

**THE CITADEL**  
**INSTITUTIONAL EFFECTIVENESS**  
**SUMMARY REPORT**

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## INTRODUCTION

The Citadel's approach to Institutional Effectiveness integrates the three fundamental components: strategic planning, assessment, and budgeting. The Citadel requires periodic assessment of the programs and services of its budgeted departments and units. The Citadel's approach to assessment is in the main decentralized. That is, the school, department, or operational unit responsible for providing a program or service is responsible for the quality of that program or service and thus for its assessment. It is expected that assessment will be more effective if developed and monitored by the unit providing the program or service. It has also been found that assessment tools that are imbedded in normal operations are in general more effective than "tack-on" or external assessment requirements.

Through the annual assessment report, each budgeted department of the College presents its Mission, measurable Expected Results on which the success of meeting that mission will be judged, Assessment Tools that are used to measure results, the actual Assessment Results, and the Actions Taken or Resources Needed to address issues that have surfaced in the assessment process. In those cases where additional resources are needed to address assessment issues, a Supplemental Assessment Matrix is also presented to summarize the assessment issue and the needed resources. These matrices are presented to the Provost and Vice Presidents to facilitate the inclusion of assessment results in the budgeting process of the College.

Annual assessment reports are collected in electronic format and provided to the President, Provost, and each Vice President to be used in the institution's budgeting process. These volumes have also been made available in the Office of Planning and Assessment, now the Office of the Associate Provost, for the entire institution and serve as the basis for annual Institutional Effectiveness Reports provided to the South Carolina Commission on Higher Education. These reports also provide the context in which the Strategic Plan Coordination and Implementation Committee, now the Strategic Planning Council (SPC), monitors the implementation of the Strategic Plan. Since the 2002-03 academic year, annual assessment reports have been available electronically on The Citadel's webpage.

### **Student Development**

The student support programs, services, and activities offered by The Citadel complement and support students' academic development by:

- promoting discipline, responsibility, character development, and self-confidence;
- equipping students with skills necessary for academic success;
- developing leadership skills;
- enhancing moral and spiritual development;
- increasing cultural awareness and the appreciation of diversity;
- encouraging students to become responsible professionals in their chosen fields; and
- providing activities that promote personal health and physical fitness.

In this assessment cycle, The Citadel is addressing The Citadel Writing and Learning Center. The Writing and Learning Center focuses on the enhancement of writing skills, the development of learning strategies, and retention programs, primarily of freshman and sophomore cadets in the Citadel community. Special attention is given to the writing and learning skills of first-year students, who attend individual tutorials and group workshops; however, upperclassmen and

graduate students have equal access to writing and learning strategies sessions as well as the retention programs. Toward meeting student needs in writing and learning, particularly those of freshmen cadets, the WCTR sponsors enrichment activities and assures that its efforts are in concert with the objectives of the academic departments and the mission of The Citadel.

### **Academic Enhancement/Retention Programs: Mandatory Study Period (MSP)**

#### Mission

The MSP Academic Enhancement and Retention Program focuses on freshmen and sophomores with a 1.5 CUM GPR and below. In addition, the program focuses on freshmen who have earned fewer than 12 hours and sophomores who have earned fewer than 36 hours. Also, students returning from Academic Discharge attend these sessions. Special attention is given to learning strategies workshops as well as individual writing tutorials. Toward meeting student needs in these areas, the Writing and Learning Center monitors study sessions (Tuesday and Thursday evenings) and presents weekly learning strategies enrichment activities to assure that its efforts are in concert with objectives of other academic departments and the college's Quality Enhancement Plan.

#### Expected Results

- Establish regular attendance and study habits.
- Increase participants' GPAs.
- Guide students through a self-assessment of their strengths and weaknesses to provide the necessary strategies for academic success.
- Reduce the number of freshmen and sophomores on academic probation.
- Maintain consistent contact with Academic Officers.
- Increase sophomore participation in the program.

#### Assessment Tools

- Focus Group Survey.
- Detailed attendance records.
- Student Information System (SIS) applications.
- Final Program Evaluation.
- Annual Debriefing Report

#### Actual Results

- Changed name of program from Jump Start to Mandatory Study Period (MSP) to coordinate with existing Citadel nomenclature, such as ESP.
- Revised Mission Statement to reflect changes in program.
- Total number of participants decreased from 104 in 05-06 to 79 in 06-07, indicating that fewer students are at academic risk.
- 67% of students increased their GPA's by an average of .81.
- Total number of Mandatory Study Period Contacts for AY 06-07 is 1183, compared to 2397 contacts in 05-06.

- Released students from MSP at midterm if their GPAs reached the 2.5 threshold and they were passing enough credit hours (up to the minimum 24 cumulative credit hours for freshmen).

