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 181** Full Course Title for print catalog: **Direct Digital Controls 1**

Abbreviated Course Title for Banner: **Direct Digital Controls 1** (30 character limit)

Prerequisites: Registration in Energy Management Program

Co-requisites:

Grade Option: X 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 using control system management software. Configuring alarms and user access, trend control points, generating reports, adjusting control loops, experiencing a functioning building control system. Dashboard and metering systems, with an emphasis on future smart grid functionality.

## 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 direct digital controls | Quizzes |
| Configure control system management software | Homework & class exercises |
| Configure dashboard and metering software | Homework & class exercises |
| Manage control systems in an actual commercial building | Homework & class exercises |
| Prepare trend logs and reports | Homework & class exercises |
| Use critical thinking skills to adjust control loops | 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:**

Control System Software

Interaction between HVAC equipment and controls

Trend logging

Control system reports

Basic control loop troubleshooting

Hands-on control loop tuning

Energy dashboard systems

Energy metering systems

Smart grid

## Section 2. Proposal Information

**Course Developer:**

Roger Ebbage

Date: 10-12-2012

Catalog year to take effect:

2012-13

**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 in commercial buildings. The class will increase FTE by retaining existing and attracting new 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?

It is a core course for the Energy Management Program 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 Executive Dean for Academic Affairs Date

Curriculum Approval Committee hearing: _____ _____ _____
Date Vice President for Academic & Student Affairs Date