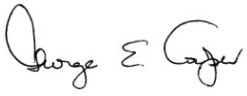
SOUTH CAROLINA STATE UNIVERSITY

PROPOSAL TO THE SOUTH CAROLINA COMMISSION ON HIGHER EDUCATION TO ESTABLISH A BACHELOR OF SCIENCE DEGREE IN PROFESSIONAL LAND SURVEYING

SUBMITTED February 4, 2011



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CLASSIFICATION

Name of Proposed Program:	**Professional Land Surveying**
Academic Unit Involved:	**College of Science, Mathematics, Engineering and Technology**
Designation of Degree:	**Bachelor of Science (4 year)**
Proposed Date of Implementation:	**Fall 2011**
CIP Code:	**151102**
Identification of Program as New or Modified:	**New**
Site:	**Orangeburg, Main Campus**
Program Qualified for Supplemental Palmetto Fellows Scholarship and LIFE Scholarship Awards:	**No**
Delivery Mode:	**Traditional**

JUSTIFICATION

A. Purpose of the Proposed Program

The purpose of the BS degree in Professional Land Surveying (PLS) is to provide an undergraduate education that prepares students for careers in land surveying in the state of South Carolina. The program will satisfy an increasing demand for technically skilled people in the land surveying field in which the demand is expected to continue increasing in the nation and in the State of South Carolina. The program will expose students to the various aspects of land surveying, ranging from mapping of topography of land for engineering design, establishment of elevation for building sites for flood insurance, building layouts, layout of subdivisions and other construction projects to the preparation of legal descriptions for properties. A graduate of this program will be eligible to sit for the South Carolina Professional Land Surveying exam after completing State licensing board requirements.

Program Objectives/Learning Outcomes

The objectives of the South Carolina State University Professional Land Surveying Program include but are not limited to:

1. Providing students with the technical knowledge and skills necessary to pursue professional careers in the professional land surveying arena.

2. Providing students with multidisciplinary design team experiences while demonstrating effective communication, leadership/management skills, principles of ethics, and knowledge of related contemporary issues.
3. Providing students with a recognition of the need for, and the ability to engage in, life-long learning.
4. Providing graduates with the necessary education to prepare them for post graduate education in professional land surveying or related fields.
5. Providing students with the broad education necessary to understand the impact of professional land surveying solutions in a global and societal context.

The extended "program outcomes" statements below describe what students are expected to know and be able to do by the time of graduation. The outcomes provide a basis for faculty to determine program performance criteria and to select the assessment methods appropriate for assessing and evaluating each objective and program outcomes.

a. Technical Knowledge:

1. Students will be able to identify, formulate, and solve professional land surveying problems while demonstrating proficiency in mathematics and science through differential equations, calculus based physics, general chemistry and probability and statistics.
2. Students will demonstrate the ability to design or conduct experiments or simulations necessary for professional land surveying practice.
3. Students will demonstrate the ability to critically analyze and interpret data in all surveying curriculum areas.
4. Students will demonstrate the ability to select and utilize modern surveying tools and techniques necessary for engineering practice.

b. Complementary Knowledge:

1. Students will demonstrate knowledge of societal issues from the local to the global scale that are impacted by professional land surveying solutions.

c. Professional Preparation:

1. Students will demonstrate an awareness of relevant professional land surveying practice issues such as procurement of consulting work, bidding vs. quality based selection, how design professionals and the construction professions interact to construct a project.
2. Students will demonstrate an awareness of the requirements for professional licensure and continuing education.
3. Students will demonstrate the ability to communicate effectively orally and in writing.
4. Students will demonstrate the ability to work effectively in teams as well as in multi-disciplinary teams.
5. Students will demonstrate an understanding of professional and ethical responsibilities along with the importance of a personal commitment to lifelong learning.

B. Statement of Need

No Bachelor of Science program in professional land surveying is offered at any institution in South Carolina. According to the South Carolina State Board of Registration for Professional Engineers and Land Surveyors, Individuals seeking professional registration in Land Surveying must meet one of the following educational requirements.

1. Four-year land surveying degree accredited by the Applied Science Accreditation Commission of the Accreditation Board for Engineering and Technology (ASAC/ABET);
2. Four-year civil engineering technology degree accredited by the Technical Accreditation Commission (TAC) of ABET;
3. Four-year engineering or related science degree approved by the Board

NB: According to the Board after June 30, 2010, two-year associate engineering technology degree by TAC/ABET (two year degrees will not be accepted).