#### Recommendations for Mandatory Study Period (MSP)

- Hold study sessions in Grimsley Auditorium. Having all participants in one room will make it easier to manage attendance but will still provide easy access to a nearby computer lab. In addition, Grimsley Hall is closer to the Writing Center.
- Develop a system of tracking students' participation in other on-campus study/tutorial opportunities (i.e. Writing Center, Math lab, OASIS, professor-led review sessions, etc.). Twenty-five percent of the participants felt as though the weekly appointments in the Writing Center did little to improve their academic performance. We therefore suggest eliminating this requirement and instead tracking student participation in other tutoring.
- Continue to concentrate on both freshmen *and* sophomores. Sophomores represented 40% of the MSP population for AY 06-07.
- Create a brochure that details the regulations and guidelines of MSP, daily procedures, contact information for staff, and a calendar of events.
- Ask former MSP participants to participate in initial informational sessions to help explain the importance of academic assistance.
- Remove the option to be dismissed from the program at Midterm. Those who were given permission did not show signs of continued improvement upon dismissal.
- Implement a new punishment (AWOL Required Study Hall) that can be administered to participants who are absent without an appropriate excuse to enforce the idea that MSP takes precedence over *any* extracurricular activities.

#### Goals for Mandatory Study Period (MSP)

- Increase participation among Academic Officers.
- Maintain control of behavioral issues.
- Maintain regular attendance by all participants.
- Achieve an average GPA increase of at least 1.0.

### **Academic Enhancement/Retention Programs: Athletic Study Sessions**

#### Mission

With the support of the Athletic Department, the Writing and Learning Center offers weekly study sessions for all Citadel athletes. Monitored and supervised by the Writing and Learning Center staff, the coaching staff, and cadet tutors, these meetings provide a quiet, informal study environment free from interruptions and distractions. While many athletes are required by their coaches to attend these sessions, a majority of the participants voluntarily take advantage of this structured learning atmosphere.

#### Expected Results

- Establish regular attendance and study habits.

- Increase student athletes' GPAs and/or reduce the number of athletes on academic probation.
- Guide students through a self-assessment of their strengths and weaknesses and provide strategies for academic success.

#### Assessment Tools

- Detailed attendance records and daily email attendance reports sent to coaches and the Associate Director of Athletics.
- Contact with students regarding their GPAs by Associate Director of Compliance and Academics.
- Annual Debriefing Report for Athletic Study Sessions Fall 2006 and Spring 2007.

#### Actual Results

- 1655 total contacts for AY 06-07, a 20% increase over AY 05-06.
- 100% of participants in the fall and 83.6% of participants in the spring attended sessions regularly.
- 63 % of athletes raised their GPA's by .46.
- While 31% of participants began the spring semester on academic probation, only 26% ended the semester on academic probation.
- Total tutorials in science, Spanish, writing, history/political science, and mathematics were 248, compared to 316 in 05-06.

#### Recommendations for Athletic Study Sessions

- Hold study sessions in Grimsley Auditorium. Having all participants in one room will make it easier to manage attendance but will still provide easy access to a nearby computer lab. In addition, Grimsley Hall is closer to the Writing Center.
- Continue to concentrate on in-season athletes in the Fall and continue to open the program to other at-risk freshman athletes in the Spring.
- Allow the program to be optional for students not at risk in the Spring, and coordinate such students' continued success with athletic coaches.
- Let AY 07-08 be the last year for involving upper-class athletes, unless their participation improves.
- Continue study session on Tuesdays and Thursdays to meet the scheduling needs of the athletic teams.
- Continue to meet with incoming freshman football players during their academic orientation. Work to ensure an academic session during their orientation schedule.
- Continue to coordinate Athletic Study Sessions with coaches.
- Discontinue the weekly tutoring appointments in the Writing Center and instead implement a new system of tracking athletes' participation in other on-campus studying and/or tutorial opportunities.

#### Goals for Athletic Study Sessions

- Increase the participation of upper-class athletes.
- Decrease the number of athletes on academic probation.

## **Academic Enhancement/Retention Programs: Study Sessions for Tours**

### Mission

The Study Sessions for Tours program is regulated by the Office of the Commandant and allows cadets to serve tour punishments in the Writing and Learning Center. This option is available to all cadets and allows them to receive tour credit in exchange for study time. During these sessions, participants may use valuable resources such as experienced tutors and consultants, a computer lab, useful publications such as *The Bedford Handbook* and *APA Style Guide*, and other helpful materials offered by the Writing and Learning Center.

### Expected Results

- Increase attendance for students with a GPA below 2.0.
- Provide opportunities for cadets to benefit from individual Writing tutorial sessions.
- Increase the number of Writing tutors available for consultations.

