

The University of Southern Mississippi

Detailed Assessment Report

As of: 10/23/2019 11:35 AM EDT

2018-2019 Architectural Engineering Technology BS

(Includes those Action Plans with Budget Amounts marked One-Time, Recurring, No Request.)

Mission / Purpose

The University of Southern Mississippi's Architectural Engineering Technology (ACT) program provides students with a broad-based education with an emphasis on critical thinking, technical problem-solving ability, and computer applications in addition to a background in architectural design. The ACT program is committed to producing graduates who possess the necessary skills, critical thinking, discipline and work ethics to enter the A/E/C industry fully capable of performing entry-level tasks at the office and in the field. The University of Southern Mississippi is a community of engaged citizens, operating as a public, student-centered, doctoral-granting research university serving Mississippi, the nation, and the world. The University is dedicated to scholarship and learning, integrating students at all levels in the creation and application of knowledge through excellence in teaching, research, creative activities, outreach, and service. The University nurtures student success by providing distinctive and competitive educational programs embedded in a welcoming environment, preparing a diverse student population to embark on meaningful life endeavors. The mission of the ACT program directly relates to the mission of the University. The ACT program aims to provide well-rounded professionals of the built environment, engaging and empowering graduates to transform lives and communities. The ACT program provides technology and management education to students who desire career pathways in architecture, engineering, or construction firms. To achieve its mission, the ACT program creates a nurturing learning environment that fosters the development of critical thinking skills, develops knowledge and technology expertise, and supports innovation.

Student Learning Outcomes/Objectives, with Any Associations and Related Measures, Targets, Findings, and Action Plans

SLO 1: Written and Oral Communication

Apply written and oral communication in both technical and non-technical environments (ETAC-ABET Baccalaureate degree programs: Student Outcome G)

Related Measures:

M 1: Written Report and Oral Presentations

M1 (direct): The ACT 401 Architectural Studio IV (Capstone) course requires students to create, utilize, and present design, construction and operations documents. Students submitted several written reports that included pre-design research with a written description of Sustainability and Resiliency in construction, Building codes and zoning, Mechanical system calculations, FEMA Tornado and Hurricane Safe room design, and a USM Gulf Park Campus Master plan study. The oral component was assessed four times during the semester during the programming, conceptual design, design development, and final oral presentation phase. All presentations were made to a panel of jury members.

Source of Evidence: Capstone course assignments measuring mastery

Target:

Target: 80% of students will achieve an overall score of 70 or greater.

Findings (2018-2019) - Target: Met

Studio 4: (17/17, n=17) 100% of students achieved a score of 70 or higher.

M 2: Student Intern Feedback from Supervisor

M2 (indirect): The AEC 496 Internship course will gather data from supervisor evaluations of student intern's performance. Question #1 of the Student Intern Evaluation addresses the intern's ability to apply written and oral communication in both technical and non-technical environments.

Source of Evidence: Employer survey, incl. perceptions of the program

Target:

Target: Employers are "satisfied" or "very satisfied" with 80% of student interns' performance.

Findings (2018-2019) - Target: Met

Fall 2018 Internship: (40/44, n=44) 90% of students achieved a score of 70 or higher. Spring 2019 Internship: (20/22, n=22) 91% of students achieved a score of 70 or higher. Summer 2019 Internship: (42/43, n=43) 98% of students achieved a score of 70 or higher.

SLO 2: Economic Analysis and Cost Estimates

Perform economic analyses and cost estimates related to design, construction, and maintenance of building systems (ETAC-ABET Program Criteria for AET: Student Learning Outcome 1)

Related Measures:

M 3: Create an Estimate

M1 (direct): The Estimating II (AEC 365) course is the second of two estimating courses required for the Architectural Engineering Technology degree. Students create several estimates in this course with each one increasing in scope and complexity. Assignment three requires students to assemble a cost estimate and report.

Source of Evidence: Project, either individual or group

Target:

Target: 80% of students will achieve an overall score of 70 or greater.

Findings (2018-2019) - Target: Not Met

Estimating II: (5/9, n=9) 56% of students achieved a score of 70 or higher.

Related Action Plans (by Established cycle, then alpha):

For full information, see the *Details of Action Plans* section of this report.