(Please refer to: **Section 49-201.a.et. http://www.LLr.state.sc.us/POL/Engineers/PDF_Files/Laws.pdf.)**

SC State University is proposing a program designed to meet new state educational requirements for professional registration. The Applied Science Accreditation Commission (ASAC) of the Accreditation Board for Engineering and Technology (ABET) will be the accrediting agency for this program, ASAC of ABET guidelines were also used during program development. In particular, the National Council of Examiners for Engineering and Surveying (NCEES) subject matter topics that are expected on the licensing exams were incorporated into the content of required courses. Recent changes to the educational requirements set by the State Board of Registration for Professional Engineers and Land Surveyors necessitate a 4-year college level degree to receive the professional license. (Please see link above as well as Attachment C.)

There is a growing demand for better-trained, professional surveyors nationwide. As the demand for land resources increases, land use issues are becoming more widely understood. Professional surveyors are in the forefront of these decisions with their expertise in land use planning and subdivision design.

There are approximately 40,000-50,000 active land surveying professionals in the nation at this time. Using the lower conservative number and realizing that the average land surveying professional has at most a forty year active career, it is easy to determine that a minimum of 1,000 new professional land surveyors are required in the United States every year. This would indicate that one new land surveyor is needed for each 300,000 population annually. For South Carolina's population of approximately 4.4 million, SC State University will have to produce 15 graduates per year to satisfy the State's land surveying needs. "According to **"LANDSURVEYOR4HIRE.com**", an online publication whose primary function is to provide a vehicle for local surveyors and survey technicians to remain gainfully employed in their chosen community as well as the Bureau of Labor Statistics seven (7) out of ten (10) jobs in the current economy are in architectural, engineering, and related services. According to them, opportunities will be best for surveyors, cartographers and photogrammetrists who have a bachelor's degree and strong

technical skills. Overall employment of surveyors, cartographers, photogrammetrists and surveying technicians is expected to grow much faster than the average for all occupations through the year 2016." (See Attachment "A")

The need for this program can be summarized as follows:
- This is the only program in the State that offers a four year degree program in professional land surveying.
- The increase in population will undoubtedly lead to increase in land use and subsequently in real estate transactions.

According to online published data by "Indeed.com" an online salary and job search engine, as well as the Licensing Board, there are only 833 professional land surveyors in the State. The average annual salary of a Land Surveyor in the State ranges from a surveyor draftsman or technician without a college degree earning $37,000 to a senior surveyor earning in excess of $85,000.

In addition to the above reasons, this program will enable graduates of two year degree programs in related technical fields to obtain a four year degree in land surveying from South Carolina State University. South Carolina State University has well established and functional relationships through articulation agreements with many of the sixteen technical colleges in the State. Establishment of this program at South Carolina State University will continue this tradition.

C. Centrality of the Program to the Mission of the Institution

The proposed Professional Land Surveying degree program is clearly aligned with the institutional mission of building on strong existing academic programs. South Carolina State University is a comprehensive teaching university which provides personalized and challenging programs. The university emphasizes service and community involvement through many of its initiatives.

The proposed B.S. in Professional Land Surveying will be a high-quality baccalaureate program built around a distinctive core curriculum, in this case the existing B.S. in Civil Engineering Technology core curriculum. As a unique program in the state, the B.S. in Professional Land Surveying will help the University to fulfill that part of its mission to attract a capable, dedicated and diverse student body. This program will share the University's goal to develop students' communication and critical-thinking skills, ethical judgment, global awareness, and scientific and technological knowledge.

The proposed degree program is in concert with the mission of the University which states, in part, that "South Carolina State University through instruction, research and service activities prepares highly skilled, competent, economically and socially aware graduates to meet life's challenges and demands that enable them to work and lively productively in a dynamic global society." The proposed program directly relates to that mission. A major goal of the PLS program is to pursue accreditation over the next five years through the Applied Science Accreditation Commission (ASAC) of the Accreditation Board for Engineering and Technology (ABET).

The PLS program is in line with the College's mission of preparing professionals "to serve the needs of the community, state, and nation." The program shares the goals of the College of Science, Mathematics, Engineering, and Technology (CSMET) as well as those of the University in preparing graduates to be work-ready in an increasingly integrated hands-on job market.

