functions b) Invoking Functions c) Passing Parameters d) Returning Values	Reading, discussion, programming assignments (generic and/or contextualized)	Quiz, exam, individual and/or group project	CL03, CL04, CL06
то7	Arrays a) Creating Arrays b) Using Arrays	Reading, discussion, programming assignments (generic and/or contextualized)	Quiz, exam, individual and/or group project	CL03, CL04, CL05, CL06

12. Methods of Instruction

In the structuring of this course, what major methods of instruction will be utilized? Lecture, programming activities and discussion.

13. General Education Goals Addressed by this Course (this section is to fulfill state requirements)

Information

Communication-Written and Oral

Quantitative Knowledge and Skills

Scientific Knowledge and Reasoning

Technological Competency Yes

Related Course Learning Outcome All

Related Outline Component

Assessment of General Education Goal (Recommended but not limited to)

Quiz, exam, individual and/or group project

Information Literacy

Society and Human Behavior

Humanistic Perspective

Historical Perspective

Global and Cultural Awareness

Ethical Reasoning and Action

Independent/Critical Thinking Yes

Related Course Learning Outcome All

Related Outline Component

Assessment of General Education Goal (Recommended but not limited to)

Quiz, exam, individual and group project

14. Needs

Instructional Materials (text etc.):

An appropriate text or open educational resource will be selected

Technology Needs:

Continued funding for the application of choice for this course. Software development languages may include Python, MatLab, or other comparable languages.

Human Resource Needs (Presently Employed vs. New Faculty):

Facility Needs:

Presently employed faculty can teach this course.

Library needs:

Library computers must continue to support the chosen application at the current version used in the course.

15. Grade Determinants

The final grade in the course will be the cumulative grade based on the following letter grades or their numerical equivalents for the course assignments and examinations

A: Excellent

B+: Very Good

B: Good

C+: Above Average

C: Average

D: Below Average

F: Failure

I: Incomplete

R: Audit

For more detailed information on the Ocean County College grading system, please see Policy #5154.

Reviewer Comments

Cynthia Fallon (cfallon) (Wed, 10 Mar 2021 13:46:38 GMT): Rollback: Returning for updates. Susan O'Connor (soconnor) (Fri, 07 May 2021 15:54:54 GMT): Rollback: accident

Key: 2221

New Course Proposal

CSIT 175 : Digital Logic & Circuits

1. Course Information

Subject

CSIT - Computer Science/ Information Technology

School Science, Technology, Engineering, Mathematics

Course Title Digital Logic & Circuits

2. Hours

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Semester Hours
3
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Lecture

3

Lab 0

Practicum

0

3. Catalog Description

For display in the online catalog

This course introduces the fundamentals of digital logic and logic circuits implementation in digital computers, robotics and electronic control systems. The students will learn the digital concepts, numbering systems, Boolean algebra, as well as logic gates, combinational logic, sequential logic and their applications in computer CPU, memory, and other devices. Additional topics include concepts of integrated circuits and programmable logic which will be introduced to expand students' vision. The content of this course can work as preparation for Computer Organization and Architecture. Open lab time required.

4. Requisites

Prerequisites

None

Corequisites None

5. Course Type

Course Type for Perkins Reporting

vocational (approved for Perkins funding)

6. Justification

Describe the need for this course

This can be used as an elective for any computer science, engineering, and mechatronics related program.

7. General Education

Will the college submit this course to the statewide General Education Coordinating Committee for approval as a course, which satisfies a general education requirement?

No

If the course does not satisfy a general education requirement, which of the following does it satisfy:

Elective

This course is recommended for

8. Consistency with the Vision and Mission Statements, the Academic Master Plan, and the strategic initiatives of the College

Please describe how this course is consistent with Ocean County College's current Vision Statement, Mission Statement, Academic Master Plan, and the strategic initiatives of the College:

Providing student-centered, high quality educational ex	periences that prepare and
empower diverse learners (Mission Statement)	
2 Cultivating a technologically progressive spirit (Mission S	Statement)

Add item

Providing and supporting the delivery of high quality, relevant, and emerging STEM courses (Academic Master Plan)

9. Related Courses at Other Institutions

Comparable Courses at NJ Community Colleges

Institution Brookdale CC

3

Course Title Computer Logic and Design

Course Number COMP-126

Number of Credits 3

Comments

Institution

Mercer County CC

Course Title

Digital Circuit Fundamentals

Course Number

EET 251

Number of Credits

4

Comments

Institution

Raritan Valley CC

Course Title

Digital Logic Design

Course Number

ENGR 215

Number of Credits

4

Comments

Institution

Hudson County CC

Course Title

Computer Logic & Discrete Math

Course Number

CSC 113

Number of Credits

3

Comments

Transferability of Course

Georgian Court University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
Elective Credits (3 credits) El	ective	
Kean University		
Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
CPS1231 (3 credits) M	ath	
Monmouth University		
Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
IT250: INTERNET AND		
NETWORK TECHNOLOGY (3 M credits)	ajor	
Rowan University		
Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
INTR99088: GENERAL EDUCATION COURSE (3 credits)	eneral Education	

Rutgers - New Brunswick, Mason Gross School of the Arts

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
01198110 Principles of		
Computer Science (with a		
combination of coursework) or Major	Elective course	
Computer Science Elective 3-		
credits		

Stockton University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
COMP SCIENCE & INFO SYS ELECTIVE (3 credits)	Elective	

If not transferable to any institution, explain:

10. Course Learning Outcomes

Learning Outcomes

	Students who successfully complete this course will be able to:
CLO1	Explain the concepts of digital logic.
CLO2	Distinguish among the numbering systems (binary, octal, decimal and hexadecimal, etc.) and perform conversions.
CLO3	Illustrate logic gates (AND, OR, NAND, NOR, XOR, inverter, etc.) and logical functions.
CLO4	Analyze combinational logic circuits using the rules of Boolean algebra, Karnaugh maps, and DeMorgan`s theorem.
CLO5	Simulate and build combinational logic circuits using commonly used logic IC chips.
CLO6	Illustrate the functional operation and characteristics of logic devices such as encoders, decoders, multiplexers, and flip-flops.
CLO7	Analyze sequential logic circuits utilizing timing diagrams and applications of memory devices and counters.
CLO8	Conceptually design computer hardware using logic circuits.
CLO9	Explore the concepts and usage of large-scale integrated circuits, Programmable Logic Array (PLA), Field Programmable Gate Array (FPGA), and other new technologies.

