Lane Community College

Section 1. Proposed Course Outline (A general statement of course content that informs class syllabus construction. Once approved, all sections of a given course must include this content, no matter which instructor teaches the course, or the mode of delivery. Divisions must include this new course outline in the Divisional Course Outline binder as required by COPPs.)

Course Number: **NRG 184** Full Course Title for print catalog: **Direct Digital Controls 2**

Abbreviated Course Title for Banner: **Direct Digital Controls 2** (30 character limit)

Prerequisites: Registration in Energy Management Program, NRG 181 – Direct Digital Controls 1

Co-requisites:

Grade Option: ☒ Graded (with P/NP option) ☐ Pass/No Pass only

Number/Type Credits	Term Minimum Contact	Term Maximum Contact	11-Week Term Contact
2 Lecture	20 hours (lecture credits x 10)	24 hours (lecture credits x 12)	22 hours (lecture credits x 11)
2 Lec/Lab	40 hours (lec-lab credits x 20)	48 hours (lec-lab credits x 24)	44 hours (lec-lab credits x 22)
Lab	hours (lab credits x 30)	hours (lab credits x 36)	hours (lab credits x 33)
4 **Total credits (sum)**	60 **Total hours (sum)**	72 **Total hours (sum)**	66 **Total hours (sum)**

Course Description (300 character limit):
Hands-on training modules and electronics used to implement building automation; control loop logic, schematics, and sequences of operation with applications for desired system behaviors. Controls design process, implementation, and commissioning using industry software and equipment.

Course Outcomes and Proficiencies

What will the student ***know*** or ***be able to do*** at the end of the course?

What ***attitudes*** related to the subject will the student hold?

Assessments Planned

What evidence will demonstrate that students have achieved course outcomes? (assessment tools may include departmental tests, written products, portfolios, juried performances, quizzes and exams, or alternative assessments such as qualitative studies, capstone projects, external reviewers, etc.)

Upon successful completion of this course, the student will:	**How each outcome will be assessed:**
Define and use appropriate vocabulary specific to building controls modules and electronics	Quizzes
Interpret and write control sequences of operation	Homework & class exercises
Interpret and modify control loop schematics	Homework & class exercises
Understand the controls commissioning process	Homework & class exercises
Practice basic controls electronics assembly	Class exercises
Use critical thinking skills to implement desired system behaviors	Quizzes, homework & class exercises

Course Content by Major Topics

What topics will be presented? What are the main activities of the course? What are the central themes?
(See sample at http://www.lanecc.edu/cops/format3.htm.)

Topics:

Sequences of operations

Control system specifications

Control system schematics

DDC modules

BACnet protocols

Controls commissioning

Control behavior logic

Section 2. Proposal Information

Course Developer:

Roger Ebbage

Date: 10-12-2012

Catalog year to take effect:

2013-14

Type of Proposal

- ☒ New course
- ☐ Currently 199 or 299
- ☐ Experimental Course
- ☐ 199 Special Studies
- ☐ 299 Trends
- ☐ Revised course (If increasing credits, use credit change form)
- ☐ Reactivated course with no change
- ☐ Reactivated course with changes

Type of Course:

- ☐ Lower Division Collegiate (transfer)
- ☒ Professional/Technical (required or elective)
- ☐ Developmental, numbered below 100

Rationale:

How does this proposal further the goals of the program or department?

The class supports multiple energy management program learning goals by informing students of current practices dealing with controlling energy and HVAC/Lighting in commercial buildings. The class will increase FTE by retaining existing and attracting new Energy Program students.

What assessment evidence supports this proposal?
There is strong evidence through labor market research that a significant labor market exists. The research conducted included an internet survey of industry websites who advertise posting for the controls industry. Additional information supporting this proposal came from direct conversations with controls contractors.
This option was presented to and approved by the Energy Management program Industry Advisory Committee.

How do you know there is a demand for this course?
This will be a required core course for Energy Management Students pursuing the Controls Option

Section 3. Curriculum Equity (http://www.lanecc.edu/cops/curric.htm)

To promote an environment where all learners are encouraged to develop their full potential, this course will support Lane's Curriculum Equity policy in the following way(s):

This course will portray women and men from diverse cultural and ethnic backgrounds working in the field of building controls as guest speakers.

Materials which present a significant number of instances of fully integrated human groupings and settings to indicate equal status and non-segregated social relations will be used in this class.