D. Relationship of the Program to other Related Programs within the Institution

The College of Science, Mathematics, Engineering and Engineering Technology at South Carolina State University offers several undergraduate degree programs. The PLS program compliments other programs within the College and particularly within the Department of Civil and Mechanical Engineering Technology and Nuclear Engineering. Students in all programs within the College and the Department take some common classes including Statics, Dynamics, Introduction to Engineering and Engineering Technology, to name a few. Students in the PLS program will take courses outside the department as well. The proposed program will require the completion of 131 semester credit hours and will follow the accreditation standards of ABET.

It is anticipated that a number of students completing the program will matriculate into the James E. Clyburn Master of Science in Transportation (JECUTC) graduate program. This will offer the opportunity for the JECUTC to maximize its potential graduate enrollment and increase the available number of Transportation professionals to the State of South Carolina. Students of the proposed PLS program will take courses in Global Positioning System (GPS) and Geographic Information System (GIS). Similar courses are offered in the MS program in Transportation at South Carolina State University. This will be of interest to the James E. Clyburn University Transportation Center especially in the areas of surveying, mapping, transportation planning, environmental impact assessment, design, construction control, maintenance operations, vehicle location, and other functions that require accurate location data.

The proposed program in Professional Land Surveying has a close affinity with the Civil Engineering Technology program. Several of the proposed program courses will be taught by the Civil Engineering Technology faculty. The common bond of the two programs in the department is the scientific core required of all students in the engineering technology disciplines such as math, physics, communication and other courses.

E. Comparison of the SCSU Program with Other Programs in the State

South Carolina State University will be the only institution in the State offering this program. With the growth in population as well as other factors mentioned earlier, South Carolina State University is prepared and in a unique position to contribute to meeting this need.

ENROLLMENT

A. Admissions

Students admitted to the proposed PLS program must meet the admission requirements of the South Carolina State University. SCSU admissions criteria include a high school

diploma or equivalent (GED certificate) and Scholastic Aptitude Test (SAT) scores or American College Testing Program (ACT) scores. Applicants who are at least 22 years of age are not required to submit SAT/ACT scores. However, students should present evidence of ability for academic success. The grade point average on core high school courses and total SAT or composite ACT scores are considered when determining admission status. These factors will be used to determine the applicant's probability of success during the freshman year. Generally, applicants who have earned a cumulative average of C or better on the preparatory courses, and who score 830 or higher on the SAT or 18 or higher on the ACT will be admitted to SCSU.

Admissions criteria for the PLS are consistent with other programs in CSMET. All students seeking admissions to the PLS program must meet all admission requirements and be formally admitted before they are allowed to enroll in the courses. Transcripts of transfer students desiring admission into the PLS program will be reviewed to determine appropriate credits. Transfer students who are admitted into the PLS will be required to meet all program and departmental requirements at South Carolina State University.

B. Projected Student Enrollment

Currently, the South Carolina State University enrolls between 4,000-5,000 students. Each year, SC State enrolls approximately 1,000 first time freshmen with around 10% of the students entering as undeclared majors. It is expected that in the first year 10 students will enroll in the program and that number will gradually increase to 90 by the fifth year. The program will attract existing and newly recruited undecided majors at SC State, freshmen recruited specifically to the program and transfer students from the two-year colleges. As the state and national need for baccalaureate-trained land surveyors increase, there will be steady growth in program enrollment over the next five to ten years. The following tables outline this projected growth for five years.

PROJECTED TOTAL ENROLLMENT FOR 2011-2016

Year	Fall		Spring		Summer	
	Headcount[1]	Credit Hours[2]	Headcount	Credit Hours	Headcount[3]	Credit Hours[4]
2011-2012	10	150	10	150	8	48
2012-2013	24	360	24	360	11	66
2013-2014	42	630	42	630	25	150
2014-2015	64	960	64	960	43	258
2015-2016	90	1,350	90	1,350	64	384

[1] Cumulative enrollment
[2] Based on 15 credit hours per semester
[3] Summer enrollment based on 40% annual enrollment
[4] Based on 6 credit hours per summer

PROJECTED NEW ENROLLMENT FOR 2011-2016

Year	Fall	Spring	Summer

	Headcount[1]	Credit Hours[2]	Headcount	Credit Hours	Headcount	Credit Hours[3]	Total Enrollment
2011-2012	10	150	10	150	4	24	24
2012-2013	15	225	15	225	6	36	36
2013-2014	25	375	25	375	8	48	58
2014-2015	35	525	35	525	10	60	80
2015-2016	45	675	45	675	12	72	102

[1] Cumulative enrollment
[2] Based on 15 credit hours per semester
[3] Based on 6 credit hours per summer

The projected enrollment numbers are based on discussions with focus groups such as a) potential students, b) an assessment of articulation agreement with two (2) year technical colleges in the State. Some of these individuals have strongly indicated to us that they will very likely join the program to obtain a B.S. degree in PLS if it is offered at South Carolina State University because this will be the only program of this kind in South Carolina.