11. Topical Outline

(include as many themes/skills as needed)

	Major Themes/ Skills	Assignments (Recommended but not limited to)	Assessments (Recommended but not limited to)	Course Learning Outcome(s)
TO1	 Digital Concepts a. Analog and digital signals and waveforms b. Overview of digital logic functions c. Digital logic test and measurement 	 Reading of textbook Homework exercises Class discussion 	Exam	CLO1
то2	Number Systems & Conversions a. Decimal numbers b. Binary numbers c. Octal, hexadecimal, and other numbers d. Conversions among the number systems e. Introduction to various digital codes	 Reading of textbook Homework exercises Internet research Real case analysis 	Exam	CLO2
тоз	Logic Gates and truth table a. AND and OR gates and truth table b. Inverter and truth table c. NAND, NOR gates and truth table d. X-OR and X-NOR gates and truth table e. 7400 serials logic IC chips f. Building logic circuits Boolean Algebra and	 Reading of textbook Homework exercises Hands-on lab 	Exam and Lab assignment	CLO3
TO4	Combinational Logic Circuit Analysis a. Boolean algebra b. DeMorgan's Law c. Karnaugh maps d. Simplification techniques using different methods e. Logic circuits simulation using computer software	 Reading of textbook Homework exercises Internet research 	Exam	CLO4, CLO5

	Major Themes/ Skills	Assignments (Recommended but not limited to)	Assessments (Recommended but not limited to)	Course Learning Outcome(s)
TO5	Combinational Logic Circuits a. Complex logic circuits b. Encoders/decoders and applications c. Multiplexers/demultiplexers and applications d. Latches and applications	 Reading of textbook Class discussion Hands-on lab 	Exam and project	CLO5, CLO6
TO6	Sequential Logic Circuits a. Timing diagram and logic event analysis b. Different types of flip- flops and applications c. Various type of registers and memories d. Various type of counters Logic Circuits in Digital	 Reading of textbook Real case analysis Hands-on lab 	Exam and project	CLO7
то7	Computers and Advance Topics a. Logic circuits in an ALU b. Logic circuits in a CPU c. Logic circuits in a computer bus controller d. ROM, PROM, EPROM, EEPROM, etc. e. Introduction to PLA and FPGA	 Reading of textbook Internet research Class discussion Real case analysis 	Exam	CLO8, CLO9

12. Methods of Instruction

In the structuring of this course, what major methods of instruction will be utilized? Class lecture, discussion, demonstrations, lab assignments, online learning, and presentations.

13. General Education Goals Addressed by this Course (this section is to fulfill state requirements)

Information

Communication-Written and Oral
Quantitative Knowledge and Skills

Scientific Knowledge and Reasoning

Technological Competency Yes

Related Course Learning Outcome CLO1 - CLO9

Related Outline Component TO1 - TO7

Assessment of General Education Goal (Recommended but not limited to)

Exams & projects

Information Literacy

Society and Human Behavior

Humanistic Perspective

Historical Perspective

Global and Cultural Awareness

Ethical Reasoning and Action

Independent/Critical Thinking Yes

Related Course Learning Outcome CLO1 - CLO9

Related Outline Component TO1 - TO7

Assessment of General Education Goal (Recommended but not limited to)

Exams & projects

14. Needs

Instructional Materials (text etc.):

Appropriate textbooks or OER materials will be selected by the department. Circuit lab kits needed for individual student.

Technology Needs: None

Human Resource Needs (Presently Employed vs. New Faculty):

Existing faculties.

Facility Needs: None

Library needs: None

15. Grade Determinants

The final grade in the course will be the cumulative grade based on the following letter grades or their numerical equivalents for the course assignments and examinations

A: Excellent

B+: Very Good

B: Good

C+: Above Average

C: Average

D: Below Average

F: Failure

I: Incomplete

R: Audit

For more detailed information on the Ocean County College grading system, please see Policy #5154.

Reviewer Comments

Key: 2233

EXHIBIT B-8

New Course Proposal

ENGR 253 : Electronic Circuits

1. Course Information

Subject ENGR - Engineering

School Science, Technology, Engineering, Mathematics

Course Title Electronic Circuits

2. Hours

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Semester Hours
4
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Lecture

3

Lab 3

Practicum

0

3. Catalog Description

For display in the online catalog

This course introduces the student to electronic circuits and devices, particularly junction diodes, bipolar transistors and field effect transistors and Op-amps. The student will learn the elementary concepts of electronics such as device physics, diodes, transistor circuit biasing, amplifiers and filters, transistor models and typical circuit configurations. The student will design and analyze electronic circuits with the assistance of computer-aided circuit analysis software. They will also build and analyze electronic circuits in a lab setting.

4. Requisites

Prerequisites ENGR251 or ELET 144 Corequisites

5. Course Type

Course Type for Perkins Reporting

vocational (approved for Perkins funding)

6. Justification

Describe the need for this course

Four year electrical engineering programs have three key courses as a foundation for upper level courses: Basic Circuits (ENGR 251), Digital Circuits (ENGR 255) and this course Electronic Circuits (ENGR 253). By offering these set of courses, we now support a full and robust track of courses for students wanting to pursue electrical engineering or computer engineering.

Note, ELET 144 is an engineering technology course that is similar to ENGR 251.

7. General Education

Will the college submit this course to the statewide General Education Coordinating Committee for approval as a course, which satisfies a general education requirement?

No

If the course does not satisfy a general education requirement, which of the following does it satisfy:

Elective

This course is recommended for

8. Consistency with the Vision and Mission Statements, the Academic Master Plan, and the strategic initiatives of the College

Please describe how this course is consistent with Ocean County College's current Vision Statement, Mission Statement, Academic Master Plan, and the strategic initiatives of the College:

Add i	tem
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1	Cultivating a technologically progressive and entrepreneurial spirit (Mission Statement)
2	Deliver Innovative Curricula Programs and Assess Current Programs - Develop both transfer and vocational programs (Academic Master Plan)
3	Strategic Goal 2: Optimize and expand enrollment of all learners Objective 2.3: Achieve relevant programs to foster workforce development.

