

2013-2014 SHORT SIGNATURE SHEET



Date: October 10, 2013 **UNC CHARLOTTE**

Subject: Establish New Course ECGR 2104

Originating Department: Electrical and Computer Engineering

TYPE OF PROPOSAL: UNDERGRADUATE X GRADUATE _____ UNDERGRADUATE & GRADUATE _____
 (Separate proposals sent to UCCC and Grad. Council)

DATE RECEIVED	DATE FORWARDED	COMMENTS: APPROVED, APPROVED WITH REVISIONS, ETC.	SIGNATURES
	10/10/2013		<u>PERSON ORIGINATING PROPOSAL</u> James Conrad
	10/10/13	Approved	<u>DEPARTMENT CHAIR</u> Ian Ferguson
	4-Nov-2013	Approved	<u>COLLEGE CURRICULUM COMMITTEE CHAIR</u> [print name here:] Wesley B. Williams
	11/5/2013	Approved	<u>COLLEGE DEAN</u> [print name here:]
		Approved	<u>GENERAL EDUCATION</u> (if applicable; for General Education courses only) [print name here:]
		Approved	<u>UNDERGRADUATE COURSE & CURRICULUM COMMITTEE CHAIR</u> (for undergraduate courses only)
		Approved	<u>GRADUATE COUNCIL CHAIR</u> (for graduate courses only)
			<u>FACULTY GOVERNANCE ASSISTANT</u> (received and processed in Academic Affairs)



UNC CHARLOTTE

SHORT FORM COURSE AND CURRICULUM PROPOSAL

*To: Undergraduate Course and Curriculum Committee Chair

From: James Conrad

Date: October 10, 2013

Re: Establish New Course Listing-ECGR 2104

The Short Form is used for minor curriculum changes. Minor changes may include:

- Changes to course numbering (note: must follow Course Numbering Policy)
- Editorial changes to current catalog copy
- Individual new courses (undergraduate only)
- Other small changes that have limited to no impact on other departments or units

Submission of this Short Form indicates review and assessment of the proposed curriculum changes at the department and collegiate level either separately or as part of ongoing assessment efforts.

*Proposals for undergraduate courses should be sent to the Undergraduate Course and Curriculum Committee Chair. Proposals related to both undergraduate and graduate courses, (e.g., courses co-listed at both levels) must be sent to both the Undergraduate Course and Curriculum Committee and the Graduate Council.

SUMMARY: State clearly and concisely the proposed changes. Please give a brief statement as to why the change is being proposed.

Ex. "The Biology Department proposes to add a prerequisite to the existing course, BIOL 2222."

Ex. "The College of Information Technology proposes a change in the course description for ITCS 6132."

The Electrical and Computer Engineering Department would like to establish ECGR 2104: "Computer Engineering Programming II" as a new course listing to follow ECGR 2103: "Computer Utilization in C++" in the Course Catalog. This course will be engineering-centric. No other course exists that addresses computer engineering programming design concepts.

FOR CONSULTATION WITH OTHER DEPARTMENTS:

1. Does the proposed change affect other departments (including additions and/or changes to degree requirements or prerequisites offered in other departments)?

_____ Yes No

2. If Yes, please list the other departments affected by the proposed change:

3. Have you consulted with each department listed in item 2 regarding the proposed change?

_____ Yes _____ No

Result(s) of Consultation(s) (please attach documentation):

For a new course or for major modification of an existing course, include Consultation on Library Holdings.

RESOURCES:

1. For a new course or revisions to an existing course, check all the statements that apply:

_____ This course will be cross listed with another course.

There are prerequisites for this course.

_____ There are co-requisites for this course.

_____ This course is repeatable for credit.

_____ This course will affect the number of credits hours for its program.

_____ This proposal results in the deletion of an existing course(s) from the degree program and/or catalog.

_____ This proposal will alter an agreement with a North Carolina community college.

For all items checked above, applicable statements and content must be reflected in the proposed catalog copy.

2. Indicate the additional resources required, if any, to implement and maintain the proposed change.

CREDIT HOUR (Mandatory if new and/or revised course in proposal):

Review statement and check box once completed.

X - The appropriate faculty committee has reviewed the course outline/syllabus and has determined that the assignments are sufficient to meet the University definition of a credit hour.

