



Central
North
South
SVI

INT180 - Introduction to Composites

Document Type: District Master Course Outline
Proposal Type: New Course
Requester(s): Karen L Whitney Holly Moore
College: South
Origination Approved: 11/07/2012 - 1:16 PM

BASIC INFORMATION

Requester(s): Karen L Whitney
Holly Moore
College: South Seattle Community College
Division/Dept: Apprenticeship-GT Campus
Dean: Holly Moore

COURSE INFORMATION

Proposed Course Number:

Prefix: **INT** Number: **180**

- Request a new Prefix
 This will be a common course

Full Title: Introduction to Composites

Abbreviated Title: Intro to Composites

Catalog Course Description:

The course is a materials science class where students learn about the properties and processing of solid materials used in manufacturing. Introduces students to composite materials in general and focuses on a variety of materials used in manufacturing (ceramics, metals, and fiber reinforced polymer composites) through classroom and lab activities. Students will learn about the properties and the manufacturing techniques of composite fabrications used in manufacturing through classroom and lab.

Course Length: 11 Weeks Request an Exception

Topical Outline:

I. Introduction to Composites – An Exploration of FRC Basic Concepts

- A. Products Made from Composites
- B. Comparison of Fiber-reinforced Composites to Polymers
- C. Comparison of Fiber-reinforced Composites to Metals
- D. Review Personal Protective Equipment (PPE) and Basic Lab Safety
- E. Introduce and Demonstrate Lab
- F. Practice Lab for Students
- G. MTAG Lab Report

II. Composite Materials

- A. Sample Materials Data Safety Sheets – MSDS
- B. Epoxy Initiator/Pre-Preg Graphite Fiber
- C. Pre-Preg Graphite Fiber

III. Fabrication Processes

- A. RTM (Resin Transfer Molding)
- B. VARTM (Vacuum Assisted Resin Transfer Molding)
- C. Filament Winding
- D. Tape Fiber Placement
- E. Compression
- F. Vacuum Bag Molding
- G. Chopper Gun
- H. Infusion
- I. Autoclave
- J. Pultrusion and Extrusion

COURSE CODING

Funding Source: 1.....State
Institutional Intent: 21.....Vocational Preparatory

This Course is a requirement for the following program(s):
 (No Programs Selected)

My Course Proposal is a requirement for a program not on this list
 Program Title/Description/Notes:
 Industrial Manufacturing Advanced - STT Certificate

Will this course transfer to a 4-year university? **No**

Is this course designed for Limited English Proficiency? **No**

Is this course designed for Academic Disadvantaged? **No**

Does this course have a Workplace Training component? **No**

CIP Code: 47.0303 Request Specific CIP Code
EPC Code: 768 Request Specific EPC Code

Credits:
Will this course be offered as Variable Credit? **No**

List Course Contact Hours	
Lecture (11 Contact Hours : 1 Credit)	22
Lab (22 Contact Hours : 1 Credit)	22
Clinical Work (33 Contact Hours : 1 Credit)	0
Other (55 Contact Hours : 1 Credit)	0

Total Contact Hours 44

Total Credits 3

COLLEGE SUPPLEMENTAL

Proposed Quarter of Implementation: NA
Winter 2013

Request Provisional Exception

Class Capacity: 20

Modes of Delivery: (Check all that apply)

Fully On Campus

Fully Online

Hybrid

Other Explanation:

Class Schedule Description:

Couse does not appear in the class schedule.

Student Learning Outcomes:

Communication

Read and listen actively to learn and communicate

Read and listen actively to learn,communicate and understand technical information.

Speak and write effectively for personal, academic, and career purposes

Speak and write effectively for personal, academic, and career purposes

Computation

Use arithmetic and other basic mathematical operations as required by program of study

Human Relations

Use social interactive skills to work in groups effectively

Critical Thinking and Problem-Solving

Think critically in evaluating information, solving problems, and making decisions

Technology

Select and use appropriate technological tools for personal, academic, and career tasks

Personal Responsibility

Manage personal health and safety

Information Literacy

Access and evaluate information from a variety of sources and contexts, including technology

Program Outcomes:

At the end of the program the students will:

- Describe and utilize manufacturing techniques, tools and safety practices.

(SLO 1, 2, 3, 4, 5, 7)

- Apply the concepts of diversified manufacturing, OSHA standards, Composites, Welding and LEAN concepts to promote quality and safe production and designs. (SLO 1,2,3,4,7)

- Employ the appropriate actions regarding workplace culture, safety and industry standards; (SLO 3, 6)

- Evaluate one's own capabilities and limitations, identify individual needs of continued growth is able to seek consultation from superiors. (SLO 3, 6)

- Communicate effectively and appropriately in the workplace. (SLO 1, 3, 4, 6)

Practice within the standards established by the profession, and identify the parameters of accountability. (SLO 2, 4, 5, 6, 7)

Course Outcomes/Objectives:

GENERAL COURSE OBJECTIVES:

Upon completion of the course, students will be able to:

1. Demonstrate safe fabrication and work practices
2. Discuss composite materials
3. Discuss and identify materials and processes
4. Complete a report documenting the fabrication process and final result
5. Demonstrate basic fabrication techniques
6. Define fiber-reinforced composites
7. Discuss properties of composites
8. Recognize products made for fiber-reinforced composites
9. Explain the differences between a polymer and composite
10. Explain the key differences between composites properties to metal properties
11. Make a fiber reinforced composite part

Explain the student demand for the course and potential enrollment:

Part of required curriculum for a Professional Technical Program

Explain why this course is being created:

Required for A short Term Training Program

What challenges, if any, do you foresee in offering this course:

None

This is to certify that the above criteria have all been met and all statements are accurate to the best of my knowledge.

Faculty involved in originating this program:

Karen L Whitney

Print Name

Karen L Whitney

Signature

11/5/2012

Date

Holly Moore

Print Name

Holly Moore

Signature

11/5/2012

Date

Dean:

Holly Moore

Print Name

Holly Moore

Signature

11/7/2012

Date

Results of SSCC Curriculum Coordinating Council Findings

Participating Faculty Response and Remarks

- Recommended for approval
- Not recommended for approval
- This course did not go through Committee Review

Chairman, Curriculum Coordinating Council:

Print Name

Signature

Date

Vice President for Instruction:

Donna Miller-Parker

Print Name

Donna Miller-Parker

Signature

11/7/2012

Date