9. Related Courses at Other Institutions

Comparable Courses at NJ Community Colleges

Institution

Atlantic Cape CC

Course Title

Course Number

Number of Credits

Comments

No equivalent course

Institution

Brookdale CC

Course Title

Principles of EE II (Electronics)

Course Number

ENGI 242

Number of Credits

4

Comments

Institution

Camden County College

Course Title

Electronics I and Electronics II

Course Number

EET-211 and EET-212

Number of Credits

3+3

Comments

Institution

Mercer County CC

Course Title

Electronic Networks

Course Number

EET 219

Number of Credits

4

Comments

Institution

Rowan College at Burlington County

Course Title

Semiconductor Electronics

Course Number

EET 230

Number of Credits

4

Comments

Transferability of Course

Georgian Court University

urse Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
ective , 4 credits	Elective	
an University		
urse Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
CH 1504 Passive AC Network alysis 4-credits	Major Elective	
onmouth University		
urse Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
001 100 Level Free Elective credits	Elective	
wan University		
urse Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
		Unable to determine status
tgers - New Brunswick, Maso	n Gross School of the Arts	
urse Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
		Unable to determine status
ockton University		
urse Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
YSEC Physics Elective ective or Science Category) I credits	Elective	
an University urse Code, Title, and Credits CH 1504 Passive AC Network alysis 4-credits onmouth University urse Code, Title, and Credits 001 100 Level Free Elective credits wan University urse Code, Title, and Credits tgers - New Brunswick, Mason urse Code, Title, and Credits burse Code, Title, and Credits purse Code, Cod	Transfer Catagory Major Elective Transfer Catagory Elective Transfer Catagory n Gross School of the Arts Transfer Catagory Transfer Catagory Elective	If non-transferable; sele status If non-transferable; sele status Unable to determine status Unable to determine status If non-transferable; sele status Unable to determine status

If not transferable to any institution, explain:

10. Course Learning Outcomes

Learning Outcomes

	Students who successfully complete this course will be able to:
CLO1	Utilize electronic device characteristic curves for circuit design and analysis.
CI 02	Recognize and analyze the function of electronic circuits and their individual
CLUZ	components, such as diodes, BJT transistors, FET transistors, and Op-Amps.
CI 03	Design solutions for typical electronics applications by selecting appropriate circuit
CLOJ	configurations.
CLO4	Apply the concept of frequency response in the context of electronic filter design.
	Collect, analyze and interpret circuit measurement data from the use of standard
CLO5	electronics lab equipment including oscilloscopes, power supply, multi-meter and
	signal generator.

11. Topical Outline

(include as many themes/skills as needed)

	Major Themes/ Skills	Assignments (Recommended but not limited to)	Assessments (Recommended but not limited to)	Course Learning Outcome(s)
ТО1	Diodes: a) Diodes and applications b) Special purpose diodes	Reading, engineering problem sets, discussion, projects and labs	Quiz, exam, labs, individual and group project	CL01, CL02, CL03, CL05
TO2	BJT Transistors a) Characteristics b) Transistor Bias Circuits c) Amplifiers d) Power Amplifiers	Reading, engineering problem sets, discussion, projects and labs	Quiz, exam, labs, individual and group project	CL01,CL02, CL03, CL05
тоз	FET Transistors a) Characteristics b) Amplifiers and switching circuits	Reading, engineering problem sets, discussion, projects and labs	Quiz, exam, labs, individual and group project	CL01, CL02, CL03, CL05
TO4	Op-Amp a) Op-Amp basics b) Special purpose integrated circuits	Reading, engineering problem sets, discussion, projects and labs	Quiz, exam, labs, individual and group project	CL01, CL02, CL03, CL05

	Major Themes/ Skills	Assignments (Recommended but not limited to)	Assessments (Recommended but not limited to)	Course Learning Outcome(s)
TO5	Filters a) Amplifier frequency response b) Filters	Reading, engineering problem sets, discussion, projects and labs	Quiz, exam, labs, individual and group project	CL04, CL05

12. Methods of Instruction

In the structuring of this course, what major methods of instruction will be utilized? Lecture, engineering problem sets, labs and discussion.

13. General Education Goals Addressed by this Course (this section is to fulfill state requirements)

Information

Communication-Written and Oral

Quantitative Knowledge and Skills Yes

Related Course Learning Outcome

Related Outline Component

Assessment of General Education Goal (Recommended but not limited to)

Quiz, exam, labs, individual and group project

Scientific Knowledge and Reasoning

Technological Competency

Information Literacy

Society and Human Behavior

Humanistic Perspective

Historical Perspective

Global and Cultural Awareness

Ethical Reasoning and Action

Independent/Critical Thinking Yes

Related Course Learning Outcome

Related Outline Component

Assessment of General Education Goal (Recommended but not limited to)

Quiz, exam, labs, individual and group project

14. Needs

Instructional Materials (text etc.):

An appropriate text and/or open educational resources will be selected. Contact the department for current adoptions.

Technology Needs:

Major lab infrastructure exists, however components for laboratory experiments will need to be refreshed annually. (e.g. discrete transistor chips, resistors, capacitors, etc)

Human Resource Needs (Presently Employed vs. New Faculty):

Presently employed faculty can teach this course.

Facility Needs: Existing facilities are sufficient (e.g. INST 117)

Library needs:

Provide access to current material about this field of study and technology.

15. Grade Determinants

The final grade in the course will be the cumulative grade based on the following letter grades or their numerical equivalents for the course assignments and examinations

A: Excellent

B+: Very Good

B: Good

C+: Above Average

C: Average

D: Below Average

F: Failure

I: Incomplete

R: Audit

For more detailed information on the Ocean County College grading system, please see Policy #5154.

Reviewer Comments

Susan O'Connor (soconnor) (Sun, 04 Apr 2021 04:31:12 GMT): Rollback: "understand" in outcomes

Sylvia Riviello (sriviello) (Sun, 04 Apr 2021 14:27:59 GMT): Rollback: Please see the emails I forwarded to you

Cynthia Fallon (cfallon) (Mon, 05 Apr 2021 12:16:56 GMT): Rollback: Sylvia's request to make edits.

Carolyn Showalter (cshowalter) (Mon, 05 Apr 2021 18:36:46 GMT): Rollback: Please see my email of 4/5/21 at approximately 2:50 pm.

Carolyn Showalter (cshowalter) (Tue, 06 Apr 2021 13:28:54 GMT): Rollback: per your email

Key: 2219

EXHIBIT B-9

New Course Proposal

ENGR 255 : Digital Circuits

1. Course Information

Subject ENGR - Engineering

School Science, Technology, Engineering, Mathematics

Course Title Digital Circuits

2. Hours

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Semester Hours
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Lecture

3

Lab 3

Practicum

0

3. Catalog Description

For display in the online catalog

In this course, students will be introduced to the basic principles of digital electronics: binary arithmetic, boolean algebra, K-maps, combinational circuit synthesis, combinational MSI circuits, Sequential logic, Synchronous state machine design, Sequential MSI circuits. This course includes both lecture and lab.

