## INSTRUCTIONS:

Please check the items below which describe the purpose of this request.

- [x] New course with supporting documents
- [ ] Add existing course offered at another campus
- [ ] Expiration of a course
- [ ] Change in course number
- [ ] Change in course title
- [ ] Change in course credit/type
- [ ] Change in course attributes (department head signature only)
- [ ] Change in instructional hours
- [ ] Change in course description
- [ ] Change in course prerequisites
- [ ] Change in semesters offered (department head signature only)
- [ ] Transfer from one department to another

## PROPOSED:

### Subject Abbreviation

- CS

### Course Number

- 222

### Long Title

- Object Oriented Programming in C++

### Short Title

- OOP in C++

Abbreviated title will be entered by the Office of the Registrar if omitted. (30 CHARACTERS ONLY)

## TERMS OFFERED

- Check All That Apply:
  - [x] Summer
  - [x] Fall
  - [x] Spring

## CAMPUS(ES) INVOLVED

- [ ] Calumet
- [x] Cont Ed
- [ ] Fl. Wayne
- [ ] Tech Statewide
- [ ] Indianapolis
- [ ] N. Central
- [ ] W. Lafayette

## CREDIT TYPE

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<th>Variable Credit Range: Minimum Cr. Hrs. (Check One)</th>
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<td>5. Special Fees</td>
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### Schedule Type

- Lecture
- Recitation
- Presentation
- Laboratory
- Lab Prep
- Studio
- Distance
- Clinic
- Experiential
- Research
- Ind. Study
- Pract/Observ

### Minutes Per Mtg

- 75

### Meetings Per Week

- 2

### Weeks Offered

- 5

### % of Credit

- 100

## COURSE ATTRIBUTES

- Check All That Apply
  - 6. Registration Approval Type
  - Instructor
  - 7. Variable Title
  - 8. Honors
  - 9. Full Time Privilege
  - 10. Off Campus Experience

## COURSE DESCRIPTION (INCLUDE REQUISITES/RESTRICTIONS):

This course will introduce the fundamentals of object oriented programming in C++. Students should gain understanding of the implementation of inheritance, composition, method overloading and overriding, polymorphism, templates, and standard template library.

Prerequisites: CS 221, ENGR 221 or consent of Instructor

## Cross-Listed Courses

- [ ]

## OFFICE OF THE REGISTRAR

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<th>Calumet Department Head</th>
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<th>Calumet School Dean</th>
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COURSE DESCRIPTION

Department and Course Number: CS 222
Course Coordinator: Dr. Beomjin Kim

Course Title: Object Oriented Programming in C++
Total Credits: 1

Course Description

This course will introduce the fundamentals of object-oriented programming in C++. Students should gain understanding of the implementation of inheritance, composition, method overloading and overriding, polymorphism, templates, and standard template library.

Prerequisites

CS 221, ENGR 221 or consent of instructor

Course Goals & Course Learning Outcomes

The goal of this course is to introduce to programming in C++ to solve engineering problems. Specific learning outcomes are listed below. The letters in parentheses refer to ABET Program Learning Outcomes. A student who successfully fulfills the course requirements will have demonstrated:

1. An ability to use object oriented programming in C++ to solve basic engineering problems. (a, c, e, k)
2. An understanding of the use of classes and access control to class members. (c, e, f, k)
3. An ability to use class inheritance and composition. (c, e, k)
4. An understanding of the object oriented principles in C++: method overloading, overriding, and polymorphism. (e, k)
5. An ability to use templates and standard template library. (c, e, k)

Level of the Course

This course is intended for freshman or sophomore level undergraduate students majoring in Engineering, Science, and Technology.

Lecture

Two 75 mins lectures per week for five weeks
Book

Textbook


Reference book


Course Outline

Week 1: Introduction to object-oriented programming, C++ program structure, Classes, Access control to class members

Week 2: Inheritance & composition

Week 3: Method overloading and overriding

Week 4: Templates and standard template library

Week 5: Polymorphism and virtual functions

Week 6: Final Examination