Approved TBD

**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 **185** Full Course Title for print catalog: **Lighting Controls**

Abbreviated Course Title for Banner: **Lighting Controls** (30 character limit)

Prerequisites: None

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):**Students will gain functional knowledge of a variety of commercial building lighting control systems ranging from simple manual on/off switching to complex automatically-controlled systems to newer digitally controlled systems. Students will identify and describe lighting systems/types/technology, including control systems with emphasis on comparing the benefits of one system versus another. Students will modify control system parameters based on original design or new control sequences. |
|       |
| **Course Outcomes and Proficiencies** | **Assessments Planned** |
| 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? | 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 commercial lighting control systems | Quizzes and in-class exercises |
| Select appropriate systems for various control applications | Worksheets, lab activities |
| Modify control sequences of operation | Worksheets, class exercises, and lab activities |
| Identify and solve control system issues | Class exercises and lab activities |
| Specify lighting control system components | Worksheets, class exercises, and lab activities |
| Use critical thinking skills to identify and evaluate energy saving opportunities | Quizzes, homework & class exercises |
| Calculate energy consumption savings | 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/copps/format3.htm>.)

1. Lighting Control Policies
	1. Oregon Energy Code – Commercial Lighting
	2. ASHRAE/IESNA Standards
	3. Leadership in Energy and Environmental Design (LEED)
2. Energy Saving Strategies for Existing Commercial Buildings
	1. Timers and Controllers, Occupancy Sensing, Daylight Utilization
3. Automatic Distributed Control System
	1. Occupancy: Applications for different space types, Devices, Control Sequences and Installation
	2. Daylighting: Applications for different space types, Devices, Control Sequences and Installation
4. Centralized Control Systems:
	1. System Design and Applications (what and how is lighting controlled)
	2. Devices: Low Voltage Switches, Sensors, Controllers, Loads
	3. Control Sequences of Operation
5. Programming Lighting Control Systems
	1. Stand-alone Occupancy Sensors
	2. Distributed Daylight Controllers
	3. Central System Programming Using Sequences of Operation
	4. Enhanced Sequences of Operation to Optimize Energy Consumption
6. Control System Specifications
7. Commissioning and Retro-Commissioning Lighting Control Systems
	1. Review Commissioning Documents and Functional Testing Requirements
	2. Develop a Retro-Commissioning Plan for Existing Control System
	3. Troubleshooting Existing Control Sequences – Distributed and Central Systems

**Section 2. Proposal Information**

|  |  |  |
| --- | --- | --- |
| **Course Developer:** | **Type of Proposal** | **Type of Course:**  |
| Roger Ebbage | X New course | [ ]  Lower Division Collegiate (transfer)  |
| Date: 12-12-2014 | [ ]  Currently 199 or 299  | X Professional/Technical (required or elective)  |
| Catalog year to take effect:  | [ ]  Experimental Course | [ ]  Developmental, numbered below 100 |
| 2014-15 | [ ]  199 Special Studies |  |
|  | [ ]  299 Trends  |  |
|  | [ ]  Revised course (If increasing credits, use credit change form) |
|  | [ ]  Reactivated course with no change |
|  | [ ]  Reactivated course with changes  |

**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 in controlling energy consumption through lighting in commercial buildings. The class will increase FTE by retaining existing and attracting new students.   |
|  |

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|  |
| 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 postings 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**](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 | Institute for Sustainable Practices |
|       |       |

**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:

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

**Required Certifications:**

[x]  We have developed minimum course certification standards according to the COPPs procedure “Instructor Qualifications: Credit,” to be filed with ASA upon course approval.

[x]  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.

Administrative Assistant/Coordinator Date

**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”

[x]  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.

[x]  Faculty review of this course was completed within the division on      (date).

X Pass [ ]  Do Not Pass

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 & Date

 Student Affairs