4. Requisites

Prerequisites ENGR 251 or ELET 144

Corequisites

5. Course Type

Course Type for Perkins Reporting

vocational (approved for Perkins funding)

6. Justification

Describe the need for this course

Four year electrical engineering programs have three key courses as a foundation for upper level courses: Basic Circuits (ENGR 251), Electronic Circuits (ENGR 253) and this course Digital Circuits (ENGR 255). By offering these set of courses, we now support a full and robust track of courses for students wanting to pursue electrical engineering or computer engineering.

Note, ELET 144 is an engineering technology course that is similar to ENGR 251.

7. General Education

Will the college submit this course to the statewide General Education Coordinating Committee for approval as a course, which satisfies a general education requirement?

No

If the course does not satisfy a general education requirement, which of the following does it satisfy:

Elective

This course is recommended for

8. Consistency with the Vision and Mission Statements, the Academic Master Plan, and the strategic initiatives of the College

Please describe how this course is consistent with Ocean County College's current Vision Statement, Mission Statement, Academic Master Plan, and the strategic initiatives of the College:



Add item

- Deliver Innovative Curricula Programs and Assess Current Programs Develop both transfer and vocational programs (Academic Master Plan)
 Strategic Goal 2: Optimize and expand enrollment of all learners
 - Objective 2.3: Achieve relevant programs to foster workforce development.

9. Related Courses at Other Institutions

Comparable Courses at NJ Community Colleges

Institution Atlantic Cape CC

Course Title

Course Number

Number of Credits

Comments No equivalent course

Institution

Brookdale CC

Course Title

Digital I

Course Number

ENGI 251

Number of Credits

Comments

Institution

Camden County College

Course Title

Course Number

Number of Credits

Comments

No equivalent course

Institution

Mercer County CC

Course Title

Digital Circuit Fundamentals

Course Number

EET 251

Number of Credits

4

Comments

Institution

Rowan College at Burlington County

Course Title

Digital Electronics

Course Number

EET 240

Number of Credits

4

Comments

Transferability of Course

Georgian Court University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status Unable to determine status
Kean University		

Course Code, Title, and	l Credits	Transfer Catagory	If non-transferable; select status
TECH1505 DIGITAL SYS AND COMMUNICATION credits	TEMS J, 4 majo	r	Unable to determine status

Monmouth University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
		Unable to determine status

Rowan University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
ECE 09241: Introduction to Digital Systems (3 s.h.)		
o , v ,		

Rutgers - New Brunswick, Mason Gross School of the Arts

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
14:332:231 Digital Logic Design and 14:332:233 Digital Logic		
Design Laboratory		

Stockton University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
		Unable to determine status

If not transferable to any institution, explain:

10. Course Learning Outcomes

Learning Outcomes

	Students who successfully complete this course will be able to:
CLO1	Demonstrate an understanding of number systems, Boolean algebra and basic digital logic.
CLO2	Demonstrate an understanding of combinational & sequential logic
CLO3	Design, build and analyze digital circuits of increasing complexity from simple gates to state machines.
CLO4	Use standard electronics lab equipment including oscilloscope, power supply, multi- meter and signal generator to make circuit measurements as well as to analyze and interpret data.

11. Topical Outline

(include as many themes/skills as needed)

	Major Themes/ Skills	Assignments (Recommended but not limited to)	Assessments (Recommended but not limited to)	Course Learning Outcome(s)
TO1	Introduction a) History of Digital Electronics b) Digital Electronics Overview c) Binary arithmetic and Boolean algebra	Reading, engineering problem sets, discussion, projects and labs	Quiz, exam, labs, individual and group project	CL01
TO2	Simple Logic Circuits a) Logic functions b) Simple Combinational circuits, Truth table, Kmaps, Minimization techniques	Reading, engineering problem sets, discussion, projects and labs	Quiz, exam, labs, individual and group project	CL02, CL03, CL04
ТОЗ	Additional Combinational Circuits a) Encoders/Decoders b) Comparators	Reading, engineering problem sets, discussion, projects and labs	Quiz, exam, labs, individual and group project	CL02, CL03, CL04
TO4	Sequential Circuits & State Machines a) Latches and Flip-	Reading, engineering problem sets,	Quiz, exam, labs, individual and group project	CL02, CL03, CL04

Major Themes/ Skills	Assignments (Recommended but not limited to)	Assessments (Recommended but not limited to)	Course Learning Outcome(s)
b) State-machine	and labs		
design analysis, synthesis and examples	5		
c) Transition lists and Algorithmic State			
Machine (ASM) charts,			
sequential MSI circuits, switch de-bouncing			
d) Counters: serial and			
examples, shift			
registers			

12. Methods of Instruction

In the structuring of this course, what major methods of instruction will be utilized? Lecture, engineering problem sets, labs and discussion.

13. General Education Goals Addressed by this Course (this section is to fulfill state requirements)

Information

Communication-Written and Oral

Quantitative Knowledge and Skills Yes

Related Course Learning Outcome All

Related Outline Component

Assessment of General Education Goal (Recommended but not limited to)

Quiz, exam, labs, individual and group project

Scientific Knowledge and Reasoning

Technological Competency

Information Literacy

Society and Human Behavior

Humanistic Perspective

Historical Perspective

Global and Cultural Awareness

Ethical Reasoning and Action

Independent/Critical Thinking Yes

Related Course Learning Outcome

Related Outline Component

Assessment of General Education Goal (Recommended but not limited to)

Quiz, exam, labs, individual and group project

14. Needs

Instructional Materials (text etc.):

An appropriate text and/or open educational resources will be selected. Contact the department for current adoptions.

Technology Needs:

Major lab infrastructure exists, however components for laboratory experiments will need to be refreshed annually. (e.g. discrete gates and other simple ICs, resistors, capacitors, etc)

Human Resource Needs (Presently Employed vs. New Faculty):

Presently employed faculty can teach this course.

Facility Needs:

Existing facilities are sufficient (e.g. INST 117)

Library needs:

Provide access to current material about this field of study and technology.

15. Grade Determinants

The final grade in the course will be the cumulative grade based on the following letter grades or their numerical equivalents for the course assignments and examinations

A: Excellent

B+: Very Good

B: Good

C+: Above Average

C: Average

D: Below Average

F: Failure

I: Incomplete

R: Audit

For more detailed information on the Ocean County College grading system, please see Policy #5154.