### Assessment Tools

- Detailed attendance records hand-delivered to the Commandant's Office.
- Debriefing Summary Report Fall 2006.
- Debriefing Summary Report Spring 2007.

### Actual Results

- 1164 total contacts for AY 06-07, compared to 1650 contacts for AY 05-06.
- 47% of participants were freshmen, 16% were sophomores, 17% were juniors, and 12% were seniors, a distribution similar to the distribution in AY 05-06.
- In fall 2006, 28% had a 3.0 or above, 46.9% had between a 2.0 and a 2.99, and 27.4% had a 2.0 or below.
- In spring 2007, 76% had a 2.0 or above and 24% had below a 2.0.
- Mission Statement revised to more accurately reflect program goals.
- Create a "retention notebook" that details procedures for all retention programs to eliminate confusion and inconsistency in information dissemination.

### Recommendations for Study Sessions for Tours

- Reserve Grimsley Hall to ensure adequate space and consistency.
- Hire staff able to promote optimal learning by adequately controlling the study session environment.
- Continue with one monitor for all study sessions with the help of other monitors who may change each week.

### Goals for Study Sessions for Tours

- Continue Study Sessions for Tours to provide an encouraging learning environment for all students, especially those with academic difficulties.
- Better publicize the Study Sessions for Tours program in order to explain rules and procedures more fully to cadets.

## Writing Programs

### Mission

The Writing and Learning Center's Writing Programs are designed to achieve the following goals:

- Move students away from the idea that there is always a right and a wrong response.
- Discover students' own writing processes by encouraging them to take pleasure in the thinking and learning that writing provides.
- Embolden students to think of themselves as thoughtful critics of their own work and to see their consultants as peer readers/writers rather than authority figures.
- Encourage students to read critically, recognize authors' patterns, discover nuances, and be aware of style.
- Use students' own material as the primary medium for collaboration.
- Empower students to become engaged participants in the session by using the Socratic Method.

### Expected Results

- **Tutoring:** The Writing Program will train and certify writing tutors and staff. We will continue to offer ESL tutoring as well.
- **Open and Requested Workshops:** Writing Program staff members will regularly present open and requested workshops on writing topics.
- **Orientations/Assessments:** We will conduct on-campus orientations and assessments as requested and administer and assess the freshman writing sample and grammar diagnostic exams.

### Assessment Tools

- Staff training evaluations; client evaluations of tutor performance; analysis of GPA statistics; tutor/client session notes; contact summary statistics; staff duties by hour; staffing distribution; AY 05-06 annual report statistics.
- Contact summary statistics; workshop participant evaluations.
- Grammar diagnostic exam results; success rates in English 101; writing sample results.
- Computer lab use statistics; website tracking information; correspondence from community members.

### Actual Results

#### Tutoring

- 5986 total writing appointments for AY 06-07, a decrease of 14% from AY 05-06.
- In AY 06-07 there were more Writing Strategies than Learning Strategies Tutors and more Professional Tutors than Graduate Assistants or Cadet tutors.
- Staff members attended training sessions for a total of 747 hours of training and reported comments regarding tutor training sessions through a standard evaluation form.

- In AY 06-07, 21 tutors received certification from the College Reading and Learning Association (CRLA) in three levels of certification.
- Writing strategies tutors met with clients in groups and as individuals.
- Lack of funding precluded two cadet tutors from attending a tutoring conference during AY 06-07.
- All tutors were evaluated by clients. AY 05-06 statistics are based on a Yes or No rating system to reduce statistical variation. AY 06-07 statistics show tutors maintained and/or increased approval rates from AY 05-06.
- Clients also provided additional discursive comments for each tutor.
- Tutors maintained and recorded detailed session notes, including date and information covered, for each client and every session.
- Tutoring sessions were designed to train and certify cadet, graduate assistants, and professional tutors in tutoring skills for both Writing and Learning Strategies because many tutors addressed both topics in their sessions.

#### Open and Requested Workshops

- 38 requested workshops for a total of 1127 contacts.
- 3 open workshops for a total of 24 contacts.

#### Orientations/Assessments

- We administered and interpreted 248 grammar diagnostic exams.
- We administered and interpreted 618 writing samples and continued to administer the Summer Reading Program in association with the Provost's office.
- Of the writing samples that were interpreted, 25.38% of cadets were rated as Needs Improvement, 69% were rated as Satisfactory, and 6.06% were rated as Exceeds Expectations.
- We established the Freshman Matriculation page on our departmental website to coordinate the Summer Reading Program and the writing sample: <http://citadel.edu/wlcenter/knobs.html>
- We made presentations to freshmen, new faculty, the English department, new graduate students, athletes, School Counseling, and Clinical Counseling for a total of 2321 contacts.

