United States Naval Academy Periodic Review Report

June 2011

Chapter Five

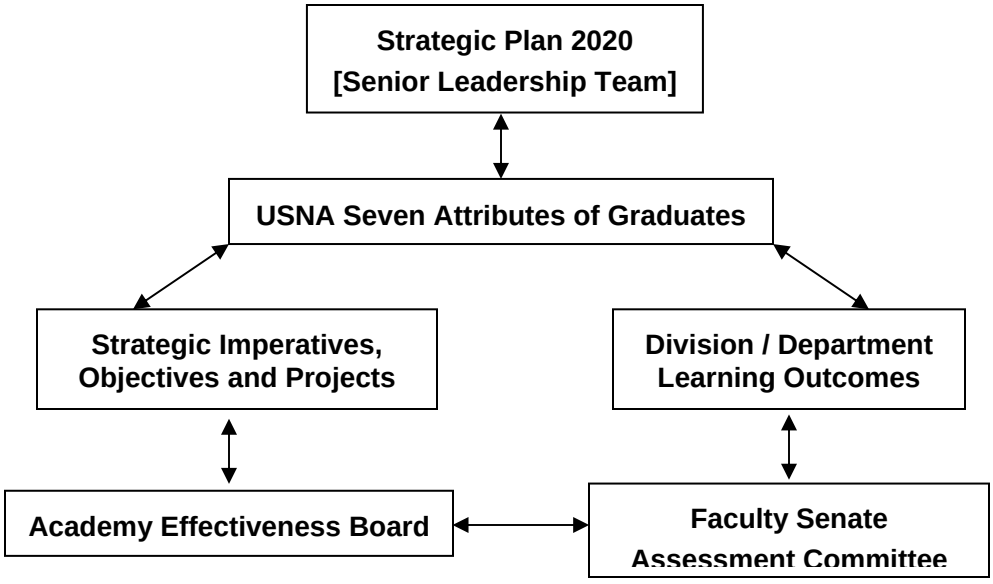
Institutional Effectiveness and

Student Learning Assessment

Chapter Five
Organized and sustained processes to assess institutional effectiveness and student learning

One of the most important recommendations of the 2006 MSCHE visiting team was the establishment of a comprehensive, integrated and institution-wide assessment plan based on the Academic Assessment work that had taken place at the United States Naval Academy beginning in the late 1990s. (See **Enclosure 5.01** for a brief summary of assessment at USNA from 1999 – 2005.) Today, institutional assessment and the assessment of student learning have become cornerstones at USNA. A coordinated and consistent structure for conducting assessment has been established (**Figure 1**) that successfully links academic assessment and student learning to the Academy's *Strategic Plan 2020* **Enclosure 2.03**). The overall mission and vision of USNA are operationalized in the form of the seven Attributes of Graduates (**Enclosure 2.02**). With support from the Senior Leadership Team and under the guidance of the Academic Dean and Provost and the Faculty Senate Assessment Committee, each division and department has revised its own discipline-specific goals to be mapped directly onto the Attributes of Graduates. In concert with these efforts, the Academy Effectiveness Board (AEB) provides oversight and consistent evaluation of the journey each student takes from candidate to midshipman to Navy or Marine Corps officer. The role of the AEB is described in detail in response to the MSCHE RECOMMENDATION for Standard 7 in Chapter Two.

Figure 1. Structure for overseeing assessment at USNA



The following sections of this chapter focus on the academic assessment activities that have contributed to the successful development of an integrated, institution-wide student learning outcomes assessment plan, particularly concerning outcomes at the academic departmental and division level.

Assessment of Student Learning

Working under the guidance of the 2005 Academic Dean (Academic Dean Instruction, ACDEANINST 5400.1, **Enclosure 5.02**) which directed the establishment of the Faculty Senate Assessment Committee (FSAC), an annual notice has been provided to all divisions and departments that directs them to summarize assessment activities based upon their learning goals. Each year since 2005, a

Dean's memo has provided directions related to the annual reporting of assessment progress. Annual reports have been reviewed by the Faculty Senate Assessment Committee and a report on the status of academic assessment at USNA has been provided to the Faculty Senate and the Academic Dean and Provost. In addition, feedback is given to the departments and divisions regarding best practices and suggested improvements to their academic assessment process. Prototype department and division annual assessment reports have been provided as part of the annual assessment status report notice since academic year 2009.The FSAC also provides templates of assessment forms and examples of assessment best practices as well as feedback to the divisions and individual departments on their assessment efforts. This structure allows for a Naval Academy-wide review of assessment status to occur every year with opportunities for faculty to learn from each other and improve their assessment programs. These activities address *Self-study recommendation 14.4, Prototype Department and Division Assessment Reports*; and *Self-study recommendation 14.3, An Active role for the FSAC*.