As indicated earlier under the "Statement of Need", the State of South Carolina will need a land surveyor for every 300,000 of its 4.4 million residents annually. This means that the state of South Carolina will need approximately fifteen (15) Land Surveyors every year. This number is based on the assumption that every land surveyor that SCSU produces will remain in the State. However, history tells us that not every land surveyor we graduate will remain in the State. Some students may be out of state residents or foreign students. We project that if these are factored in, we will graduate more students than initially indicated.

CURRICULUM

A. Sample Curriculum

The curriculum for the B.S. Professional Land Surveying is shown on page nine (9). Courses that have been added are shown in boldface within the curriculum.

B. New Courses to be Added to the Undergraduate Catalog are listed below:

CET 318 GPS & Control Surveying 3 (2, 3). Fundamental concepts and computations for higher order control surveys using terrestrial and satellite (GPS) based systems. Use of least squares adjustment techniques.

CET 409 Elements of GIS 3 (0, 3). The study of geographic and land information systems as they relate to the practice of land surveying. Surveying reference systems for control, attributes of computerized land data bases, and their impact on the recording of land titles and boundaries are treated, as well as the use of CAD enhancements and satellite technology.

CET 407 Hydrology & Drainage 3 (0, 3). Hydrologic and hydraulic principles are utilized in the planning, design, operation and construction of water management projects. Topics include elements of storm water drainage pertaining to hydrology, hydraulics of open channel and pipe flow, storm water management, and issues pertinent to state storm water regulations. The course also covers water distribution and sewage collection systems.

CET 406 Construction Surveying 3 (2, 3). A study of advanced surveying applications in the planning, design, layout, and construction of physical environment and infrastructure, with emphasis placed on the development of effective strategies to solve modern surveying problems. The course covers surveying instrumentation, utilization of maps and plans, understanding and using working drawings, computing coordinates, areas, earthwork quantities (volumes), monitoring construction for line and grade, and performing as-constructed surveys and mapping.

CET 404 Boundary Law 3 (0, 3). Laws, evidence and procedures in boundary surveying. Topics include written, unwritten and riparian rights, easements, interpretation of written and field boundary evidence, subdivisions, and preparation of boundary descriptions and plans. Boundary project management and professional practice are emphasized throughout the course.

CET 425 Land Design and Development 3 (0, 3). Applications of fundamental site engineering principles, land design principles and permitting issues. A brief historical review of subdivision and urban designs and their impact on current practice. Site surveying and engineering issues including hydrology, storm water management, site geometry, grading, design of roads, engineering design standards and computer applications in site engineering are examined. The principles of citing and theories of design for esthetic and efficient alignment of roads, layout of structures and subdivision parcels are introduced.

CET 411 Photogrammetry 3 (0, 3). This course covers the study of aerial and close range photogrammetry and the corresponding reduction and interpretation of data. The geometry of the photographic camera, vertical photography, aerial mapping camera, project planning, supporting field surveys and field classification and targeting are emphasized. Photogrammetric plotters and comparators are discussed. An introduction to digital image scanning and GPS synchronization is presented. The application of photogrammetry to engineering and surveying mapping programs is discussed.

CET 422 Remote Sensing 3 (0, 3). This course covers electromagnetic energy, passive and active sensing systems, earth resource satellite systems, digital image formats, image enhancement, image interpretation and applications of computer-assisted interpretation in mapping, geology, soils, water quality and urban and regional planning. It also covers image rectification, registration and image data merger with GIS.