Address Estimating Findings

Established in Cycle: 2016-2017

The Estimating II class remains a challenge for AET students, as reported in the 2018-19 findings. This semester, a School of ...

M 4: Student Intern Feedback from Supervisor - Estimating Understanding

M2 (indirect): The AEC 496 Internship course will gather data from supervisor evaluations of student intern's performance. Question #2 of the Student Intern Evaluation addresses the intern's ability to perform cost estimates related to design, construction, and or maintenance of building systems.

Source of Evidence: Employer survey, incl. perceptions of the program

Target:

Target: Employers are "satisfied" or "very satisfied" with 80% of student interns' performance.

Findings (2018-2019) - Target: Met

Fall 2018 Internship: (40/44, n=44) 90% of students achieved a score of 70 or higher. Spring 2019 Internship: (20/22, n=22) 91% of students achieved a score of 70 or higher. Summer 2019 Internship: (42/43, n=43) 98% of students achieved a score of 70 or higher.

SLO 3: Software Utilization for A/E Design

Demonstrate the ability to utilize software that is appropriate to produce A/E design and construction documents (ETAC-ABET Program Criteria for AET: Outcome B & E)

Related Measures:

M 5: Construction Document Development

M1 (direct): The ACT 336 (Construction Documents) course entails the creation of a minimum set of digital documents for the Built Environment.

Source of Evidence: Project, either individual or group

Target:

Target: 80% of students will achieve an overall score of 70 or greater.

Findings (2018-2019) - Target: Met

Construction Documents: (11/11, n=11) 100% of students achieved a score of 70 or higher.

M 6: Student Intern Feedback from Supervisor - Technology Skills

M2 (indirect): The AEC 496 Internship course will gather data from supervisor evaluations of student intern's performance. Question #3 of the Student Intern Evaluation addresses the intern's ability to utilize software/technology that is appropriate to produce or utilize A/E design and construction documents.

Source of Evidence: Employer survey, incl. perceptions of the program

Target:

Target: Employers are "satisfied" or "very satisfied" with 80% of student interns' performance.

Findings (2018-2019) - Target: Met

Fall 2018 Internship: (40/44, n=44) 90% of students achieved a score of 70 or higher. Spring 2019 Internship: (20/22, n=22) 91% of students achieved a score of 70 or higher. Summer 2019 Internship: (42/43, n=43) 98% of students achieved a score of 70 or higher.

SLO 4: Employ Architectural Design Concepts

Employ concepts of architectural design in a studio environment (ETAC-ABET Program Criteria for AET: Outcome A)

Related Measures:

M 7: Create and Present Design Solution

M1 (direct): The ACT 400 Architectural Studio III course requires students to create, utilize, and present design and construction documents at the district, site, and structure scales. The final project entails the design and documentation of a building situated in downtown Hattiesburg, MS.

Source of Evidence: Project, either individual or group

Target:

Target: 80% of students will achieve an overall score of 70 or greater.

Findings (2018-2019) - Target: Met

Studio 3: (16/17, n=17) 94% of students achieved a score of 70 or higher.

M 8: Student Intern Feedback from Supervisor - Design Knowledge

M2 (indirect): The AEC 496 Internship course will gather data from supervisor evaluations of student intern's performance. Question #6 of the Student Intern Evaluation addresses the intern's ability to employ concepts of architectural design in a studio environment.

Source of Evidence: Employer survey, incl. perceptions of the program

Target:

Target: Employers are "satisfied" or "very satisfied" with 80% of student interns' performance.

Findings (2018-2019) - Target: Met

Fall 2018 Internship: (40/44, n=44) 90% of students achieved a score of 70 or higher. Spring 2019 Internship: (20/22, n=22) 91% of students achieved a score of 70 or higher. Summer 2019 Internship: (42/43, n=43) 98% of students achieved a score of 70 or higher.

Other Outcomes/Objectives, with Any Associations and Related Measures, Targets, Findings, and Action Plans

O/O 5: PO 1: Increase Enrollment

PO 1: Increase on-campus enrollment for the ACT program.