Section 4. For revised courses only: PREVIOUS Catalog/Course Information:

Course Number: _____ Course Title in Banner: _____ (30 characters maximum)

Full Course Title in print catalog:

Prerequisites:

Co-requisites:

Grade Option: ☐ Graded (with P/NP option) ☐ Pass/No Pass only

Number/Type Credits	Term Minimum Contact	Term Maximum Contact	11-Week Term Contact
__ Lecture	__ hours (lecture credits x 10)	__ hours (lecture credits x 12)	__ hours (lecture credits x 11)
__ Lec/Lab	__ hours (lec-lab credits x 20)	__ hours (lec-lab credits x 24)	__ hours (lec-lab credits x 22)
__ Lab	__ hours (lab credits x 30)	__ hours (lab credits x 36)	__ hours (lab credits x 33)
__ **Total credits (sum)**	___ **Total hours (sum)**	___ **Total hours (sum)**	___ **Total hours (sum)**

Course Description:

What will change? ☐Course Number ☐Title ☐Course Description ☐Credit hours ☐Contact hours

Section 5. Support Courses **(New Professional/Technical course proposals must complete.)**

Professional/Technical courses are tracked within programs for purposes of Carl Perkins funding and budgetary planning. Indicate all degree or certificate programs for which this course will be required.

Program	Division
Energy Management Technician Program	Science

Section 6. Overlap Courses **(New course proposals must complete.)**

While overlap of course materials is not necessarily a flaw, duplication of course materials may lead to inefficient use of college resources. If there is overlap, the faculty of overlapping courses must agree on the extent of overlap and attach a rationale explaining its necessity.

Indicate all departments/courses that this course may overlap. Division Dean of existing course enters one of two options at right. Note: N/A is not an option.

Options:
1. No overlap.
2. Approved: overlap is acceptable. Rationale attached.
3. Disapproved: reasons attached.

Division	Course Number / Title	% Overlap	Option	Division Dean of existing course (Signature required for all options)	Date
			1		

Section 7. Qualification to fulfill degree requirements (complete all relevant forms, available at http://www.lanecc.edu/currsched/index.html and send to Mary Brau for the Degree Requirements Review Committee):

☐ Form(s) applying for the following degree requirement status have been attached. (Only check this box when forms have been completed and attached.)

AAOT, ASOT-Bus, OTM:

☐ Arts & Letters

☐ Social Sciences

☐ Science /Computer Science

☐ Mathematics

AAOT:

☐ Cultural Literacy Option

AAS, 1-year and 2-year certificates:

☐ Human Relations

Section 8. Library Impact Statement

Under accreditation standards, Library consultation is essential for new programs, new courses and for substantively revised courses when the revisions entail any change in library use.

What assignments will require the use of library and information resources?
Reference materials for this course will be accessed through internet research

Each academic area has a Liaison Librarian (http://www.lanecc.edu/library/services/liaison.htm). Contact the designated librarian to discuss the library needs of your course. Please allow the librarian at least one week to assess library resources.

To be completed by Liaison Librarian:
☐ Library resources are adequate to support this proposal.
☐ Additional resources are needed but can be obtained from current funds.
☐ Significant additional Library funds/resources are required to support this proposal.

Liaison Librarian _____ Date _____

Section 9. Divisional Approval (To be completed by Division Chair and Administrative Assistant)

Human, Physical, and Financial Resources:
☐ Additional instructional costs (staff, materials, services or facilities) will be incurred to offer this course. Source of funding:

☐ No additional instructional resources (staff, materials, services or facilities) are needed to offer this course.
Explain:

Required Certifications:
☐ We have developed minimum course certification standards according to the COPPs procedure "Instructor Qualifications: Credit," to be filed with ASA upon course approval.
☐ We have completed faculty certification form(s) for faculty qualified to teach this course, to be filed with ASA and Human Resources upon course approval.

Fees:
☐ We have completed fee rationale and fee request forms to be submitted to ASA upon course approval, in compliance with the COPPs procedure, "Fees: Special"
☐ No special fees will be required for this course.

Divisional Recommendation:
☐ The Division Chair and Administrative Assistant have reviewed this course proposal and kept a copy for divisional files.
☐ Faculty review of this course was completed within the division on _____(date).

☐ Pass ☐ Do Not Pass

Administrative Assistant/Coordinator _____ Date _____

Academic Dean _____ Date _____

Section 10. College Approval

Curriculum Committee Chair _____ Date _____

Curriculum Approval Committee hearing: _____ Date _____

Executive Dean for Academic Affairs _____ Date _____

Vice President for Academic & Student Affairs _____ Date _____