PROPOSED CATALOG COPY: For existing courses copy and paste the current catalog copy and use the Microsoft Word "track changes" feature (or use red text with "~~strikethrough~~" formatting for text to be deleted, and adding blue text with "underline" formatting for text to be added). For new courses, draft comprehensive catalog copy.

Catalog description

ECGR 2104: Computer Engineering Programming II. (3) Prerequisite: ECGR 2103 or equivalent. The focus of this course is on advanced topics in C++. The course covers pointers, recursion, inheritance, polymorphism, and templates. Furthermore, it introduces students to linked data structures and analysis of algorithms.

Prerequisite: ECGR 2103 or equivalent

Semesters offered: Spring, Summer

ACADEMIC PLAN OF STUDY (UNDERGRADUATE ONLY): If the proposed change will impact an existing Academic Plan of Study, provide updated Academic Plan of Study in template format.

STUDENT LEARNING OUTCOMES: If applicable, please indicate what SLOs are supported by this course or whether this curricular change requires a change in SLOs or assessment for the degree program.

This course will not be measure using SACS SLO, but will be measured using the Engineering Accreditation (ABET) SLOs:

1. Understand object-oriented design and programming. (ABET outcome e)
2. Understand dynamic memory allocation and pointers. (ABET outcome e)
3. Understand linked data structures. (ABET outcome e)
4. Ability to perform elementary analysis of algorithms. (ABET outcome e)
5. Ability to design, implement, and test relatively large C++ programs in an Integrated Development Environment. (ABET outcome k)

TEXTBOOK COSTS: It is the policy of the Board of Governors to reduce textbook costs for students whenever possible. Have electronic textbooks, textbook rentals, or the buyback program been considered and adopted?

Absolute C++, 5th Ed. Walter Savitch, Addison-Wesley (Pearson), ISBN-13 978-0-13-283071-3

This book is also used for ECGR2103

IMPORTANT NOTE: A Microsoft Word version of the final course and curriculum proposal should be sent to facultygovernance@uncc.edu upon approval by the Undergraduate Course and Curriculum Committee and/or Graduate Council chair.

ECGR 2104, Advanced Computer Utilization in C++

Catalog description

The focus of this course is on advanced topics in C++. The course covers pointers, recursion, inheritance, polymorphism, and templates. Furthermore, it introduces students to linked data structures and analysis of algorithms.

Prerequisite: ECGR 2103 or equivalent

Semesters offered: Spring, Summer

Professor: Dr. Arun A. Ravindran Office: EPIC 2167 arun.ravindran@uncc.edu

Office hours: TBD

Teaching Assistants: TBD

Lecture Time and location: TBD

Final Exam: TBD

Text book: Absolute C++, 5th Ed. Walter Savitch, Addison-Wesley (Pearson), ISBN-13 978-0-13-283071-3

Grading: Assignments- 20% Midterm (2) – 40% Final Exam – 20 % Project – 20%

Make up policy: Only for absences with prior approval. Contact professor ahead of time.

Late submission of homework: Zero credit

Attendance: Compulsory

Class Topics:

1. Pointers and Dynamic Arrays
2. Recursion
3. Inheritance
4. Polymorphism and Virtual Functions
5. Templates
6. Linked Data Structures
7. Introduction to Analysis of Algorithms
8. Exception Handling
9. Standard Template Library

Course Outcomes

1. Understand object-oriented design and programming. (ABET outcome e)
2. Understand dynamic memory allocation and pointers. (ABET outcome e)
3. Understand linked data structures. (ABET outcome e)
4. Ability to perform elementary analysis of algorithms. (ABET outcome e)
5. Ability to design, implement, and test relatively large C++ programs in an Integrated Development Environment. (ABET outcome k)

Exams, homework and project will test student performance on these outcomes

Academic Integrity Statement

All UNC Charlotte students have the responsibility to be familiar with and to observe the requirements of The UNC Charlotte Code of Student Academic Integrity (see the Catalog). This Code forbids cheating, fabrication or falsification of information, multiple submission of academic work, plagiarism, abuse of academic materials (such as Library books on reserve), and complicity in academic dishonesty (helping others to violate the Code). Any further specific requirements or permission regarding academic integrity in this course will be stated by the instructor, and are also binding on the students in this course. Students who violate the Code can be punished to the extent of being permanently expelled from UNC Charlotte and having this fact recorded on their official transcripts. The normal penalty is zero credit on the work involving dishonesty and further substantial reduction of the course grade. In almost all cases, the course grade is reduced to "F." If you do not have a copy of the Code, you can obtain one from the Dean of Students Office or access it online at www.legal.uncc.edu/policies/ps-105.html . Standards of academic integrity will be enforced in this course. Students are expected to report cases of academic dishonesty they become aware of to the course instructor who is responsible for dealing with them.