#### Recommendations for Writing Programs

##### Tutoring

- Strive to limit tutorial sessions to no more than three clients per session. Ideally, each session should consist of only one client per tutor.
- Continue using tutoring notebooks that will contain basic tutoring information.
- Secure funding to allow at least two cadet tutors to attend a tutoring conference annually.
- Continue to present freshman composition statistics at the Fall English Department meeting.
- Continue to teach sections of English 101 and 102 for ESL students each year. Continue to operate the ESL Language Lab.

- Continue tutor training for 30 hours in August. 100% of all tutors will attend at least 80% of training. A minimum of 30% of Graduate Assistants will teach a training component to the staff.
- Complete evaluations at least once yearly on all staff members.
- Continue the Writer's Toolbox because more than 12 positive responses to its content were received, averaging more than one per month.
- All Writing tutors will tutor freshmen once weekly in Learning Strategies for the first three weeks of each semester in an effort to reduce overcrowding of the Center. Writing appointments will begin for freshmen in the third week of the Fall.

#### Open and Requested Workshops

- Based on the increased attendance at requested workshops, we will discontinue the open workshop program. Instead, we will focus on generating more in-class and/or requested workshops, which will necessitate hiring and/or training a tutor to work primarily on meeting the increased need for requested workshops.

#### Orientations/Assessments

- Continue offering an online writing sample in Summer 2007 to better assess incoming freshman writing ability using students' own computers in a familiar environment that more closely approximates the situation under which they will be writing while in college.
- Increase percentage of freshman grammar diagnostics by offering assessment on-line prior to August matriculation.
- Return to assessing the Grammar Diagnostic Exam en masse and letting tutors review results with students.
- Continue to present overviews of The Writing and Learning Center at Pre-Knob activities, New Faculty Orientation, Academic Officer Orientation, and Freshman Orientation.
- Continue to inform all faculty and staff of upcoming Writing workshops and Learning Strategies presentations.
- Continue to work collaboratively with the Associate Provost to develop the Summer Reading Program materials for incoming freshman cadets. Continue to coordinate with Admissions on Freshman Link for Summer Reading Program, Writing Sample, and Grammar Diagnostic.

#### Goals for Writing Programs

- Improve our departmental website.
- Establish stronger ties with the faculty and staff in all departments and offices on campus to encourage increased referrals of clients and requests for workshops and presentations. Communicate our availability to help with the drafting/editing of any written projects these offices or departments may have, such as publicity or other printed materials.
- Establish stronger ties with graduate and upper-class students. Open Writing Center from 5:00 to 6:30 pm to meet the needs of Graduate Students and upperclassmen.

## Learning Strategies Programs

### Mission

Learning Strategies consultations enhance students' academic achievement by teaching study skills, fine-tuning time management, and maximizing personal learning styles. Our goal is to help students discover their personality preferences and learning styles to improve their skills in the following areas: time management, speed reading, exam preparation, test-taking strategies, stress management, note-taking strategies, learning styles, listening, and memorization skills.

### Expected Results

- **Tutoring:** The Writing and Learning Center will train and certify Learning Strategies tutors and staff.
- **Curriculum Development:** Continue to develop a Learning Strategies curriculum that best meets the needs of incoming freshmen.
- **Citadel 101 Presentations:** Learning Strategies presentations will be delivered consistently to Citadel 101 classes, and presenters will receive an "Excellent" rating from cadets.

### Assessment Tools

- Staff training evaluations; client evaluations of tutor performance; analysis of GPA statistics; tutor/client session notes; contact summary statistics; AY 06-07 annual statistics; staff meeting minutes.
- Curriculum evaluations; reviews of online learning strategies resources from comparable programs; tutor/client session notes.
- Contact summary statistics.
- Citadel 101 course evaluations; Citadel 101 individual presentation evaluations..

### Actual Results

#### Tutoring

- Learning Strategies tutors met with clients in groups and as individuals.
- 5452 total Learning Strategies appointments, an increase of 1843 appointment contacts from AY 05-06. Statistics show a 34% increase in Learning Strategies appointments from AY 06-07.
- To evaluate tutors, clients were given standard tutor evaluations. Learning Strategies tutors were evaluated by a total of 125 clients. Results indicate a 99% positive response.
- 49% of freshman cadets reported attending the Writing Center at least once weekly.
- Evaluations showed percentages of methods commonly used by tutors to convey material and promote client understanding. Statistical comparisons of methods used indicate that tutors in AY 06-07 continued to use more hands-on materials (such as handouts, the planner, and exercises).
- Clients provided discursive comments for each Learning Strategies tutor.

