Program Review Report
3.7 Academic Program Review

A thorough internal or external program review addressing all criteria in policy should be possible within a comprehensive report of ten or fewer pages. This template is provided to assist institutions in compiling the program review information, which is to be presented to the institutional governing board prior to submission to the State Regents.

Institution Name: Seminole State College

Program Name and State Regents Code: Computer Science Associates in Science (226)

List Program Options:
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List Embedded Certificates included in this review:
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Previous Review

Date (Year) of Last Review 2018

1. Summarize key findings from previous internal and/or external reviews of this program.

    Analysis of degree program productivity revealed that the degree program averaged 28 declared majors and 5 graduates per year, which generated 12,525 total credit hours per year over the five-year period under review. Course embedded assessment of degree program outcomes showed an increase from 57-88% when pre-test and post-test scores were compared. The CAAP test scores reflect student learning outcomes in line with the national averages. Faculty in the STEM division saw a need to develop a plan to increase student and faculty awareness of articulation agreements. They also identified a need to choose and follow a specific degree program rather than choosing Liberal Studies.

2. What developments and actions have taken place since the last review?

    The STEM division has worked to align the engineering, physics, computer science, and mathematics courses to prevent overlap in scheduling for required coursework. Since the last review period, our campus initiative has been focused on Math Pathways, which attempts to funnel students into math courses based on majors. This initiative, combined with corequisite remediation efforts in the math courses, has shrank the number of students enrolled in Pre-Calculus for Engineering, Computer Science and Physics (traditionally College Algebra) into a cohort group focused on the same courses allowing more meaningful peer to peer groups to develop organically. Data from the Educational Testing Service (ETS) compares our students' general education to other two-year institutions across the nation. The SSC scores show our student score averages are very closely matched with scores across the nation, but national scores and SSC scores for Critical Thinking are low. This is of concern and will need to be addressed. Since the last review, Computer Science has been added as an online degree option and many of the courses have changed to an online or hybrid modality instead of solely face-to-face. A computer lab has been renovated as part of the

previous NASNTI grant to upgrade the desktops to I-7. A new NASNTI grant, starting October 1, 2021, focuses on the regeneration of the Computer Science degree program to include security, programming and esports emphases by September 30, 2026. There is a also a new full-time Computer Science faculty member serving as the degree program mentor.

Current Review

Date (Year) of Current Review 2023

Review Criteria *(Institutions should address each criterion of OSRHE policy 3.7.5 as directed below).*

A. Vitality of the Program:

Outcome 1: Demonstrate successful articulation of Seminole State College transfer degree programs to state baccalaureate institutions of higher learning in Oklahoma.

Measurable Indicators
a. Signed 2+2 articulation agreements between SSC and state baccalaureate institutions of higher learning in Oklahoma, especially those institutions which are primary recipients of SSC transfer degree program graduates.
b. Inclusion of required degree program courses on the Oklahoma State Regents for Higher Education annual Course Equivalency Matrix.

Outcome 2: Demonstrate successful academic achievement by Seminole State College transfer degree students at primary receiving state baccalaureate institutions of higher learning in Oklahoma. Successful academic achievement is defined as the maintenance of satisfactory academic progress toward degree completion as determined by the receiving institution.

Measurable Indicators
a. Transfer data on SSC transfer degree program graduates from primary receiving state baccalaureate institutions of higher learning in Oklahoma.
b. Graduate Opinion Survey data self-reporting demonstration of successful academic achievement at primary receiving state baccalaureate institutions of higher learning in Oklahoma as available
c. Retention reports on SSC transfer program graduates regarding primary receiving state baccalaureate institutions of higher learning in Oklahoma as available.
d. Graduation reports on SSC transfer program graduates regarding primary receiving state baccalaureate institutions of higher learning in Oklahoma as available.

Outcomes Specific to Associate in Science in Computer Science (226)

Outcome 3: Demonstrate problem-solving skills related to the world of information systems.