CURRICULUM LEADING TO THE DEGREE
OF BACHELOR OF SCIENCE IN PROFESSIONAL LAND SURVEYING
(131 Credits)

Freshman

	Credits		Credits
E 150 English Composition I	3	E 151 English Composition II	3
M 152 Pre-calculus	3	M 153 Calculus I	3
C 150 General Chemistry	3	P 254 Physics I	3
C 151 General Chemistry Lab	1	P 251 Physics I Lab	1
UNIV 101 Intro. Univ. Comm.	2	ET 170 Intro. to Engineering	3
ET 150 Mech. Draw/Basic CAD	3	CET 205 Computer Aided Drafting	3
PE 150 or HED 151 or MS 101	2		
	17		16

Sophomore

	Credits		Credits
SOC 250 Intro to Sociology.	3	ET 213 Strength of Materials.	3
M 163 Calculus II	3	CET 311 Plane Surveying	3
P 255 General Physics II	3	CET 417 Material Testing Lab.	3
P 253 Gen. Physics II Lab	1	ET 250 Technical Communication.	3
E 250 Literature.	3	EET 275 Engineering Math	3
ET 212 Statics	3	POLI-PHIL 301 Political Philosophy	3
	16		18

Junior

	Credits		Credits
M 309 Statistical Methods & Data	3	CET 418 Soil Mechanics.	3
CET 415 Fluid Mechanics	3	**CET 409 Elements of GIS.**	**3**
CET 318 GPS & Control Surveying.	**3**	ET 313 Dynamics	3
PSY 250 General Psychology	3	CET 312 Route Surveying.	3
CET 315 Construction	3	ET 250 Engineering Economics	3
	18		15

Senior

	Credits		Credits
BA 201 Legal Envir. of Business.	3	**CET 425 Land Design & Devel.**	**3**
CET 407 Hydrology & Drainage.	**3**	CET 460 Senior Design Project.	3
CET 406 Construction Surveying.		**CET 411 Photogrammetry**	
or CET 404 Boundary Law	**3**	**or CET 422 Remote Sensing**	**3**
CET 459 Senior Proj. Prop.	1	Open Elective	3
Restricted Elective:		Fine Art Perspective.	3
EAET 410 or EAT 411	3		
History Perspective	3		
	16		15

FACULTY

With the faculty listed below, it is anticipated that 90% or more of the coursework required under the Professional Land Surveying-related major courses will be taught by full-time faculty. The remainder of the courses will be taught by faculty in the College of Science, Mathematics, Engineering, and Engineering Technology (CSMET). The General Education courses will be taught by both CSMET and general faculty.

The university has committed to one new tenure-track hire for fall 2011 for the proposed program. This faculty member will teach Geographic Information System (GIS) and Global Positioning System (GPS) courses. South Carolina State University is a comprehensive teaching institution with an expected faculty load of 12 credit hours per

semester. Based on enrollment for the first 3-5 years, no additional faculty beyond the new hire will be needed to cover regular coursework. Future faculty needs will be determined by student enrollment increases and retirements. The composition of faculty is listed in the chart below.

List Staff by Rank (e.g. Professor #1, Professor #2, Associate Professor #1, etc.)	Highest Degree Earned	Field of Study	Teaching in Field (Yes/No)
Associate Professor #1	PhD	Civil Engineering	Yes
Associate Professor #2	PhD	Civil Engineering	Yes
Assistant Professor #1	MS	Civil Engineering	Yes
*Assistant Professor #2	PhD	Civil Engineering	Yes
Professor #1	PhD	Civil Engineering	Yes

*New Faculty – Only one (1) new faculty

A. Qualification of New Faculty

New faculty hires for the program will be expected to hold a Ph.D degree in Civil Engineering or closely related area and must be able to teach GIS and GPS of professional land surveying. New faculty should have a record of effective teaching, scholarly potential, and service.

B. Explanation of Proposed Changes in Faculty Assignment

There will be no changes in faculty assignment.

C. Statement of the Institutional Plan for Faculty Development

In the annual budget, each academic department receives funds that can be used by full-time faculty members for professional development to attend training workshops and conferences. In addition, the CSMET and the University sponsor numerous workshops. The Office of the Associate Vice President for Faculty and Programs offers faculty development workshops aimed at assisting faculty better understand the science of teaching and learning, thereby improving teaching at the University. The workshops are offered throughout the academic year as well as in special summer faculty development academy.

D. Institutional Definition of the Full Time Equivalent (FTE)
Every 12 credit hours per semester is equivalent to one Full Time Equivalent (FTE).