Related Measures:**M 9: Institutional Research Data**

M1 (direct): Fall 2016 and fall 2017 enrollment data was collected from the USM Office of Institutional Research. The aim of this program objective is to increase enrollment from fall to fall semesters.

Source of Evidence: External report

Target:

Target: The target of this program objective is to increase enrollment from fall to fall semesters in the ACT program.

Findings (2018-2019) - Target: Met

The latest enrollment numbers indicate positive growth since last fall.

O/O 6: PO 2: Employer Satisfaction with Intern

PO 1: Employers are "satisfied" or "very satisfied" with student intern's overall performance.

Related Measures:**M 10: Overall Student Intern's Performance**

M1 (indirect): The AEC 496 Internship course will gather data from supervisor evaluations of student intern's performance. Question #7 of the Student Intern Evaluation addresses the overall performance of the student during the time of his or her internship.

Source of Evidence: Employer survey, incl. perceptions of the program

Target:

Target: Employers are "satisfied" or "very satisfied" with 80% of student interns' performance.

Findings (2018-2019) - Target: Met

Fall 2018 Internship: (40/44, n=44) 90% of students achieved a score of 70 or higher. Spring 2019 Internship: (20/22, n=22) 91% of students achieved a score of 70 or higher. Summer 2019 Internship: (42/43, n=43) 98% of students achieved a score of 70 or higher.

Details of Action Plans for This Cycle (by Established cycle, then alpha)

Address Estimating Findings

The Estimating II class remains a challenge for AET students, as reported in the 2019-20 findings. This semester, a School of Construction + Design Tutoring Center has been implemented to assist with Estimating II assignments. I made the recommendation to the Director to remove Estimating II from the AET curriculum and

replace the course with a portfolio development or Photoshop course from Interior Design or Graphic Design. The process of closing the loop for the ACT program has been newly established by the Director, Dr. Erich Connell, and the program Coordinator, Jessica Lee. Dr. Connell has been the Director of the School of Construction for 3 years, and Ms. Lee began her role as Coordinator during the fall 2017 semester. It is important that all courses are assessed using the Course Evaluation process outlined below; however, special attention will be dedicated to the Estimating I and Estimating II courses. A plan for remediation is part of the Course Evaluation process identified below; the remediation process for this course will be identified at the end of the fall 2018 semester because this course is currently being offered. Course Evaluation The Course Evaluation process identified below will begin this semester for the ACT program. In this proposed Course Evaluation process, courses are evaluated at the end of each fall and spring semester. The steps in the process of course evaluation and closing the loop are identified below: Courses are taught according to a cohort model; courses are only delivered during the fall OR spring. At the end of the fall or spring semester, a Course Assessment form is completed by the instructor of record for each course delivered. The Course Assessment form contains the following information: course name and identifiers, ABET criterion, assessment methodology, acceptable target and findings, recommendations / reflections, action plan, status of previous action plan. A faculty meeting is held at the end of each semester to review the results for each course. The measurements are reviewed at this meeting to determine if course changes or actions for remediation are needed. This meeting also serves the purpose of ensuring that previous action plans have been implemented and achieved based on the "status of previous action plan" from the previous year's Course Assessment form. The Director and Program Coordinator will hold a special meeting if proper adjustments have not been made to a course or assessment tool based on the instructor's self-assessment. Adjustments are made before the course is delivered again. To preemptively address this issue before the 2018-19 WEAVE cycle, all courses related to Economic Analysis and Cost Estimates have been re-evaluated during a series of dedicated faculty meetings. The findings for the past two years indicated a need to reassess the course objectives, textbook, software, and instructional methods used for Estimating I and Estimating II. The Estimating II course has been revised accordingly.

Established in Cycle: 2016-2017

Implementation Status: In-Progress

Priority: High

Relationships (Measure | Outcome/Objective):

Measure: Create an Estimate | **Outcome/Objective:** Economic Analysis and Cost Estimates

Implementation Description: This semester, a School of Construction + Design Tutoring Center has been implemented to assist with Estimating II assignments. I also made the recommendation to the Director to remove Estimating II from the AET curriculum and replace the course with a portfolio development or Photoshop course from Interior Design or Graphic Design.