Reviewer Comments

Key: 2218

EXHIBIT B-10

New Course Proposal

ENGR 271 : Introduction to Biomechanics

1. Course Information

Subject ENGR - Engineering

School Science, Technology, Engineering, Mathematics

Course Title Introduction to Biomechanics

2. Hours

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Semester Hours
```

Lecture

2

Lab 3

Practicum

0

3. Catalog Description

For display in the online catalog

This course introduces students to biomechanical engineering. Students will study traditional mechanical engineering topics in the context of biomedical engineering applications: statics, dynamics and deformable bodies mechanics. This course will also be an introduction to the mechanical properties of biological tissues.

4. Requisites

Prerequisites

Corequisites

ENGR 222

5. Course Type

Course Type for Perkins Reporting

vocational (approved for Perkins funding)

6. Justification

Describe the need for this course

Biomedical Engineering programs have a higher rate of non-traditional student enrollments than other engineering tracks. This course leverages the OCC Engineering program's existing strong curriculum in Mechanical Engineering to expand into this new and emerging field.

7. General Education

Will the college submit this course to the statewide General Education Coordinating Committee for approval as a course, which satisfies a general education requirement?

No

If the course does not satisfy a general education requirement, which of the following does it satisfy:

Elective

This course is recommended for

8. Consistency with the Vision and Mission Statements, the Academic Master Plan, and the strategic initiatives of the College

Please describe how this course is consistent with Ocean County College's current Vision Statement, Mission Statement, Academic Master Plan, and the strategic initiatives of the College:

	Add item
1	Cultivating a technologically progressive and entrepreneurial spirit (Mission Statement)
2	Deliver Innovative Curricula Programs and Assess Current Programs - Develop both transfer and vocational programs (Academic Master Plan)
3	Strategic Goal 2: Optimize and expand enrollment of all learners. Objective 2.3: Provide relevant programs to foster workforce development.

9. Related Courses at Other Institutions

Comparable Courses at NJ Community Colleges

Institution Atlantic Cape CC

Course Title

Course Number

Number of Credits

Comments

No equivalent course

Institution

Brookdale CC

Course Title

Course Number

Number of Credits

Comments

No equivalent course

Institution

Camden County College

Course Title

Course Number

Number of Credits

Comments

No equivalent course

Institution

Mercer County CC

Course Title

Course Number

Number of Credits

Comments

No equivalent course

Institution

Rowan College at Burlington County

Course Title

Course Number

Number of Credits

Comments

No equivalent course

Transferability of Course

Georgian Court University

EXHIBIT B-10

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
		Unable to determine status
Kean University		
Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
		Unable to determine status
Monmouth University		
Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
		Unable to determine status
Rowan University		
Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
		Unable to determine status
Rutgers - New Brunswick, Mason G	Gross School of the Arts	
Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
		Unable to determine status
Stockton University		
Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status

If not transferable to any institution, explain:

10. Course Learning Outcomes

Learning Outcomes

	Students who successfully complete this course will be able to:
CLO1	Define the fundamental principles and physiological
	applications of biomechanics, biomaterials, and biostatistics.
	Apply knowledge of math, engineering, technology and science to identify,
CLO2	formulate, and solve problems in the area of biomechanics, biomaterials, and
	biostatistics.

	Students who successfully complete this course will be able to:
CLO3	Apply mathematical computation and graphical analysis to experimentally
	generated biomechanics, biomaterials, and biostatistics data.
CLO4	Solve problems in biomechanics, and biomaterials making use of their knowledge of
	the principles of biomechanical modeling and specific models.

11. Topical Outline

(include as many themes/skills as needed)

	Major Themes/ Skills	Assignments (Recommended but not limited to)	Assessments (Recommended but not limited to)	Course Learning Outcome(s)
T01	Biomechanics: a) Statics b) Dynamics : Kinematics, Kinetics, Momentum and Impulse	Reading, discussion, labs and projects	Quiz, exam, labs, individual and group project	CL01, CL02, CL04
TO2	 Biomaterials: a) Stress and Strain b) Multiaxial Deformation and Stress Analysis c) Viscoelasticity & Empirical Models, d) Mechanical Properties of Biological Tissues: Bone, Tendons & Ligaments, Skeletal Muscle, Articular Cartilage 	Reading, discussion, labs and projects	Quiz, exam, labs, individual and group project	CL01, CL02, CL04
ТОЗ	Biostatistics: a) Introduction to biostatistics b) Statistical analysis and interpretation of bio/physio data	Reading, discussion, labs and projects	Quiz, exam, labs, individual and group project	CL01, CL02, CL03, CL04

12. Methods of Instruction

In the structuring of this course, what major methods of instruction will be utilized? Lecture, and discussion and laboratory experiments

13. General Education Goals Addressed by this Course (this section is to fulfill state requirements)

Information

Communication-Written and Oral

Quantitative Knowledge and Skills Yes

Related Course Learning Outcome CL02, CL03, CL04

Related Outline Component

Assessment of General Education Goal (Recommended but not limited to)

Quiz, exam, labs, individual and group project

Scientific Knowledge and Reasoning

Technological Competency

Information Literacy

Society and Human Behavior

Humanistic Perspective

Historical Perspective

Global and Cultural Awareness

Ethical Reasoning and Action

Independent/Critical Thinking Yes

Related Course Learning Outcome All

Related Outline Component

Assessment of General Education Goal (Recommended but not limited to)

Quiz, exam, labs, individual and group project

14. Needs

Instructional Materials (text etc.):

An appropriate text and/or open educational resources will be selected. Contact the department for current adoptions. The labs for this course will need materials for testing & investigation. These will need to be replenished

Technology Needs:

This course will utilize both statistical analysis tools (e.g. MiniTab) and other types of analysis tools such as MatLab.

Human Resource Needs (Presently Employed vs. New Faculty):

Presently employed faculty can teach this course because this is basic mechanics as applied to organic materials, however if additional faculty is available with a focus on bio-mechanics, follow on courses could be developed to expand this engineering track.

Facility Needs:

Access and training for lab equipment and experimental procedures.

Library needs:

Provide access to current material about this field of study and technology.

15. Grade Determinants

The final grade in the course will be the cumulative grade based on the following letter grades or their numerical equivalents for the course assignments and examinations

A: Excellent

B+: Very Good

B: Good

C+: Above Average

C: Average

D: Below Average

F: Failure

I: Incomplete

R: Audit

For more detailed information on the Ocean County College grading system, please see Policy #5154.

Reviewer Comments

Susan O'Connor (soconnor) (Sun, 04 Apr 2021 04:28:21 GMT): Rollback: Please change two course outcomes that used "understand."