Measurable Indicators
Assessment data demonstrating students' ability to:

a. Analyze a problem or case
b. Identify steps necessary for problem solving,
c. Apply the steps identified for solution,
d. Validate the results,
e. Report the results in an understandable and timely manner

Outcome 4: Demonstrate preparation for continued pursuit of courses leading to a baccalaureate degree in Information Systems.

Measurable Indicators
Assessment data demonstrating students' ability to:
a. Interpret and manipulate data,
b. Use appropriate technology to assist with problem-solving,
c. Apply critical thinking to real-world scenarios.

A.1. Quality Indicators (including Higher Learning Commission criteria and requirements): The SSC Computer Science Associates in Science Degree Program (214) fulfills Higher Learning Commission Criterion 3 & Criterion 4 by providing evidence of student learning, faculty engagement encouraging quality teaching practices, and effective assessment of the student learning process. Faculty in the Science Technology Engineering and Mathematics (STEM) division consistently review assessment tools and methods, and revise those tools and methods, when necessary, to provide the most accurate assessment data possible. To measure the four outcomes specific to the Computer Science Associates in Science Degree Program course embedded assessment is the foremost method. In the STEM division, instructors use pre/posttests as the tools to obtain assessment data. Faculty members regularly review and change pre/posttest questions when necessary. As a result, faculty have rewritten, replaced, or deleted some of the existing questions. Faculty calculate pre/posttest score improvements for every class every semester. Although pre/posttest assessments only focus on a specific course's learning objectives, an examination of all STEM courses shows improvement, which verifies student learning is taking place and that the outcomes specific to the Computer Science Associates in Science Degree Program are being met. Table 1 below shows FY2022-2023 Combined Course Embedded Assessment Results for the Computer Science Associates in Science Degree Program. While the General Education Outcome 1 Percentage Increase is at the minimum threshold established by the SSC Assessment of Student Learning Committee, the Posttest score is well above the 60% minimum (that would require establishing a progress evaluation and initialize an internal review process).

Table 1. Combined Course Embedded Assessment Results for FY2022-2023 for Computer Science Associates in Science			
Outcomes	Pre-Test % Correct	Post-Test % Correct	Percentage Increase
General Education Outcome 1	54%	70%	16%
General Education Outcome 2	39%	87%	47%
General Education Outcome 3	62%	80%	17%
General Education Outcome 4	43%	96%	52%
Program Outcome 3	44%	88%	45%
Program Outcome 4	21%	90%	72%

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A.2.   Minimum Productivity Indicators:

Time Frame (e.g.: 5-year span)	Enrollment	Graduates
FY2017-2018	36	4
FY2018-2019	36	9
FY2019-2020	32	7
FY2020-2021	25	9
FY2021-2022	28	6

A.3.   Other Quantitative Measures:

a.4.a.   Number and enrollment of courses taught exclusively for the major for each of the last five years:
List or attach list of courses
Computer Logic – Flowcharting (44 students)
Elementary Computer Literacy (19 students)
Ethics in Information Technology (16 students)
Information Security (69 students)
Operating Systems (19 students)
Programming C++ I (91 students)
Programming C++ II (44 students)
Script Programming (27 students)
Web Page Design in HTML (34 students)

a.4.b.   Student credit hours by course level (i.e. 1000, 2000) generated in all major courses in the degree program for five years:

124 courses were taught generating 4640 Earned Credit hours (having 5452 attempted hours). Enrollment in these 124 courses was 1680 for the review period.

a.4.c.   Direct instructional costs for the program during the review period:

No direct data were available that could be used to determine the exact amount of the instructional cost for any of the math and science degree programs. The annual SSC budget report provided the total expenditures for the science department as shown in Table 4. The annual science department budget contains the instructional costs for four of the S.T.E.M. division degree programs. State allocated STEM allocations have been made available uniquely since 2020 but have also been utilized through the Health Science division. Some costs of the Computer Science degree program have been supported through the NASNTI 5-year grant that began October 1, 2021.

