

# **GREENING OF CONSTRUCTION CURRICULUM**

AT PALM BEACH STATE COLLEGE

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- 1. SYNOPSIS** Green building technology has been incorporated into all three construction programs at Palm Beach State College to assure Sustainable Construction knowledge is acquired by students completing the new programs. Eight courses of three credit hours each are necessary for either of the two College Credit Certificate programs, one aimed toward field building supervision and the other toward architectural drafting and design. Either of these 24 hour certificates may be earned attending four evening classes a week for two semesters, or by taking two courses, two evenings a week for four semesters.

Students desiring a more complete Sustainable Construction Management education may obtain an Associate in Science degree totaling 64 credit hours. Twenty four (24) credit hours toward the AS degree are earned by successfully completing either of the certificates mentioned above. Plus five General Educational courses are also required by state statute. An additional eight required Program Management Core courses teach construction law, finance, management, advanced building materials/methods, project management and application of sustainable construction.

Students presently enrolled in former construction programs may elect to complete requirements. However, if they wish to merge into one of the new Sustainable Construction programs, credit will be given for courses completed in the former programs. Those students who have completed former construction programs may enroll now in the new Sustainable Construction programs and earn graduation documents attesting to their Sustainable Construction knowledge by completion of only the added courses on green building and sustainable construction.

Through a portfolio application process, persons licensed as construction professionals under Florida Statute 468 or 489 may obtain college credit hours for much of their prior educational achievements as already demonstrated on state license exams.

- 2. PROGRAMS DEVELOPMENT** Over the years course selections have evolved to prepare graduates to be quickly productive upon employment in the construction industry.

- Original Content:** Construction programs previously offered were originally developed with advice, suggestion, review and consultation with a task group of local contractors and designers. Subject topics were decided. Text books were selected from leading educational publishers. Schedule wheels were created to insure all courses were offered periodically. When enough students to justify use of a classroom did not enroll, professors worked one-on-one with students via Independent Study.

Individual courses evolved as new textbook editions were published. Various adjunct professors were retained who's professional education and experience brought direct expertise to each assigned course.

- B. **Refinements**: Evaluations on the degree of student achievement have been used to refocus course content toward desired learning outcomes. This has resulted in more applicable textbook selections, and introduction of new courses to assure necessary educational foundation exists for advanced studies. Some original introductory courses were deemed as being too basic and were merged. A Quality Management course requiring total operating control of organization was deleted as being unusable for Palm Beach State students. All-in-all, the three construction programs have been honed to continually assure basic building knowledge is effectively developed in graduates entering the construction work force.
- C. **Sustainable Construction**: Course changes in the Associates degree in construction management and the certificate program in drafting and architectural design have yielded adequate course time to incorporate green building technology into those two new Sustainable Construction programs without an increase in required total credit hours.

Six additional credit hours (from 18 to 24) were deemed necessary in the Building Specialist certificate program on basic building technology, materials, and methods. Thereby, time was added for green building content and to strengthen early development of construction calculation skills, since lack of math ability has been observed to be the major impediment to student success in required technical courses.

All required changes in the three curriculums for new Sustainable Construction programs have been approved. The Fall 2010 Catalog of Palm Beach State will detail the new programs and is expected online in late July 2010 at [www.palmbeachstate.edu](http://www.palmbeachstate.edu). To select courses for Fall 2010 semester, students may enroll in the program of their choice using the correct program code number and title given below. Students actively enrolled in a previous program may complete a Change of Program via the Registrar's office should they desire to change to a Sustainable Construction program. Or, as previously stated, current students may elect to complete their formerly selected programs, receive completion documents after finishing that original program and then enroll in a Sustainable Construction program. In such cases, students would take only the added new courses to complete program requirements for a Sustainable Construction certificate or degree. Advisors for students are available in the Admissions Office to provide guidance on enrollment matters and program and course selection for Fall 2010 schedules.

- D. **College Credit Hours for Prior Learning**: Licensed construction professionals planning to seek college credits from their prior learning portfolio, reciting state license examination content, must avoid enrolling in any specific course in which they may seek such credit. Credit cannot be given via Prior Learning if it would duplicate credit earned through completion of a classroom course. Those licensed as construction professionals (under Florida Statute 468 or 489) must complete 15 credit hours of other AS program courses before credit can be posted for their approved Prior Learning.