Sylvia Riviello (sriviello) (Sun, 04 Apr 2021 14:27:51 GMT): Rollback: Please see the emails I forwarded to you

Cynthia Fallon (cfallon) (Mon, 05 Apr 2021 19:55:55 GMT): Rollback: Returning at your request.

Key: 2216
New Course Proposal

OTHER 127 : Introduction to Robotics

1. Course Information

Subject OTHER - Other

New Subject ENGT

School Science, Technology, Engineering, Mathematics

Course Title Introduction to Robotics

2. Hours

Semester Hours 4

Lecture

3

Lab 3

Practicum

0

3. Catalog Description

For display in the online catalog

This course will introduce students to the field of robotics. A variety of multidisciplinary topics necessary to understand the fundamentals of designing, building, and programming robots are covered. Topics are presented in lecture format then applied in a laboratory setting. Students will be required to gradually complete the design and construction of a robot using robotics kits and auxiliary technology following requirements of an overall robotics competition style set of demonstrations. Students will also be introduced to general industrial robotics concepts.

4. Requisites

Prerequisites

Corequisites

5. Course Type

Course Type for Perkins Reporting vocational (approved for Perkins funding)

6. Justification

Describe the need for this course

Robotics is an emerging field in technology with a wide breadth of application. As we continue to expand the number of engineering & technology electives this course will offer an option to those students wishing to pursue this field of technology. In addition, a long standing program of outreach for the Engineering & Technology program is the annual robotics contest. This course will allow OCC to offer an Introductory Robotics course that would be of interest to students that participated in that event. By combining general robotics theory and industrial robotics, this course introduces students to curriculum that is typically included in a 4-year or graduate program (theory) and that of a 2-year program (industrial robotics).

7. General Education

Will the college submit this course to the statewide General Education Coordinating Committee for approval as a course, which satisfies a general education requirement?

No

If the course does not satisfy a general education requirement, which of the following does it satisfy:

Elective

This course is recommended for

8. Consistency with the Vision and Mission Statements, the Academic Master Plan, and the strategic initiatives of the College

Please describe how this course is consistent with Ocean County College's current Vision Statement, Mission Statement, Academic Master Plan, and the strategic initiatives of the College:

Add item

	Ocean County College will be the boldest, most innovative and entrepreneurial
1	student-centered college in the nation, will promote exemplary learning
	experiences, and will advance community college education internationally. (Vision)
2	Achieve sustained growth in enrollment. (Strategic Goal 2, Objective 2.2)
3	Provide relevant programs to foster workforce development. (Strategic Goal 2, Objective 2.3)

9. Related Courses at Other Institutions

Comparable Courses at NJ Community Colleges

Transferability of Course

Georgian Court University

с ,		
Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
		Unable to determine status
Kean University		
Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
		Unable to determine status
Monmouth University		
Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
		Unable to determine status
Rowan University		
Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select
		status
		Unable to determine status

Rutgers - New Brunswick, Mason Gross School of the Arts

status Unable to determine status

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
		Unable to determine status
Stockton University		
Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select

If not transferable to any institution, explain:

10. Course Learning Outcomes

Learning Outcomes

	Chudente who avecagefully convolate this covers will be able to:
	Students who successfully complete this course will be able to:
CLO1	Outline the interdisciplinary fields involved in robotics and the industrial uses for robotics.
CLO2	Adapt their existing computer programming knowledge and skills to utilize the programming language of the robotic components.
CLO3	Demonstrate the ability to apply electrical and mechanical theory to robotics.
CLO4	Describe the basic components of a robot.
CLO5	Explain the elements required for implementing autonomous robotics.
CLO6	Apply basic robotics to an industrial setting.

11. Topical Outline

(include as many themes/skills as needed)

	Major Themes/ Skills	Assignments (Recommended but not limited to)	Assessments (Recommended but not limited to)	Course Learning Outcome(s)
TO1	Introduction to Robotics 1.1 – Introduction to Robotics. 1.2 – The Engineering Design Process. 1.3 - Best practices in engineering design.	Reading, discussion, labs, projects	Quiz, exam, labs, individual and group project	CL01

	Major Themes/ Skills	Assignments (Recommended but not limited to)	Assessments (Recommended but not limited to)	Course Learning Outcome(s)
	Review of Programming in the Context of The Robots Language 2.1 – Fundamentals of computer languages and and machine logic. 2.2 – The "Hello World!" program. TO2 2.3 – Variables, arithmetic operations and logical operations. 2.4 – Conditional statements. 2.5 - Loops and Iterations. 2.6 – Functions and calls. 2.7 - Libraries	Reading, discussion, labs, projects	Quiz, exam, labs, individual and group project	CL02
	Introduction to Electric Circuits 3.1 – Electricity, voltage and current. 3.2 – Fundamentals of electric circuits. 3.3 – Ideal sources and resistors. 3.4 – Ohm's law and Kirchhoff's law, 3.5 – Capacitors and RC circuits.	Reading, discussion, labs, projects	Quiz, exam, labs, individual and group project	CL03
-	Basic Robotic Topics 4.1 – Micro controllers 4.2 - Sensors and TO4 actuators 4.3 – Manipulators 4.4 – Gears and other mechanical systems	Reading, discussion, labs, projects	Quiz, exam, labs, individual and group project	CL02, CL03, CL04

	Major Themes/ Skills	Assignments (Recommended but not limited to)	Assessments (Recommended but not limited to)	Course Learning Outcome(s)
TO5	Introduction to Mechanics in the Context of a Robot 5.1 – Power and torque 5.2 – Acceleration and velocity. 5.2 – Design models for ground mobile robots. 5.3 – Design models for mechanic arms and lifting systems. 5.4 – Fundamentals of kinematics	Reading, discussion, labs, projects	Quiz, exam, labs, individual and group project	CL02, CL03
тоб	Advanced Robotics Topics 6.1 – Sensing distance and direction. 6.2 – Line Following Algorithms. 6.3 – Feedback Systems. 6.4 – Other topics on advance robotic techniques	Reading, discussion, labs, projects	Quiz, exam, labs, individual and group projectt	CLO2, CLO3, CLO4, CLO5
Т07	Use of Robotics in an Industrial Setting 7.1 The Role of Robotics in Advanced Manufacturing & Mechatronics 7.2 Robotic Arms	Reading, discussion, labs, projects	Quiz, exam, labs, individual and group project	ALL

12. Methods of Instruction

In the structuring of this course, what major methods of instruction will be utilized? Lecture, lab activities, and discussion

13. General Education Goals Addressed by this Course (this section is to fulfill state requirements)

Information

Communication-Written and Oral

Quantitative Knowledge and Skills Yes

Related Course Learning Outcome CL02

Related Outline Component T02, T04, T05, T06, T07

Assessment of General Education Goal (Recommended but not limited to)

Quiz, exam, labs, individual and group project

Scientific Knowledge and Reasoning

Technological Competency

Information Literacy

Society and Human Behavior

Humanistic Perspective

Historical Perspective