UNIT ADMINISTRATION/FACULTY/STAFF SUPPORT						
Year	**New**		**Existing**		**Total**	
	Headcount	FTE	Headcount	FTE	Headcount	FTE
ADMINISTRATION						
2011-2012	0	0.0	1	0.25	1	0.25
2012-2013	0	0.0	1	0.25	1	0.25
2013-2014	0	0.0	1	0.25	1	0.25
2014-2015	0	0.0	1	0.25	1	0.25
2015-2016	0	0.0	1	0.25	1	0.25
FACULTY						
2011-2012	1	1.0	4	3.25	5	4.25
2012-2013	0	0.0	5	4.5	5	4.5
2013-2014	0	0.0	5	4.5	5	4.5
2014-2015	0	0.0	5	4.5	5	4.5
2015-2016	0	0.0	5	4.5	5	4.5
STAFF						
2011-2012	0	0.0	1	1	1	1
2012-2013	0	0.0	1	1	1	1
2013-2014	0	0.0	1	1	1	1
2014-2015	0	0.0	1	1	1	1
2015-2016	0	0.0	1	1	1	1

PHYSICAL PLANT

A. Existing Physical Plant Adequacy
The existing classroom and laboratory space will be adequate for the establishment of the program. Currently, space is available in the Harold Crawford Engineering Building to meet the administrative space needs.

B. Additional Physical Plant Requirements and Modifications in Foreseeable Future, and How Financed

No additional physical plant requirements or modifications are deemed necessary in the near future.

EQUIPMENT

The South Carolina State University Department of Civil and Mechanical Engineering Technology and Nuclear Engineering has adequate equipment in the initial stages of the program. Laboratory equipment is already available for the existing Civil Engineering Technology courses and equipment is in place to serve two courses of Land Surveying and

Route Surveying. The primary initial costs for equipment will address the need for the GPS and GIS equipment and associated software as well as Photogrammetry components. An estimate of $100,000 will be budgeted for new equipment acquisition. These purchases will be made during the first three years of the program.

LIBRARY RESOURCES

South Carolina State University's Miller F. Whittaker Library contains adequate resources for the initial stages of the professional land surveying program which falls within the discipline of Civil Engineering. The total number of volumes in Civil Engineering needed is 4,250. The library exceeds that amount with 10,394 volumes in Civil Engineering. Even so, there is always a need to keep the collection current. Specifically for Professional Land Surveying, it is advisable to increase the collection by approximately 150 volumes per year for the next five years. The average cost of books in Civil Engineering Technology is $107. Therefore, $16,050.00 will be needed to keep the collection current with books dedicated to land surveying.

The Miller F. Whittaker Library maintains over 302,768 volumes, 1,028,132 microforms, and subscribes to over 974 journals and magazines. The library serves as a partial depository for a select group of Federal documents and a sub-depository for State publications. A variety of programs and services are offered to meet the needs and expectations of library users.

The Miller F. Whittaker Library is a member of Digital Information for South Carolina (DISCUS), Southeastern Library Network (SOLINET), the Carolinas Consortium, and Partnerships among South Carolina Academic Libraries (PASCAL). The library provides subscriptions to major full-text electronic databases. These are Academic OneFile, Dialog, Academic Search Premier, General OneFile, ACM Digital Library, Applied Science and Technology Index and III All Society Package (ASPP). These databases include millions of peer-reviewed journals and other reference sources for research and study. These documents provide authoritative, scientific, technical, practical, theoretical and experimental coverage.

These databases will:

a. supplement the existing print materials for currency
b. enhance the acquisition of new materials
c. provide library and remote access
d. improve the overall quality of the professional land surveying collection

Other library services used to support access and quality of the professional land surveying collection include:

- **Statewide library borrowing card** - available to students and faculty. It allows the individual check-out privileges at more than 55 public, private, and technical colleges and universities in South Carolina
- **PASCAL Delivers** – allows users to request rapid book delivery using interlibrary loan services from any member library by submitting an electronic

request for delivery of a book to their home institution, and receiving the books within a 48 hour period

- **Interlibrary loan services** - available from more than 58,000 libraries of all types in 115 countries and more than 88 million bibliographic records when materials are not owned by the library

ACCREDITATION, APPROVAL, AND LICENSURE

The Applied Science Accreditation Commission (ASAC) of the Accreditation Board for Engineering and Technology (ABET) is the primary accrediting agency for the professional land surveying program. The Department of Civil and Mechanical Engineering Technology and Nuclear Engineering offers Bachelor of Science degrees in Civil Engineering Technology, Mechanical Engineering Technology, and Nuclear Engineering that are accredited by ABET. It is anticipated that the Department will seek accreditation for the Professional Land Surveyor program from ABET in about five (5) years after it has graduated at least one or more students.