- Tutors were evaluated by clients. AY 05-06 statistics are based on a Yes or No rating system to reduce statistical variation. AY 06-07 statistics show tutors maintained and/or increased approval ratings.
- Tutors maintained and recorded detailed session notes, including date and information covered, for each client and every session.
- 17 Learning Strategies tutors specialized in the following content-specific learning strategies areas: biology, math, psychology, Spanish, engineering, history, and criminal justice. These content tutors were hired to meet the increasing demands of first-year students for additional assistance in their core classes.

#### Staff Training

- Sessions were designed to train and certify cadet, graduate assistant, and professional tutors in tutoring skills for both Writing and Learning Strategies because many tutors addressed both topics in their sessions.
- Staff members (including Writing Program tutors) attended training sessions for a total of 747 hours of training.
- Training included comprehensive topics designed to best meet the needs of The Citadel Writing and Learning Center.
- Tutor trainees reported comments regarding tutor training sessions through a standard evaluation form.
- In AY 06-07, 21 tutors received certification from the College Reading and Learning Association (CRLA) in three levels of certification.

#### Grades and Writing Center Attendance

- Students who earned an A or B in English 101 in Fall 2006 each attended the Writing Center an average of 13 times. Students who earned a C in English 101 attended an average of 11 sessions, while students who earned a U in English 101 attended the Writing Center an average of 8 times. These results show a direct correlation between higher grades in English 101 and more frequent and more regular visits to the Writing Center.
- However, Spring 2007 statistics do not indicate significant correlation between grades and attendance because MSP students were required to attend multiple Learning Strategies tutorials and these at-risk students skew the statistics.
- Analysis of average GPAs and attendance by company reveals that while we are serving those companies with the highest GPAs adequately, we need to determine what other factors are contributing to the negative correlation between GPA and attendance for those companies who have earned the lowest GPAs in order to better serve those companies with at-risk students.
- Business Administration, Criminal Justice, Political Science, and Civil Engineering majors attended the majority of appointments in AY 06-07.

#### Curriculum Development

- Implemented revised, detailed curriculum with material for sessions throughout the year.

- Each session includes specific tutoring tips, purpose, overview, suggestions, and necessary materials.

#### Citadel 101 Presentations

- The Learning Strategies Coordinator and tutors created two modules: Time Management and Problem Solving and delivered those modules to each Citadel 101 class for a total of 1409 contacts.
- Citadel 101 students assessed the effectiveness of presentations via evaluations with an overall average approval rating of 4.7 on a scale of 1 to 5.

#### Recommendations for Learning Strategies Programs

##### Tutoring

- Strive to limit initial tutoring sessions to a ratio of no more than three clients to one tutor. We will achieve this objective through scheduling and through tutoring assistance provided by the Director, Assistant Director, and Learning Strategies Coordinator during peak times in the semester.
- All tutors will present materials to incoming freshmen for the first three weeks of school in AY 07-08.
- Continue to hire more content-specific tutors to assist students with Learning Strategies using individual coursework.
- Continue maintaining individual tutoring notebooks in order to tailor tutoring sessions to clients.
- Meet need expressed by tutors to add more hands-on tutoring practice during staff training sessions to better equip them to meet the complex needs of individual clients
- Continue reciprocal training for all tutors in both Writing and Learning Strategies in order to use tutors' time more effectively and create a more comprehensive tutoring session for clients. In order to maintain more comprehensive statistics about Learning Strategies tutoring, we will establish a more efficient record-keeping system that contains more detailed information about each client.
- Conduct between 30 hours of tutor training in August. 100% of all new tutors will attend the entire training. 30% of Graduate Assistants will teach a training component to the staff. Returning tutors will attend 80% of training.
- Consider completing evaluations at least once a semester at mid-term on all staff members.
- Hold staff meetings once monthly during the academic year. This change from a twice monthly meeting is a result of budget constraints. Each employee will attend at least 80% of all meetings. Minutes will be circulated electronically to all staff.

#### Citadel 101 Presentations

- Develop Citadel 101 curriculum notebook to increase instructional flexibility and include sections on multiple topics in addition to Time Management and Problem Solving.

#### Goals for Learning Strategies Programs

##### Tutoring

- Increase emphasis on content-specific tutoring.
- Include learning strategies tips and content in publicity materials in order to bring greater awareness of our programs to the wider campus community.

#### Citadel 101 Presentations

- Employ two tutors who can divide their time between presentations and tutoring to meet the increasing demand for presentations more effectively.

### **Majors and Concentrations: Civil and Environmental Engineering**

#### **Mission Statement:**

The mission of the Department of Civil and Environmental Engineering (CEE) is:

*To provide a nationally recognized student-centered learning environment for the development of principled leaders in the civil and environmental engineering community through a broad-based, rigorous curriculum, emphasizing theoretical and practical engineering concepts, strong professional values, and a disciplined work ethic.*

The Civil and Environmental Engineering program educational objectives are listed below.