Global and Cultural Awareness

Ethical Reasoning and Action

Independent/Critical Thinking Yes

Related Course Learning Outcome

Related Outline Component All

Assessment of General Education Goal (Recommended but not limited to)

Quiz, exam, labs, individual and group project

14. Needs

Instructional Materials (text etc.):

An appropriate text and/or open educational resources will be selected. Contact the department for current adoptions.

Technology Needs:

Yearly refresh of robotic components should be done to keep them current, supported and relevant.

Human Resource Needs (Presently Employed vs. New Faculty):

Presently employed faculty can teach this course.

Facility Needs:

Existing facilities are sufficient (e.g. INST 117)

Library needs:

Provide access to current material about this field of study and technology.

15. Grade Determinants

The final grade in the course will be the cumulative grade based on the following letter grades or their numerical equivalents for the course assignments and examinations

A: Excellent

B+: Very Good

B: Good

C+: Above Average

C: Average

D: Below Average

F: Failure

I: Incomplete

R: Audit

For more detailed information on the Ocean County College grading system, please see Policy #5154.

Reviewer Comments

Key: 2226

New Course Proposal

ENVI 121 : Renewable Energy

1. Course Information

Subject

ENVI - Environmental Science

School Science, Technology, Engineering, Mathematics

Course Title Renewable Energy

2. Hours

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Semester Hours
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Lecture

3

Lab 0

Practicum

0

3. Catalog Description

For display in the online catalog

This course will introduce students to renewable energy. Students will develop an understanding of finite and infinite energy sources and the development and utilization of renewable energy sources. This course gives students the tools needed for quantifying the global environmental impact of renewable energy relative to nonrenewable energy. It will give students a coherent way of understanding various forms of energy extraction, production, and use. This course will guide students to develop methods of analyzing energy policy and proposing innovative clean renewable solutions.

4. Requisites

Prerequisites

None

Corequisites None

5. Course Type

Course Type for Perkins Reporting

non-vocational (not approved for Perkins funding)

6. Justification

Describe the need for this course

There is a need for additional environmental courses in the Environmental Studies degree program. This is demonstrated in the fact that most environmental courses are seasonally specific. This course can be offered year-round.

Renewable energy is a logical addition to our environmental and sustainability courses. Energy security is a global concern. In the United States we developed shale oil and gas extraction technologies to minimize our exposure to energy insecurity. Nation states are continually striving to attain sustainable energy security. The dominant forms of energy currently consumed are fossil fuels.

7. General Education

Will the college submit this course to the statewide General Education Coordinating Committee for approval as a course, which satisfies a general education requirement?

No

If the course does not satisfy a general education requirement, which of the following does it satisfy:

Elective

This course is recommended for

8. Consistency with the Vision and Mission Statements, the Academic Master Plan, and the strategic initiatives of the College

Please describe how this course is consistent with Ocean County College's current Vision Statement, Mission Statement, Academic Master Plan, and the strategic initiatives of the College:

	Add item
1	Providing student-centered, high quality educational experiences that prepare and empower diverse learners
2	Cultivating a technologically progressive spirit
3	Providing and supporting the delivery of high quality, relevant, and emerging STEM courses

9. Related Courses at Other Institutions

Comparable Courses at NJ Community Colleges

Institution Brookdale CC

Course Title Energy and the Environment

Course Number ENVR-225

Number of Credits 3

Comments

Transferability of Course

Georgian Court University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status Unable to determine status
Kean University		
Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
SUST-3110, Renewed Energy, 3 Elec	tive	

Monmouth University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
		Unable to determine status
Rowan University		
Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
		Unable to determine status
Rutgers - New Brunswick, Mason G	Gross School of the Arts	
Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
		Unable to determine status
Stockton University		
Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
ENVL-3443, Energy Planning, 4 credits	ctive	
If not transferable to any institutio	on, explain:	

10. Course Learning Outcomes

Learning Outcomes

	Students who successfully complete this course will be able to:
CLO1	Analyze the development and use of energy during the last 200 years and the impact of energy choices on our global environment.
CLO2	Identify the development of innovative technologies and their potential utilization in reducing our use of fossil fuels and their associated negative environmental impacts.
CLO3	Apply the principles of renewable and sustainable energy to their own life choices through the energy impact assessments of their choice of vehicles, appliances, and other services on our global environment.
CLO4	Critically evaluate the need to develop new technologies required to replace fossil fuels and other forms of renewable energy.

11. Topical Outline

(include as many themes/skills as needed)

	Major Themes/ Skills	Assignments (Recommended but not limited to)	Assessments (Recommended but not limited to)	Course Learning Outcome(s)
	What is renewable energy?		Quiz on reading	
ТО1	 a. Renewable Energy in the twenty first century b. Energy Transition Fire to electricity Renewable energy manufacture and 	Reading, class discussion	Graded oral presentation of project Test	CLO1
TO2	utilization: a. The Rise of Renewables b. Wind Energy c. Solar Energy d. Hydro Energy e. Geothermal Energy f. Other Renewables	Reading, class discussion	Quiz on reading Graded oral presentation of project Test	CLO1, CLO2
тоз	Project finance and development: a. Financing Renewable Energy b. Energy Transitions: Oats to Oil c. The Rise of Electric Vehicles Current and future	Reading, class discussion	Quiz on reading Graded oral presentation of project Test	CLO1, CLO2, CLO3, CLO4
TO4	global initiatives a. Energy Parity b. The convergence of Energy choices and emerging technologies c. Energy Consequences and global sustainability d. Renewable energy and our future	Reading, class discussion	Quiz on reading Graded oral presentation of project Test Research paper	CLO2, CLO3, CLO4

12. Methods of Instruction

In the structuring of this course, what major methods of instruction will be utilized? o Lecture

- o Video and discussion
- o Case studies
- o Hands-on/modeling

13. General Education Goals Addressed by this Course (this section is to fulfill state requirements)

Information

Communication-Written and Oral

Quantitative Knowledge and Skills

Scientific Knowledge and Reasoning Yes

Related Course Learning Outcome All

Related Outline Component TO3

Assessment of General Education Goal (Recommended but not limited to)

Exam, research paper

Technological Competency

Information Literacy

Society and Human Behavior

Humanistic Perspective

Historical Perspective

Global and Cultural Awareness

Ethical Reasoning and Action

Independent/Critical Thinking

14. Needs