In addition to interacting with divisions and departments, the FSAC has also undertaken institutional assessment in the form of adopting a national instrument, the National Survey of Student Engagement (NSSE), as proposed in the 2005 Self-Study. The NSSE and its counterpart, the Faculty Survey of Student Engagement (FSSE), were administered to freshmen and seniors and to faculty in 2005 and 2008. The NSSE is being administered again during spring 2011. Responses from the NSSE in both cases were similar from one administration to the next and were similar to the responses given by students in the Military Academy Consortium, a comparison group consisting of the United States Military Academy and the United States Air Force Academy. This addresses 2005 *Self-study recommendation 14.2* to continue the use of the NSSE.

Attempts to compare the differences in responses from the NSSE and the FSSE were hampered by the lack of similarity between the questions posed to the students and those directed to faculty. For example, students answered the questions based on their experience with all of their courses throughout their time at USNA; faculty, meanwhile, responded based on only the courses that they personally taught. However, the NSSE/FSSE comparison did identify areas for further academic assessment, such as the amount of memorization the midshipmen perceived they were asked to perform and the number of short and long papers that had been assigned to each midshipman. The Naval Academy will continue to administer the NSSE/FSSE on a periodic basis (every three years) and monitor for meaningful differences in responses over time. It will be possible to add institution-specific questions, as well. See the attached FSAC report in **Enclosure 5.03**.

Institutional and Unit-level Goals

All divisions and departments at USNA, including Professional and Officer Development departments have created discipline specific goals and outcomes for its graduates based upon the USNA Attributes of Graduates. A mapping of these goals onto the USNA Attributes can be found in **Enclosure 5.04**. Each course within a department functions to explicitly or implicitly support individual departmental goals. Selected academic departments are also guided by criteria for professional accreditation of their major. Currently ABET Inc. is the accrediting body for all engineering departments, except General Engineering. Computer Science and Information Technology are also ABET-accredited. Chemistry is accredited by the American Chemical Society (ACS).

Methods of assessment within individual departments encompass both evaluation of content knowledge and examination of process skills. Many departments with access to standardized exams through their accrediting body or a testing service take advantage of this sort of assessment instrument. For example, engineering majors are encouraged to take the Fundaments of Engineering (FE) exam. In their senior year, 1/C (first class midshipmen or seniors) physics majors are given the opportunity to take an Educational Testing Service (ETS) physics subject matter exam. 4/C midshipmen (fourth class midshipmen, Plebes or freshmen) and chemistry majors are routinely assessed by ACS exams. The Chemistry Department also tracks scores of students who choose to take the MCAT and receives information on US Navy Nuclear Power School performance of its alumni. Further comparison of student

content knowledge is gained in physics and chemistry from common course wide exams. These tests are comprised of similar questions recurring in core course exams administered to most, if not all, midshipmen in each graduating class. Such exams allow for comparison of student performance across sections and instructors and, over time, among different graduating classes. At present, assessment of the core curriculum is limited to those activities taking place within individual departments. Recent changes to enable assessment of the entire core curriculum will begin in the near future (see Challenges and Future Directions below). These activities demonstrate that all department and division reports include assessment data, indicate conclusions drawn from these data, and discuss program changes resulting from this analysis.

The recent growth in project-based learning at USNA has necessitated the assessment of content knowledge in these types of courses as well. Engineering departments have created rubrics for assessing course projects and semester-long, capstone projects. The Aerospace Department participates in the CDIO™ (Conceiving, Designing, Implementing and Operating) initiative, an innovative educational framework for developing the next generation of engineers. The CDIO™ initiative also provides a source of external review of capstone projects.

