BASIC INFORMATION

Requester(s): David Krull
Lauren Hadley
College: South Seattle Community College
Division/Dept: Professional Technical
Dean: Holly Moore

COURSE INFORMATION

Proposed Course Number:
Prefix: SBST Number: 322

☐ Request a new Prefix
☐ This will be a common course

Full Title: Energy Analysis and Auditing
Abbreviated Title: Energy Analysis/Auditing

Catalog Course Description:
Teaches energy auditing and analysis skills of commercial buildings.

Course Length: 11 Weeks
☐ Request an Exception

Course Prerequisite(s):
Student must be enrolled in the BAS Sustainable Building Science Technology program or have instructor permission and have taken or are currently enrolled in the Building Science and Building Components and Systems courses.

Topical Outline:
1. Overview of auditing buildings (3)
2. Calculating heat flow (1)
3. Researching component values (R, U, SHGC, etc.) (1)
4. Identification and auditing of lighting types (2)
5. Measuring and calculating lighting values (1)
6. Methods and tools for auditing envelope, lighting and equipment (2)
7. Researching equipment efficiencies (1)
8. Calculating and measuring equipment energy use (2)
9. Pump efficiency—understanding pump system optimization (2)
10. Motor efficiency—understanding motor efficiencies and optimization (2)
11. Fans, noise and ductwork—an overview (1)
12. Auditing comfort—interviews, surface temperatures, air movement, noise (2)
13. Practical problems in calculating energy use of a building and systems (2)
14. Presentation by expert auditor (2)
15. Audit campus building during class (2)
16. Report findings and review in class—including comfort as a finding (2)
17. How to calculate building baseload and savings with improvements (2)
18. Review project building audit and calcs in class (3)

COURSE CODING
Funding Source: 1..................State
Institutional Intent: 21.................Vocational Preparatory

This Course is a requirement for the following program(s):
(No Programs Selected)

☑ My Course Proposal is a requirement for a program not on this list
Program Title/Description/Notes:
  BAS Sustainable Building Science Technology program

Will this course transfer to a 4-year university?  No

Is this course designed for Limited English Proficiency?  No
Is this course designed for Academic Disadvantaged?  No
Does this course have a Workplace Training component?  Yes

CIP Code: 03.0198  ☐ Request Specific CIP Code
EPC Code: 177  ☐ Request Specific EPC Code

Credits:
Will this course be offered as Variable Credit?  No
List Course Contact Hours
  Lecture (11 Contact Hours : 1 Credit)  33
  Lab (22 Contact Hours : 1 Credit)  0
  Clinical Work (33 Contact Hours : 1 Credit)  0
  Other (55 Contact Hours : 1 Credit)  0
  Total Contact Hours  33
  Total Credits  3

COLLEGE SUPPLEMENTAL
Proposed Quarter of Implementation: Fall 2014  ☐ Request Provisional Exception

Class Capacity: 25
Modes of Delivery: (Check all that apply)
- ✔ Fully On Campus
- □ Fully Online
- ✔ Hybrid
- □ Other

Explanation:

Class Schedule Description:
Teaches energy auditing and analysis skills of commercial buildings.

Student Learning Outcomes:

Communication
Read and listen actively to learn and communicate
Speak and write effectively for academic, and career purposes

Computation
Use arithmetic and other basic mathematical operations as required by program of study
Apply quantitative skills for academic, and career purposes

Critical Thinking and Problem-Solving
Think critically in evaluating information, solving problems, and making decisions

Technology
Select and use appropriate technological tools for academic, and career tasks

Personal Responsibility
Uphold the highest standard of academic honesty and integrity
Respect the rights of others in the classroom, online and in all other school activities
Attend class regularly, complete assignments on time and effectively participate in classroom and online discussions, group work and other class-related projects and activities
Abide by appropriate safety rules in laboratories, shops and classroom

Information Literacy
Independently access, evaluate and select information from a variety of appropriate sources
Have knowledge about legal and ethical issues related to the use of information
Use information effectively and ethically for a specific purpose
Program Outcomes:

1. Systems – understand operations and systems unique to sustainable buildings.
2. Analysis – analyze, define and validate systems.
3. Communications – utilize effective communication techniques to facilitate all aspects of sustainable building management.
5. Technical – measure, diagnose and understand building system interactions.
7. Planning and design – calculate, develop and understand codes and standards for construction of sustainable energy efficient buildings.
8. Construction – understand components that drive the process of construction.
9. Building science – demonstrate working knowledge of building science and relationships across disciplines.
11. Computer skills – demonstrate ability to use commonly available instruments and interpret findings in audits and reports.
12. Social value, ethics and need – create and maintain a professional environment based on values and ethics.
13. Data management – use computer programs used in building industries and quality assurance to make fact based decisions.

Course Outcomes / Objectives:

At the end of the course the student will:

1. Understand and have experience in auditing commercial buildings, lighting and conditioning systems.
2. Understand and have experience in analyzing building heat loss and gain, lighting output, and heating and air conditioning air and hydronic flows and capacities.

Explain the student demand for the course and potential enrollment:

Course required for BAS Sustainable Building Science Technology program. All students will be enrolling in the course as a cohort. Course to be offered one time per academic year.

Explain why this course is being created:

- Employer demand
- Student demand
- Options for place-bound students

The SBST BAS degree program will address a critical gap in the current education system that has developed as this industry has evolved over the past five to 10 years. Traditional engineering, construction and architectural studies focus on the design of new buildings, rather than the complex and sophisticated systems that enable newly designed and retrofitted buildings to function. Individuals previously trained as facility managers do not have the level of expertise or systems knowledge to support these highly technical operations. Therefore, businesses are hiring engineers and spending months and even years retraining them to work in this capacity. Frequently these individuals do not want this type of work and leave when other more suitable opportunities present themselves. Individuals who choose to pursue a degree in the field of Sustainable Building Science Technology will not only have the specialized skills they need; they will be more stable employees.
This is to certify that the above criteria have all been met and all statements are accurate to the best of my knowledge.

Faculty involved in originating this program:

David Krull
Print Name
Signature
Date

Lauren Hadley
Print Name
Signature
Date

Dean:

Holly Moore
Print Name
Signature
Date

Results of SSCC Curriculum Coordinating Council Findings

Participating Faculty Response and Remarks

☐ Recommended for approval
☐ Not recommended for approval
☒ This course has not yet reached Committee Review

Chairman, Curriculum Coordinating Council:

Print Name
Signature
Date

Vice President for Instruction:

Gary L Oertli
Print Name
Signature
Date