Diversity Statement

UNC Charlotte strives to create an academic climate in which the dignity of all individuals is respected and maintained. Therefore, we celebrate diversity that includes, but is not limited to ability/disability, age, culture, ethnicity, gender, language, race, religion, sexual orientation, and socio-economic status.



J. Murrey Atkins Library

Consultation on Library Holdings

To: Jim Conrad
From: Alison Bradley
Date: 10/10/13
Subject: ECGR 2104 – Advanced Computer Utilization in C++

Summary of Librarian's Evaluation of Holdings:

Evaluator: _____ Date: _____

Check One:

- 1. Holdings are superior _____
- 2. Holdings are adequate _____ **x**
- 3. Holdings are adequate only if Dept. purchases additional items. _____
- 4. Holdings are inadequate _____

Comments:

Library holdings should be adequate to support student research for this course, as it has does not require any independent research. If students seek additional material to support their classwork, the following holdings may be relevant.

LC Subject Heading	Total items held
C++ (Computer program language)	230
Recursion theory	220
Object-oriented programming (Computer science)	226

Alison Bradley

Evaluator's Signature

10/10/13

Date

Computer Engineering Academic Plan of Study (**PROPOSED)

Freshman Year					
Fall			Spring		
ENGL 1101	English Composition	3	ENGL 1102	Writing in the Academic Community	3
ENGR 1201	Engineering Practices & Prin. I	2	ENGR 1202	Intro. to Engineering Practices & Prin. II	2
CHEM 1251	Principles of Chemistry	3	PHYS 2101	Physics for Science and Engineering I	3
CHEM 1251L	Principles of Chemistry Lab	1	PHYS 2101L	Laboratory	1
MATH 1241	Calculus I	3	MATH 1242	Calculus II	3
ECGR 2103	Computer Utilization in C++	3	ECGR 2104	Computer Engineering Programming II	3
		Semester hours =	15		
				Semester hours =	15
Sophomore Year					
Fall			Spring		
ECGR 2111	Network Theory I	3	ECGR 2112	Network Theory II	3
ECGR 2155	Instrumentation and Networks Lab	1	ECGR 2156	Logic and Networks Laboratory	1
ECGR 2181	Logic System Design I	3	ECGR 3181	Logic System Design II	3
MATH 2171	Differential Equations	3	MATH 1165	Intro. to Discrete Structures	3
PHYS 2102	Physics for Science and Engineering II	3	STAT 2122	Probability and Statistics	3
PHYS 2102L	Laboratory	1	ECON 2101	Principles of Economics Macro	3
LBST 110x	The Arts and Society	3			
		Semester hours =	17		
				Semester hours =	16
Junior Year					
Fall			Spring		
ECGR 3111	Signals and Systems	3	ECGR 2255	Digital Design Laboratory	2
ECGR 3131	Fundamentals of Electronics/Semiconductors	3	ECGR 3123	Data Communications & Networking	3
ECGR 3155	Systems and Electronics Lab	1	ECGR 3132	Electronics	3
ENGR 3295	Professional Development	1		Math <u>or</u> Science Restricted Elective*	3
ECGR 3183	Computer Org and Programming Languages	3		Advanced Problem Solving*	3
LBST 2101	Western Culture and Historical Aware.	3	LBST 2102	Global and Intercultural Connections	3
LBST 221x	Liberal Studies Elective	3			
		Semester hours =	17		
				Semester hours =	17
Senior Year					
Fall			Spring		
ECGR 3253	Senior Design I	2	ECGR 3254	Senior Design II	3
	2xxx Level Writing Intensive	3	ECGR 3159	Professional Practice	2
ECGR 4101	Embedded Systems	3	ECGR 4124	Digital Signal Processing	3
ECGR 4146	Intro to VHDL	3		Depth Elective #2*	3
	Depth Elective #1*	3		Restricted Elective*	3
		Semester hours =	14		
				Semester hours =	14
					Total hours = 125

**ECGR 2103 and ECGR 2104 new course listings for CPGR majors beginning Fall 2012.

*See Depth-Science/Math-Restricted Electives Form for courses that are permitted