- Graduating students who are successful in engineering based on a course of study focused on design, including a solid theoretical and practical foundation that leads to successful employment in the private and public sectors.
- Graduating students who have sustainable career success and participate in leadership roles through demonstration of lifelong learning, effective communication, contributions on multidisciplinary teams, and broad based prospective of engineering and societal needs.
- Graduating students who have a broad educational background that leads to good citizenship through leadership, management, decision making and problem solving abilities.

As part of this mission, the department's faculty members are committed to improving and enhancing their teaching effectiveness and qualifications through professional development and scholarly activity. Consistent with the high aims of the civil engineering profession, this department seeks to ensure a broad-based curriculum that is underpinned by a strong ethical foundation. In addition, the department seeks to provide the student with opportunities to use modern and leading edge technology.

#### **Expected Results:**

The department has identified a number of assessment areas. These areas include freshman preparation, student performance, graduation performance, faculty effectiveness, and administration.

#### **Freshman preparation**

Freshman preparation covers such items as: recruitment, Scholastic Aptitude Test (SAT) scores, and retention of freshman students. *The department expects no decrease in freshman enrollment in any three-year period as minimum criteria. The average SAT score for incoming civil engineering freshman should exceed the average score for the entering*

*freshman class and should approach or exceed 1050. Finally, after the first year the department would retain at least 60% of all students in the civil engineering program*

### **Student performance**

Student performance covers the Fundamental of Engineering (FE) examination and senior perception of the department. *The department expects that at least 80% of all students who complete degree requirements in a given academic year will take the FE examination. The closest Carnegie classification will be monitored to help identify courses where improvement may be needed. Student performance data will be reported each year to faculty. Faculty will be encouraged to monitor this data to assess the need for potential improvement actions. If the average student score in a specific area taught within the department is consistently significantly lower than the corresponding Carnegie score (for example, if a score is not within 80% of the corresponding Carnegie score for three consecutive years), the course will be considered for possible improvement actions through formal department mechanisms. Action may not be necessary for courses that are taught after the majority of students typically take the test. The assessment of the senior's perception of the department comes from the senior exit interview form, which is expected to show a minimum rating of very good.*

### **Graduation performance**

Graduation performance covers such areas as employment placement of students, graduate school acceptance, and professional registration. *It is expected that all seniors seeking employment should average two employment offerings. Seventy percent of all students entering graduate school on a full-time basis will receive some financial support. Finally, at least 60% of alumni who respond to an alumni questionnaire five years after graduation should have obtained full professional registration.*

## **Assessment Procedures:**

### **Freshman preparation**

The Office of Associate Provost compiles statistics in each area of interest each year.

### **Student performance**

The department receives results each year from the fall and spring administrations of the Fundamentals of Engineering (FE) examination, and these results are analyzed to extract the data needed for assessment of student performance. In addition, the Office the Associate Provost conducts a Senior Survey each spring of all graduating seniors, and the department administers it own surveys of the graduating class. The Office of the Associate Provost monitors graduation rates for civil engineering students in the College of Graduate and Professional Studies.

### **Graduation performance**

The Office of the Associate Provost conducts a Senior Survey each spring of all graduating seniors, and the department administers surveys of its graduating class. The Office of the Associate Provost also surveys alumni of the College on a two-year cycle.

## **Actual Results:**

### **Freshman preparation**

Statistics regarding the civil engineering students enrolled in the Corps of Cadets are presented in the table below. The number of entering freshman is counted from the list of

those who enrolled in CIVL 100, Introduction to Civil and Environmental Engineering. Freshmen retention to the sophomore year was slightly less than 60%, which is the target percentage which the department seeks to achieve. Since The Citadel has an open policy on selection of major, a number of freshmen change majors within the first several weeks. Hence, counting the students at the end of the first semester may provide a better representation of those who truly felt that civil engineering was going to be their major. If retention is determined using the students completing CIVL 101 (Engineering Graphics) in the Spring of 2006 as the number of entering freshmen, the retention rate would be 77%.

Table I

| <b>Fall Term</b> | <b>Number of Entering Freshmen</b> | <b>Number Returning as Sophomores</b> | <b>Retention Rate (%)</b> |
|------------------|------------------------------------|---------------------------------------|---------------------------|
| 2002             | 67                                 | 47                                    | 70%                       |
| 2003             | 82                                 | 47                                    | 57%                       |
| 2004             | 56                                 | 47                                    | 84%                       |
| 2005             | 71                                 | 44                                    | 62%                       |
| 2006             | 84                                 | 46                                    | 55%                       |

During 2006-2007 a freshman mentoring program was established by the ASCE student chapter. The program was called G.U.I.D.E. (Graduating Undergraduates Involved and Dedicated to Engineering). The mission statement for The Citadel's department of Civil and Environmental Engineering's GUIDE program is to develop first year students who are: (1) confident in their career decision, (2) engaged in their engineering education, and (3) active members of the engineering community.

