SBST302 - Building Components and Systems

Document Type: District Master Course Outline
Proposal Type: New Course
Requester(s): David Krull Lauren Hadley
College: South
Origination Approved: 02/27/2014 - 1:42 PM

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: **302**

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

Full Title: Building Components and Systems

Abbreviated Title: Bldg Components and Syst

Catalog Course Description:
Provides an overview of building components and space conditioning and lighting systems, their interactions, and the building science issues surrounding and impacting them.

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 be taking or have taken the Building Science course.

Topical Outline:

1. Building envelope components (2)
2. Overview of building space conditioning systems (2)
3. Basic control strategies and systems (2)
4. Overview of lighting systems and controls (2)
5. Daylighting impacts and considerations (2)
6. Case studies in building envelopes design, maintenance and issues (2)
7. Case studies in systems design, operation, maintenance and issues (2)
8. Case studies in control systems design, programming and issues (2)
9. Field studies-audit, analysis and reporting on envelope and systems preparation (1)
10. Conduct field study and discuss results (3)
11. Maintenance and management overview (2)

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)	22
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	22
Total Credits	2

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:

Provides an overview of building components and space conditioning and lighting systems, their interactions, and the building science issues surrounding and impacting them.

Student Learning Outcomes:

Communication

Read and listen actively to learn and communicate

Speak and write effectively for academic, and career purposes

Computation

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. Critical thinking – identify, analyze and solve problems.
3. Technical – measure, diagnose and understand building system interactions.
4. Operations and maintenance – understand and analyze building profiles and identify opportunities for improving performance.
5. Planning and design – calculate, develop and understand codes and standards for construction of sustainable energy efficient buildings.
6. Building science – demonstrate working knowledge of building science and relationships across

disciplines.
7. Social value, ethics and need – create and maintain a professional environment based on values and ethics.

Course Outcomes / Objectives:

At the end of the course the student will:

1. Understand how building envelopes and their components are assembled, and their impact on and response to energy, pressure and moisture flows.
2. Understand basic space conditioning, lighting, PV systems and control systems and how they interact with each other and the building envelope.
3. Understand how occupant comfort and productivity are affected by building envelope, space conditioning, lighting, acoustics and control systems.

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	*David Krull*	1/1/0001
Print Name	**Signature**	**Date**
Lauren Hadley	*Lauren Hadley*	1/1/0001
Print Name	**Signature**	**Date**

Dean:

Holly Moore	*Holly Moore*	11/25/2013
Print Name	**Signature**	**Date**

Results of SSCC Curriculum Coordinating Council Findings

Participating Faculty Response and Remarks

- [ ] Recommended for approval
- [ ] Not recommended for approval
- [x] This course has not yet reached Committee Review

Chairman, Curriculum Coordinating Council:

Print Name	**Signature**	**Date**

Vice President for Instruction:

Gary L Oertli	*Gary L Oertli*	2/27/2014
Print Name	**Signature**	**Date**