The assessment of process skills, a challenging endeavor, has been developing gradually across the Academy. Rubrics to assess writing have been integrated into the English Department, allowing comparison of individual Plebe placement essays to papers in HE112 Rhetoric and Introduction to Literature. In addition, the rubrics have been used in the Oceanography Department to assess critical-thinking skills in capstone projects. In the area of foreign languages, both Spanish and Japanese major programs have begun employing the Simulated Oral Proficiency Interview (SOPI) as a means to gauging learning outcomes.

Assessment of overall departmental development is also integral to the quality of the academic program. To this end, communication between faculty and students has been increased in the form of student exit surveys at the end of courses and upon completion of a major. More recently, several departments have added faculty surveys to courses taught by multiple instructors to their assessment practices. Both student and faculty surveys play a significant role in the integration of assessment results into curricular and administrative changes.

Integrating Assessment Results

The development of a consistent and sophisticated assessment process at USNA has greatly benefited the academic program by guiding departments and divisions toward curricular and administrative changes that improve the quality of midshipman education. In several instances, these changes were based upon multiple assessment practices such as evaluation of content knowledge and feedback from visiting committees. A table of selected examples where the cycle of assessment was applied is shown in **Enclosure 5.05**.

Challenges and Future Directions

While assessment practices have been developing successfully over the past five years, opportunities for improvement across the campus are numerous. Many departments have a robust system for assessment in place, but a few have made only minimal progress. In the latter category are three majors, EGE (General Engineering), SGS (General Science), and SQE (Quantitative Economics), which to date have lacked a systematic assessment review process. These majors are in name housed under specific departments but are not assessed or reviewed on a regular basis by those departments. The FSAC has recently made a recommendation to the Academic Dean to assign oversight of these majors to specific individuals or committees.

Another obstacle to encouraging assessment in certain departments is a lack of sufficient faculty participation. Departments with accredited majors are prompted by those accrediting bodies to conduct assessment. Other departments, lacking a discipline specific accreditation of the major, are seemingly less

compelled to engage in assessment. As a result, such departments can fall below the threshold of having a critical mass of interested faculty, and the assessment activities can sometimes fall upon only one or two individuals. Seeking to increase faculty participation in departmental assessment activities over the next five years will be an FSAC focus. To that end, the FSAC is currently discussing ways of facilitating the sharing of assessment tools developed in individual departments across the entire Academy. In addition, the 2011 memorandum on the Annual Reporting of Assessment Status decreases the burden of assessment on academic departments. The memorandum explicitly sanctions the use of either internal program reviews and/or external accreditation review reports to fulfill retrospective report requirements during a given five-year period between Middle States Accreditation and Periodic reviews (**Enclosure 5.06**). This is an example of how USNA is continually refining its academic assessment process for greater efficiency and effectiveness.

As discussed above, assessment of student outcomes is well-developed for many departments. However, there exist several opportunities to do more at the division and institutional levels. In particular, the divisions are in a position to build a strategy to assess students as they progress through the core courses at USNA. Efforts to conduct such assessments in the past have been hampered by the lack of continuity that accompanies the frequent change of military leadership at the division director level. A solution to this problem has recently been implemented, as each division has created the position of senior professor; a longtime, civilian faculty member with a strong history of service to the Academy who can provide counsel and division history to new division directors and will oversee long-term division tasks such as assessment. These senior professors have recently been charged with developing a comprehensive plan for coordinating the assessment of the core courses across departments and divisions.

In conclusion, the FSAC is working with the Academy Effectives Board (AEB) on a plan to assess the seven Attributes of Graduates institution-wide that will be the vehicle by which USNA produces an organized and sustained process of institutional effectiveness and student learning assessment. This plan is based on the USNA Commissioning Continuum Implementation and Assessment Model shown in **Enclosure 2.05** and addresses *Self-study recommendations 14.1, Assessment in the academic program should serve as a model for assessment activities in other programs*.

Chapter Five Appendix
Enclosures

Enclosure 5.01
A summary of USNA Academic Assessment from 1999 – 2005

Enclosure 5.02
Academic Dean Instruction on Annual Academic Assessment Reporting (ACDEANINST 5400.1)

Enclosure 5.03
Faculty Senate Assessment Committee (FSAC) report on the NSSE/FSSE Survey results

Enclosure 5.04
Mapping of Departmental and Divisional Goals/Objectives to the Attributes of a Naval Academy Graduate

Enclosure 5.05
Assessment Methods Used to Make Curricular Changes

Enclosure 5.06
2011 Annual Assessment Memo