SAT averages for entering civil engineering students compared to the average SAT for the overall entering freshman classes are illustrated in Table II. The SAT for CEE students was higher than for the overall freshman class. The average departmental SAT of 1127 exceeds the department's goal of an average SAT of 1101.

Table II

| <b>Academic Year</b> | <b>Average SAT Score for Entering Freshmen Class</b> | <b>Average SAT Score for Entering Civil Engineering Freshmen</b> |
|----------------------|--|--|
| 2002-2003            | 1072   | 1109   |
| 2003-2004            | 1107   | 1138   |
| 2004-2005            | 1077   | 1125   |
| 2005-2006            | 1096   | 1156   |
| 2006-2007            | 1101   | 1127   |

**Student Performance**

This year out of 48 students eligible to take the Fundamentals of Engineering (FE) Examination, the department had 40 students take the examination in the fall (83% of the eligible students). This exceeds the expectation of 80% for the year. Out of those who completed the senior exit survey, everyone who took the test in the spring had already taken the test in the fall. As shown in Table III, of those taking the examination during Fall 2005, 58% passed. This exceeds the Carnegie 3 (or Carnegie Masters) pass rate. For the morning topics, department scores exceeded Carnegie scores in six of the twelve topic areas, based on the percentage of questions answered correctly by students in the department (see Table IV). All of the scores in the morning were within 80% of the Carnegie 3 scores. In the afternoon, department scores exceeded the Carnegie 3 scores in 7 of the 9 categories. There was only one category where the department scores were not at least 80% of the Carnegie 3 scores (Structural Analysis) and this subject is taught in the semester after the Fall FE test. It should be noted that approximately one-third to one-half of the FE material that is considered structural analysis on the FE test may not be covered in the Structural Analysis course. This may well account for the lower scores in this area.

Table III

| <b>Academic Year</b> | <b>Citadel Pass Rate</b> | <b>National Pass Rate</b> | <b>Carnegie 3 Pass Rate</b> |
|----------------------|--------------------------|---------------------------|-----------------------------|
| 2002-2003            | 88%                      | 81%                       |                             |
| 2003-2004            | 63%                      | 79%                       |                             |
| 2004-2005            | 53%                      | 75%                       |                             |
| 2005-2006            | 61%                      | 64%                       |                             |
| 2006-2007            | 58%                      | 71%                       | 54%                         |

Table IV

| <b>Fundamentals of Engineering Test Subject Matter Comparisons for Those taking the Afternoon Civil Engineering Specific test</b> |                                       |                                     |                             |
|---|---------------------------------------|-------------------------------------|-----------------------------|
|   | <b>CEE students<br/>AVG % Correct</b> | <b>Carnegie 3<br/>AVG % Correct</b> | <b>CEE/Carnegie 3<br/>%</b> |
| <b>AM Subject</b>   |                                       |                                     |                             |
| Mathematics   | 61                                    | 68                                  | 90                          |
| Engineering Probability and Statistics  | 44                                    | 53                                  | 83                          |
| Chemistry   | 60                                    | 57                                  | ≥100                        |
| Computers   | 59                                    | 59                                  | 100                         |
| Ethics and Business Practice  | 80                                    | 77                                  | ≥100                        |
| Engineering Economics   | 61                                    | 55                                  | ≥100                        |

|  |    |    |      |
|--|----|----|------|
| Engineering Mechanics (Statics and Dynamics) | 53 | 58 | 91   |
| Strength of Materials                        | 67 | 72 | 93   |
| Material Properties                          | 54 | 55 | 98   |
| Fluid Mechanics                              | 62 | 59 | ≥100 |
| Electricity and Magnetism                    | 39 | 39 | 100  |
| Thermodynamics                               | 43 | 45 | 96   |
| <b>PM Subject</b>                            |    |    |      |
| Surveying                                    | 58 | 54 | ≥100 |
| Hydraulics and Hydrologic Systems            | 47 | 47 | 100  |
| Soil Mechanics and Foundations               | 44 | 42 | ≥100 |
| Environmental Engineering                    | 67 | 61 | ≥100 |
| Transportation                               | 56 | 55 | ≥100 |
| Structural Analysis                          | 37 | 47 | 79   |
| Structural Design                            | 25 | 28 | 89   |
| Construction Management                      | 57 | 56 | ≥100 |
| Materials                                    | 46 | 43 | ≥100 |