Projected Completion Date: 08/29/2018

Responsible Person/Group: John Hannon (Course Instructor); Jessica Lee (Coordinator); Erich Connell (Director)

Additional Resources Requested: No needed resources are known at this time to remedy this issue; remediation is in effect this semester, fall 2019.

Analysis Questions and Analysis Answers

What specifically did your assessments show regarding any outcomes/objectives that will require continued attention?

Two-thirds of the courses required for Architectural Engineering Technology and Construction Engineering Technology programs are shared. This is an apt use of limited resources and further solidifies the ACT program's viability within the School. Findings indicate that ACT students do not perform as well in the shared courses (with the AEC prefix). A quantifiable reasoning for this issue is unknown at this time, but a contributing factor could be an increased class size for shared classes. To remedy this issue, all courses are being evaluated in both the ACT and BCT programs by the respective faculty. Further, the Estimating I and Estimating II courses, which tend to be the most problematic for ACT students, has been evaluated by the faculty and revised by the course instructor.

Annual Report Section Responses

Program Summary. Summarize highlights of the past year for this particular academic program. Provide context to an outside reviewer.

The Architectural Engineering Technology program at Southern Miss is a four-year pre-professional program grounded in the study of architecture and design. The mission of ARCH@USM is to prepare students for successful careers in the design and construction industry and to prepare students for advanced study in professional Master of Architecture programs. ARCH@USM exposes students to innovative ideas and practices found in the modern architectural industry with a focus on creative, business, technical, and communication skills necessary for a successful career in architecture and fields related to the built environment. ARCH@USM provides graduates with an excellent platform for future graduate studies or a career in architecture and related fields. Alumni of our program typically track one of two paths upon graduation, directly to graduate school or employment in architecture or related industries. We provide an educational option that presents graduates of our program with attractive options, allowing the student to make a more informed decision about their future academic or career path. Without question, the Architectural Engineering Technology (ACT) program is undergoing a shift in its identity which started four years ago. The program has been in place for over 50 years, but the last year has ushered in the most purposeful and positive transformations. The changes are most well evidenced in the new leadership and curriculum. In 2015, Academic Council approved a curricular alignment between the Construction Engineering Technology program and the ACT program; now, two-thirds of the architectural coursework is shared with the construction program. The School of Construction and supporting industry members ascertain that the construction program values and topics strengthen the architectural program and vice versa. For example, the ACT students are now required to take courses on estimating, scheduling, and construction law. These courses are typically only required for construction students, but a knowledge of these topics is invaluable for a designer of the built environment. The 2018-2019 academic year has been a time for new ideas and initiatives. Some select items have been summarized below:

- Hiring of Jayme Roybal as Administrative Specialist to assist School faculty with financial matters
- Kimber Atwell has achieved continued success as Student Advancement Administrator and has attended 11 high school / community college recruiting events, including Pathways 2 Possibilities and Pathways 2 Construction. These Pathways events featured than six thousand 8th graders from private and public schools in Mississippi. These events provided a variety of career pathway options for students to gain hands on experience in various vocational areas, such as Aerospace, Architecture and Construction, Arts, Engineering and Polymer Science, Information Technology, Public Safety, and many more. At these events, faculty and current students participated in an inventive way to bridge the gap between fun and professional practice by use of the video game Minecraft.
- Craft of Construction and Design Day: The School of Construction + Design hosted 206 prospective high school and community college students on campus
- Southern Miss Student Constructors Organization (SMSCO) Meetings - SMSCO is the most active organization in the School of Construction for both architectural and construction students. 54 students and faculty members attended the initial meeting, which was the largest in the history of the organization. An average of 30 students attended the additional 9 meetings throughout the academic year.
- SMSCO Golf Tournament - SMSCO hosted the 23rd Annual Golf Tournament at Canebrake Country Club. All proceeds benefited the Student Constructors group and the ABC competition team.
- Design Build Institute of America (DBIA) student competition participation and workshop attendance; one faculty member received DBIA Associate Certification (Fan Zhang).
- Associated Builders and Contractors student competition team participation
- Building Futures Summer Camp (MCEF + USM)
- Sigma Lambda Chi construction honor society reactivated in 2018. There were 11 students and 4 honorary members (2 faculty, 1 staff, and 1 industry professional) inducted that evening. More than 50 people attended this event.
- The Industry Advisory Council (IAC) for the Construction and Architecture programs continues to grow in number and represents the many diverse sectors of the construction industry. Our IAC Executive Committee developed revised By-Laws, hosted meetings for the IAC in the fall & spring semesters, served as mentors, industry partners, and guest speakers for faculty and courses, attended American Council for Construction Education national meetings & workshops, gave feedback on curriculum matters, provided financial support for scholarships and School needs, and offered our students internships.
- Experiential learning - study across to Chicago in spring 2019