Table 4

Academic Year	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023
Instructional Cost	$329.897.05	$562, 778	$906,012	$903,307	$1,088,265

4

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a.4.d. The number of credits and credit hours generated in the program that support the general education component and other degree programs including certificates:

CS2013 Programming in C++ (3 hour credit course) generated 210 Earned Credit hours (273 attempted credit hours) for the period in review.

a.4.e. If available, information about employment or advanced studies of graduates of the program over the past five years:

No data has been collected.

a.4.f. If available, information about the success of students from this program who transferred to other institutions:

Seminole State currently does not have a mechanism to track transfer students by degree, but Table 2 below describes the transfer data from all graduates to the following four institutions of higher education.

Table 2. 2022-2023 Transfer Reports from Four-Year Institutions								
Four Year Institution	Number of Former SSC Students Enrolled	Credit Hours Completed	Credit Hours Attempted	Course Completion Rate	Aggregated GPA of Former SSC Students	Aggregated Student Body GPA	Difference	Bachelor's Degrees Awarded
East Central University	360	7483	8068	92.75%	3.13	3.02	0.11	55
Oklahoma State University	249	*	*	*	3.22	3.21	0.01	56
University of Oklahoma	147	2935	3043	96.45%	3.23	**	**	29
University of Central Oklahoma	235	3711	4278	86.75%	3.04	3.03	0.01	48
Totals	991	14129	15389	91.8%				188

*Data from OSU not reported in the correct format.
**Data from OU did not provide aggregated student body data, but Summer difference +0.13, Fall difference -0.11, and Spring difference -0.04.

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Recommendation(s)

A. **Recommendation for the Program (3.7.7.A.4):**
☐ Maintain the program at the current level.
☐ Continue the program with modifications as noted below and detailed in the comment section below.
    ☒ Expand the program
    ☐ Reduce program in size or scope
    ☐ Merge or consolidate program
    ☐ Reorganize program/curricular modifications*
☐ Suspend program to allow an opportunity to consider recommendations detailed in the section below*
☐ Delete program*

Requires a Request for Degree Program Modification and governing board approval.

B. **Specific comments regarding recommendations:**
(Provide detailed recommendations for the program as a result of this thorough review and how these recommendations will be implemented, as well as the timeline for key elements. Recommendations to suspend or modify the program should include measurable goals and a timeline for monitoring the program in one-, two-, three-, or four-year increments)
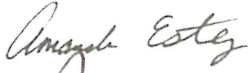
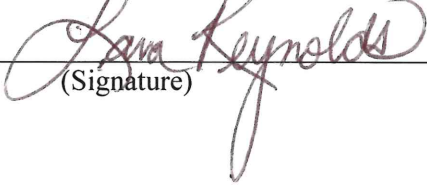| Recommendations	Implementation Plan	Target Date
Expand the program based on offerings being developed under the umbrella of the NSANTI grant.	Content experts are being hired to develop new courses as outlined in the grant. The grant provides for a Computer Specialist to oversee hiring, course development, course offerings, and course enrollments. We plan to offer an emphasis in E-Sports Security, and Programming.	9/30/2026
Reconcile course delivery formats to maximize enrollment while also providing students with practical options.	Convert the more involved CS face-to-face courses to hybrid courses. Use videos from the face-to-face portions to augment online offerings. Where possible, offer only online versions of courses.	8/18/2025
Consider offering a machine learning track/emphasis.	Complete a feasibility study by May 2025. Future steps will be determined by the outcome of the study.	5/8/2025

Add additional rows as necessary

Department/

Program Head   *Emily Carpenter*   Date: **10/5/2023**
          (Signature)

Chief Academic Officer _____ Date: **10/9/2023**
        (Signature)

President _____ Date: **10/26/2023**
      (Signature)

7