Efforts to assure that contractors and building code administrators know of these procedures are being supported by Palm Beach County Building Officials Association and the Palm Beach County Construction Industry Management Council.

**3. PROGRAM: AS2212 Associate in Science in Sustainable Construction Management**

This most extensive curriculum is detailed below.

**Required Credit Hours: 64.**

**A. General Education Courses: Total Credits 15.**

Florida Statute requires five General Education courses.

- ENC 1101 College Composition I
- SPC 1017 Fundamentals of Speech Communications
- Elective Humanities, Area II
- Elective Social Science, Area V
- Elective Any Math Course, Area III

General Education courses are very similar in Florida colleges, so transfer credits for distant completions is straight forward, (via Transfer Credit form on Palm Beach State Panther Web). There is no age limit set for acceptance of distant courses. These courses may be available from a distant college at an advantageous schedule to the student, i.e., summer or online courses, not available at Palm Beach State.

**B. Program Management Core: Total Credits 25.**

Advanced technical and construction management courses;

- CGS 1101 Microcomputer Applications
- BCN 2220 Construction Materials & Methods II
- BCT 2730 Construction Supervision
- BCN 2793 Project Management for Sustainable Construction
- BCN 2598 Sustainable Construction, Applications
- BCT 1743 Construction Law
- BCT 1750 Construction Finance
- BCN 2941 Building Construction Experience  
(or Equivalent Elective via Advisor)

**C. Technical Skills: Total Credits 24.**

This area may be satisfied via completion of either certificate course detailed in section 4 or 5 that follows, or licensed construction professionals may document Prior Learning via a portfolio including a crosswalk between required Palm Beach State courses and educational achievement documented in license examinations required by Florida Statute 468 or 489. Coordination and approval is through the Chair, Sustainable Construction Programs in Trade & Industry Department. The total program credits awarded to a licensed person from their Prior Learning portfolio will be decided from achievement of course learning objectives demonstrated in the license exam results.

**4. PROGRAM: CCC6222 Drafting for Sustainable Construction Required Credit hours: 24.**

This program provides basics on building envelope materials/methods, sustainable construction fundamentals, and competence in construction calculations coupled with drafting skills essential in production of building construction drawings.

- BCN 1003 Construction Calculations
- BCN 1040 Sustainable Construction, Basics
- BCN 1210 Construction Materials & Methods, I
- ETD 1031C Introduction to Construction Drawings

- BCN 2253C Architectural Drafting, I
- BCN 2080C Architectural Drafting & Design, I
- BCN2259C Architectural Drafting, II
- BCN 2081C Architectural Drafting & Design, II

Students previously enrolled in the prior 24 hour certificate program “Drafting & Construction Technology” may elect to complete all courses in that program to receive that completion certificate. Or, if not yet complete, the student may elect to change to the Sustainable Construction revised program to earn that completion certificate. Those who may have already graduated from the former drafting program may enroll in this revised program, take only the revised courses and receive the Sustainable Construction certificate.

**5. PROGRAM: CCC 6223 Sustainable Building Specialist      Required Credit Hours: 24.**

This program collects eight construction topics into a technical matrix so graduates are especially well suited for productive assignment in coordination and/or supervision at building construction sites and in related building industry activities.

- BCN 1003 Construction Calculations
- BCN 1040 Sustainable Construction, Basics
- BCN 1210 Construction Materials & Methods, I
- BCN 1272 Plans Interpretation
- ETD 1031C Introduction to Construction Drawings
- EYI 1701 Environmental Health & Safety
- SUR 1101C Basic Surveying & Mapping
- BCT 1770 Construction Estimating

Students presently enrolled in the previous 18 hour certificate program “Building Construction Specialist” may elect to complete remaining courses to obtain that certificate. Or, the student may elect to change to this Sustainable Construction revised program if preference is for this completion certificate. Persons, who may have already graduated from the earlier Building Construction Specialist program may enroll anew in this revised program and take only the courses added in this program to earn the Sustainable Construction certificate.

**6. SUMMARY**

Introduction of green building technology to develop Sustainable Construction competence has been implemented in all construction drafting, supervision and management programs at Palm Beach State College. Program revisions will maximize productive contributions from graduates employed in the building industry. The “green building” movement now dominates building design and construction. An increasing awareness and respect has developed for new buildings to minimize use of land, energy, materials and other resources. Graduates of Palm Beach State Sustainable Construction programs will be educated to contribute to the Green Technology movement in construction.

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