Graduates of the proposed program will be required to complete a National Council of Examiners for Engineering and Surveying (NCEES) exam. This will allow the program to assess its effectiveness and impact (prior to accreditation). The South Carolina State's Labor, Licensing and Regulation (LLR)/SC Board of Engineering will accept the graduates of this program to be licensed as Professional Land Surveyors.

ARTICULATION

South Carolina State University is party to the general articulation agreement to accept transfer students from other State universities, technical and community colleges as designed by the Commission on Higher Education. With the completion of 48 general education course hours, most students of other accredited institutions will be eligible for transfer into SC State's Professional Land Surveying program as juniors. In addition, SC State has a Community Higher Education Cross Registration Program Agreement with Claflin University and Orangeburg-Calhoun Technical College (OC-Tech). Students from these three institutions can take one course each semester at one of the other institutions. The new "Gateway Program" is an articulation agreement signed between SC State and OC-Tech on July 24, 2008. This will allow SC State officials to provide academic advisement to OC-Tech students who wish to complete their undergraduate education at SC State University. OC-Tech students who wish to pursue Professional Land Surveying will have the opportunity to get advisement from the professors in the new program so that they can be guided to take the most appropriate courses at OC-Tech in preparation for transfer to SC State University.

ESTIMATED NEW COSTS

There will be no new administrative costs for the Bachelor of Science in Professional Land Surveying, as it will be administered within the current organizational structure of the Department of Civil/Mechanical Engineering Technology and Nuclear Engineering and the College of Science, Mathematics, Engineering and Technology at South Carolina State University. There is a coordinator of the Civil Engineering Technology program currently

and he will assist the Chair of the department in overseeing the Professional Land Surveying program.

The principal new costs for implementing the Professional Land Surveying program will be in hiring additional faculty and purchasing technology equipment. One new full-time assistant professor position will be filled at an estimated annual cost of 70,000 per year. The university will search for the new faculty member for the 2011-2012 academic year. Equipment is expected to cost approximately $120,000 over the first five years. Library books for the program are expected to cost $16,050 per year. Federal funding will come predominantly from Title III as indicated on the chart below. The following table summarizes anticipated costs for the first five years of the Professional Land Surveying program.

ESTIMATED NEW COSTS BY YEAR						
CATEGORY	**1st (2011-12)**	**2nd (2012-13)**	**3rd (2013-14)**	**4th (2014-15)**	**5th (2015-16)**	**TOTALS**
Program Administration	24,838	24,838	24,838	24,838	24,838	124,190
Faculty Salaries	70,000	70,000	70,000	70,000	70,000	350,00
Graduate Assistants	0	0	0	0	0	0
Clerical/Support Personnel	7,500	7,500	7,500	7,500	7,500	37,500
Supplies and Materials	5,000	6,000	7,000	8,000	9,000	35,000
Library Resources	16,050	16,050	16,050	16,050	16,050	80,250
Equipment/Software	100,000	5,000	5,000	5,000	5,000	120,000
Facilities	0	0	0	0	0	0
Other (Identify)	0	0	0	0	0	0
TOTALS	223,388	129,388	130,388	131,388	132,388	746,940
SOURCE OF FINANCING BY YEAR						
Tuition Funding	109,250	167,920	268,740	369,560	474,425	1,398,895
Program-Specific Fees	0	0	0	0	0	0
State Funding	0	0	0	0	0	0
Reallocation of Existing Funds	0	0	0	0	0	0
Federal Funding (Title III)	100,000	50,000	50,000	50,000	50,000	300,000
Other Funding	0	0	0	0	0	0
TOTALS	209,250	217,920	318,740	419,560	524,425	1,689,895

INSTITUTIONAL APPROVAL

Department of Civil/ Mechanical Engineering Technology and Nuclear Engineering Fine Arts	Date: January 2008
College of Science, Mathematics, Engineering and Technology	Date: February 2008
The Office of the Vice President for Academic Affairs	Date February 2008
Education Policies Council	Date March 2008
Faculty Senate	Date May 2008
The Office of the President	Date May 2008, February 9, 2011
SCSU Board of Trustees	Date June 4-6, 2008, February 9, 2011