Continuous Improvement Initiatives. Any department-level or program-level action plans for improvement that are not necessarily tied to a specific student learning outcome or program objective should be described in this field.

Continuous improvement is highly prioritized by the School of Construction + Design's leadership. Opportunities for continuous improvement include the following: Students have the opportunity to provide course evaluations each semester. Annual faculty reviews consider these student responses for teaching effectiveness. The Senior Exit Survey is given each spring semester and utilized to measure student satisfaction and effectiveness of our teaching strategies. Responses are quantified on whether or not the student feels as though he or she acquired an acceptable education prior to graduation. The Industry Advisory Council has been reinvigorated over the past two years. A primary mission for the Industry Advisory Council is to provide feedback on curriculum and related issues. Two meetings are held each year during the fall and spring semesters, respectively. The industry advisory council membership has been revised to include both AET and CET programs. An Executive Committee was approved in the fall 2018 meeting. Also, all courses within the CET and AET programs will be reviewed on a three-year cycle, with no less than 4-courses reviewed at the end of each semester for quality improvement and assessment. Continuous improvement has been required by accreditation, specifically related to hands-on testing of the construction labs. The School implemented lab content using National Center for Construction Education and Research (NCCER) modules that align with the learning objectives of each of the four lab courses.

Closing the Loop. Summarize the results of previous action plan implementation. Provide evidence of improvement based on analysis of the results.

The process of closing the loop for the ACT program has been newly established by the Director, Dr. Erich Connell, and the program Coordinator, Jessica Lee. Dr. Connell has been the Director of the School of Construction for 4 years, and Ms. Lee began her role as Coordinator during the fall 2017 semester. Leffi Cewe-Malloy will be the architecture Program Coordinator beginning in fall 2019. The Course Evaluation process requires courses to be evaluated at the end of each semester. The steps in the process of course evaluation and closing the loop are identified below: Courses are taught according to a cohort model; courses are only delivered during the fall or spring. At the end of the fall or spring semester, a Course Assessment form is completed by the instructor of record for each course delivered. The Course Assessment form contains the following information: course name and identifiers, accreditation criterion, assessment methodology, acceptable target and findings, recommendations / reflections, action plan, and status of previous action plan (if applicable). A faculty meeting is held at the end of each semester to review the results for each course. The measurements are reviewed at this meeting to determine if course changes or actions for remediation are needed. This meeting also serves the purpose of ensuring that previous action plans have been implemented and achieved based on the "status of previous action plan" from the previous year's Course Assessment form. The Director and Program Coordinator will hold a special meeting if proper adjustments have not been made to a course or assessment tool based on the instructor's self-assessment. Adjustments are made before the course is delivered again. School Evaluation occurs annually during the summer as a faculty retreat where action plans are identified to make improvements at the School level. Industry Member Evaluation Evaluation of the ACT program occurs at the Industry Advisory Council meetings during the fall and spring semesters. All courses within ACT program will be reviewed on a three-year cycle, with no less than 4-courses reviewed at the end of each semester for quality improvement and assessment.

GEC Writing Requirement. In this field, give a brief summary of how the course meets the 2500 word writing assignment. For example, explain if this takes place in a series of lab reports with each report including a minimum of X number of words or if the writing requirement is met through 3 short papers of X words each based on reviews of concerts, etc.

The ENG 333 Technical Writing is the writing intensive course for the ACT program. The course requires students to be a junior or have completed twelve hours in student's major field. The Technical Writing course requires students to author a document of at least 5,000 words which is organized coherently, grammatically correct, and cited. The topic of the paper is related to the ACT major, design and construction of the built environment.