Instructional Materials (text etc.): Textbook and/or open educational resource materials will be chosen by department.

Technology Needs: None

Human Resource Needs (Presently Employed vs. New Faculty): Presently Employed

Facility Needs: None

Library needs: None

15. Grade Determinants

The final grade in the course will be the cumulative grade based on the following letter grades or their numerical equivalents for the course assignments and examinations

A: Excellent

B+: Very Good

B: Good

C+: Above Average

C: Average

D: Below Average

F: Failure

I: Incomplete

R: Audit

For more detailed information on the Ocean County College grading system, please see Policy #5154.

Reviewer Comments

Key: 2224

New Course Proposal

ENVI 220 : Life Cycle Analysis

1. Course Information

Subject

ENVI - Environmental Science

School Science, Technology, Engineering, Mathematics

Course Title Life Cycle Analysis

2. Hours

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Semester Hours
3
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Lecture

3

Lab 0

Practicum

0

3. Catalog Description

For display in the online catalog

This course will introduce students to Life Cycle Analysis (LCA). Students will develop an understanding of global environmental guidelines and evaluation systems utilized in LCA as defined by the International Standards Organization (ISO). This course gives students the tools needed for quantifying environmental performance of products and services. The analysis will allow students to determine the environmental impact of a product or service from raw materials, production, and use through recycling or final disposal.

4. Requisites

Prerequisites None **Corequisites** None

5. Course Type

Course Type for Perkins Reporting

non-vocational (not approved for Perkins funding)

6. Justification

Describe the need for this course

There is a need for additional environmental courses in the Environmental Studies program. This is demonstrated in the fact that most environmental courses are seasonally specific. This course can be offered year-round.

Life Cycle Analysis is the evaluation of the environmental impact of a product or service from cradle to grave, that is, throughout its entire life cycle. Life cycle analysis considers resource use, human health, and ecological impacts. The course is a logical addition to our environmental and sustainability courses.

7. General Education

Will the college submit this course to the statewide General Education Coordinating Committee for approval as a course, which satisfies a general education requirement?

No

If the course does not satisfy a general education requirement, which of the following does it satisfy:

Elective

This course is recommended for

8. Consistency with the Vision and Mission Statements, the Academic Master Plan, and the strategic initiatives of the College

Please describe how this course is consistent with Ocean County College's current Vision Statement, Mission Statement, Academic Master Plan, and the strategic initiatives of the College:

	Add item
1	Providing student-centered, high quality educational experiences that prepare and empower diverse learners
2	Cultivating a technologically progressive spirit
3	Providing and supporting the delivery of high quality, relevant, and emerging STEM courses

9. Related Courses at Other Institutions

Comparable Courses at NJ Community Colleges

Transferability of Course

Georgian Court University			
Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status	
		Unable to determine status	
Kean University			
Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status	
SUST 4110, Life Cycle Ma Assessment, 3 credits	ajor		
Monmouth University			
Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status	
		Unable to determine status	
Rowan University			
Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status	
		Unable to determine status	
Rutgers - New Brunswick, Mason (Gross School of the Arts		
Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status	
		Unable to determine status	

Stockton University

select

Course Code Title and Credits	Transfer Catagory	If non-transferable;
course coue, fille, and creats		status

Unable to determine status

If not transferable to any institution, explain:

10. Course Learning Outcomes

Learning Outcomes

	Students who successfully complete this course will be able to:
CLO1	Analyze the fundamental impact of the life cycles of products and services, waste management, and control.
CLO2	Identify the principles of good practice in research life cycle assessment.
CLO3	Apply the principles of life cycle assessment, using global standards and established modelling, to calculate the life cycle of a service or product from well-established public databases.
CLO4	Critically evaluate the various global and national standards used to assign life cycle values to products and services.
CLO5	Compute Life Cycle Analysis (LCA) values in the context of green standards for product and service labels.

11. Topical Outline

(include as many themes/skills as needed)

	Major Themes/ Skills	Assignments (Recommended but not limited to)	Assessments (Recommended but not limited to)	Course Learning Outcome(s)
T01	Introduction to Life Cycle assessments: a. Framework of Life Cycle Assessment b. International Standards for Life Cycle Assessment c. Ethics	Reading, class discussion	Quiz on reading Graded oral presentation of project Test	CLO1, CLO2, CLO3, CLO4, CLO5
TO2	Measurement and modelling: a. Unit processes b. Life cycle inventory c. Discussing Data Quality in Life Cycle	Reading, class discussion	Quiz on reading Graded oral presentation of project Test	CLO2, CLO3, CLO5

	Major Themes/ Skills	Assignments (Recommended but not limited to)	Assessments (Recommended but not limited to)	Course Learning Outcome(s)
	Assessments d. Basic Modelling in Life Cycle Assessments			
	Sustainability a. The broader scope of		Quiz on reading	
ТОЗ	sustainability b. Foundation in Natural science	Reading, class discussion	Graded oral presentation of project Test	CLO1, CLO2, CLO3
	Impact Assessment a. Weighting b. Life cycle methods		Quiz on reading	
TO4	c. Project managementd. Communicatingresultse. LCA-Based Product	Reading, class discussion	Graded oral presentation of project Test Research paper	CLO1, CLO2, CLO3, CLO5
	Claims			

12. Methods of Instruction

In the structuring of this course, what major methods of instruction will be utilized?

- o Lecture
- o Video and discussion
- o Case studies
- o Simulation/modeling

13. General Education Goals Addressed by this Course (this section is to fulfill state requirements)

Information

Communication-Written and Oral

Quantitative Knowledge and Skills

Scientific Knowledge and Reasoning Yes Related Course Learning Outcome CLO3

Related Outline Component TO2

Assessment of General Education Goal (Recommended but not limited to)

Test or Research paper

Technological Competency

Information Literacy

Society and Human Behavior

Humanistic Perspective

Historical Perspective

Global and Cultural Awareness

Ethical Reasoning and Action

Independent/Critical Thinking

14. Needs

Instructional Materials (text etc.):

Textbook and/or open educational resource materials will be chosen by department.

Technology Needs: None

Human Resource Needs (Presently Employed vs. New Faculty): Presently Employed

Facility Needs: None

Library needs: None

15. Grade Determinants

The final grade in the course will be the cumulative grade based on the following letter grades or their numerical equivalents for the course assignments and examinations

A: Excellent

B+: Very Good

B: Good

C+: Above Average

C: Average

D: Below Average

F: Failure

I: Incomplete

R: Audit

For more detailed information on the Ocean County College grading system, please see Policy #5154.

Reviewer Comments

Key: 2222