In the college-wide Senior Survey of cadets who were on schedule to graduate in May or August 2006, the following results were obtained:

- 93.7% were either satisfied or very satisfied with their major program of study;
- 93.0% were either satisfied or very satisfied with instruction in the major;
- 77.1% were satisfied or very satisfied with academic advising related to course selection;
- 77.7% were satisfied or very satisfied with academic advising as related to understanding academic policies;
- 89.4% agreed or strongly agreed that their professors in their major were interested in their progress as a student
- 94.4% agreed or strongly agreed that their professors were accessible

In the department's senior exit survey, quality of instruction in the department, quality of advising in the department, quality of departmental computer support, quality of laboratory instruction, and availability of faculty for help outside the classroom were rated on a basis of 1 to 5, with 5 being the highest. The following results indicate the percentage of students that rated the category with either a 4 or a five:

- Quality of instruction in the department – 98%
- Quality of advising in the department – 74%
- Quality of departmental computer support – 67%
- Quality of laboratory instruction – 83%
- Availability of faculty help outside the classroom – 95%

#### **Graduation performance**

Based on the departmental Scholarship, Research, and Professional Activities Committee 2005-2006 Annual Report, 13 of 25 day students responding to a committee survey had

applied for full time employment as of April 17, 2007. On the average, the graduates applied for 2.76 jobs, had 2.92 interviews, and had 2.62 offers.

Eight evening students completed the senior exit survey, and it appears that the expectation of two job offers per student was met.

### **Summary**

The Civil and Environmental Engineering Department. It has seen the following improvements:

- Continuing support through donations to the department
- Improvement in the concrete and environmental laboratories
- Improvement in surveying/geomatics equipment
- Improvement in computer resources and assessment capability
- Improvement in FE preparation
- Improvement in recruiting materials
- Continuing development of the department's assessment process

### **Goals for the 2007-2008 Academic Year**

- Continue to progress toward a maturing assessment process for continuous improvement of the program and the ABET accreditation process
- Initiate a process for generating and coordinating goals to improve the department. The process will normally follow a three-year cycle of idea development, implementation, and assessment. Progress and results will be included in this report.
- Continue to improve student preparation for the Fundamentals of Engineering Examination and the use of the data as appropriate to improve teaching.
- Continue upgrading the Asphalt/Concrete laboratory with the funds that have been allocated for that purpose
- Continue to develop and implement strategies to improve recruitment and retention of students.
- Continue to enhance and expand the appropriate use of technology in the academic environment.
- Continue to be a strong component in the Southeastern Section of the American Society for Engineering Education, ASCE, and other professional societies

### **Technologically Skilled Workforce**

The Citadel prepares its students to be principled leaders in an ever more technologically dependent world. Electronic information management technology is, therefore, incorporated in every aspect of the student's educational experience. Students and faculty have ready access to 15 fully equipped, general purpose computer labs; special purpose labs in Civil Engineering, Electrical Engineering, Computer Science, Physics, and Modern Languages; and 80 multimedia classrooms and lectures halls. In 2005, Byrd and Duckett Auditoriums were updated and refurbished with new, state-of-the-art multimedia equipment. Wireless networking is available in the Mark Clark Hall student lounges, Bond Hall academic labs, Daniel Library study areas, two floors of Thompson Hall that house the Department of Mathematics and Computer Science, and two floors of Duckett Hall that house the Department of Biology.

The Citadel campus is fully networked giving students and faculty direct access to each other, other resources on campus, and the Internet. Each faculty member has a state-of-the-art PC linked to the campus network and with a full range of application software. Each student is encouraged to have a computer in his/her barracks room, and in the 2005-06 academic year, more than 90% of day students had personal computers that were linked to the campus network. Electronic communication has become the norm for students, faculty, and staff. Perhaps most important, The Citadel has moved aggressively to provide users access to library information through electronic databases. This enables students and faculty to find and retrieve information when they need it and where they are working. This capability is used in practically every course offered. The Citadel requires that every student demonstrate "computer literacy" either by passing a test developed and administered by Information Technology Services or by completing an approved computer-related course. Since fall 1999, each entering freshman has also been required to complete Citadel 101, a course intended to help the student make the academic/emotional transition to college/cadet life and ensure that the student has, or is aware of, the tools needed to reach his/her full potential. As part of this course, students are provided workshops on the computer as an essential tool for success at The Citadel and in professional life. Students are introduced to the electronic resources of the College; email as an efficient communication tool; on-line access to their academic records through "PAWS"; and access to library holdings and the internet.

The Web address of The Citadel's Title II report is:  
<http://www.citadel.edu/academicaffairs/index.html>