COMPUTER STUDIES

Summary of Program Review:

A. Major Findings

1. Strengths:

The program shows strong potential for growth and operates efficiently, as evidenced by increased enrollment and alignment with labor market needs.

2. Areas for Improvement:

A dedicated on-campus instructor would likely improve retention and success rates, addressing a gap in instructional delivery.

3. Projected Program Growth, Stability, or Viability:

The program is projected to continue its growth trajectory, if supported by strategic curriculum enhancements and increased instructional capacity.

B. Program's Support of Institutional Mission and Goals

1. Description of Alignment between Program and Institutional Mission:

The Computer Studies program aligns closely with Napa Valley College's institutional mission by fostering an inclusive and equitable educational environment. By offering a curriculum that meets current industry standards and focuses on emerging technological fields such as AI and data analytics, the program supports the college's goal of preparing students for successful careers in high-demand areas. The program also contributes to the community by equipping students with technical skills that meet regional labor market needs, thereby enhancing students' employability and economic mobility.

2. Assessment of Program's Recent Contributions to Institutional Mission:

Recently, the Computer Studies program has made significant strides in contributing to the institutional mission by increasing student enrollment and success rates, especially among underrepresented groups. The introduction of new courses and degree offerings, such as the AS-T in Computer Science, reflects the program's commitment to expanding educational opportunities. Additionally, the program's efforts to align with labor market demands and provide pathways for student transfer to four-year institutions support the college's overarching objectives of student success and community engagement.

3. Recent Program Activities Promoting the Goals of the Institutional Strategic Plan and Other Institutional Plans/Initiatives:

The development of the Computer Science ADT, the pursuing of new course offerings in high demand areas and the push to offer more on campus support in the form of a full-time instructor are examples of Computer Studies' activities in recent years. These efforts align with the college's strategic directions to increase retention, persistence, and successful transfer rates, as outlined in the Educational Master Plan.

C. New Objectives/Goals:

The Computer Studies program is setting ambitious objectives to further enhance its offerings and align with institutional priorities. One of the primary goals is to increase in-person and synchronous instruction, recognizing that such modalities can significantly boost student

engagement, retention, and success. This aligns with the college's strategic goal of improving persistence rates and reducing barriers to student success.

Additionally, the program aims to work with dual enrollment initiatives, inviting high school students to embark on its education pathways early. This objective supports the Strategic Enrollment Management (SEM) goals by increasing the number of students matriculating into certificates and degrees, thereby fostering a pipeline of future students who are well-prepared for advanced studies in computer science.

The program also plans to develop targeted recruitment strategies to attract groups underrepresented in computer science fields. By removing barriers and enhancing support structures, the program seeks to increase enrollment and participation in learning communities, aligning with equity and access goals outlined in the Educational Master Plan.

D. Description of Process Used to Ensure “Inclusive Program Review”

The program data was analyzed by the coordinator and the results shared with the department through email. Feedback was solicited and then aggregated and sent to the Dean.

Program Review Report Fall 2024

This report covers the following program, degrees, certificates, area(s) of study, and courses (based on the Taxonomy of Programs on file with the Office of Academic Affairs):

Program	**Computer Studies**
Degrees/Certificates	Computer Science: AS-T
Courses	COMS 101 (p. CISA 101)
	COMS 115
	COMS 120
	COMS 161 (p. COMS/CISA 160)
	COMS 165 (p. CISA 165)
	COMS 190
	COMS 215
	COMS 216
	COMS 217
	COMS 218
	BUSN 870
	BUSNC 600
	BUSNC 601
	BUSNC 605
	BUSNC 610
	BUSNC 615
	BUSNC 620
	BUSNC 625
	BUSNC 630

Taxonomy of Programs, July 2022

I. PROGRAM DATA

A. Demand

1. Headcount and Enrollment

	2021-2022	2022-2023	2023-2024	Change over 3-Year Period
Headcount				
Within the Program	**347**	**357**	**373**	**7.5%**
Across the Institution	**6,653**	**6,161**	**6,473**	**-2.7%**
Enrollment				
COMS-101	174	154	143	-17.8%
COMS-120	70	59	59	-15.7%
COMS-165	87	125	134	54.0%
COMS-215	57	70	56	-1.8%
COMS-216	32	12	27	-15.6%
COMS-217	16	26	30	87.5%
COMS-218	10	12	16	60.0%
Within the Program	**446**	**458**	**465**	**4.3%**
Across the Institution	**25,216**	**23,488**	**24,913**	**-1.2%**
Source: SQL Queries for Fall 2024 Program Review				

RPIE Analysis: The number of students enrolled (headcount) in the Computer Studies Program increased by 7.5% over the past three years, while headcount across the institution decreased by 2.7%. Enrollment within the Computer Studies Program increased by 4.3%, while enrollment across the institution decreased by 1.2% over the same period.

Enrollment in the following courses changed by more than 10% (±10%) between 2021-2022 and 2023-2024:

Courses with enrollment increases:

- *COMS-217 (87.5%)*
- *COMS-218 (60.0%)*
- *COMS-165 (54.0%)*

Courses with enrollment decreases:

- *COMS-101 (-17.8%)*
- *COMS-120 (-15.7%)*
- *COMS-216 (-15.6%)*

The remaining courses reported in the Taxonomy of Programs for Computer Studies (COMS-115, 160/161, 190, and all noncredit courses) did not have any enrollments between 2021-2022 and 2023-2024.

Program Reflection:

We concur with these findings. The Computer Science program, though still in its early stages, has shown growth and growing interest despite not having a full time in-person teacher for the higher courses. These findings are very encouraging.
Despite these successes, enrollment challenges remain in specific courses, such as COMS-101 and COMS-120, which have seen declines. These trends suggest an opportunity to reassess and enhance course content and delivery

methods to better meet student needs and preferences. The data also highlight the importance of continuous alignment with industry standards and the integration of real-world applications to maintain student engagement and relevance.

2. Average Class Size

	2021-2022		2022-2023		2023-2024		Three-Year	
	Sections	**Average Size**	**Sections**	**Average Size**	**Sections**	**Average Size**	**Average Section Size**	**Trend**
COMS-101	6	29.0	6	25.7	5	28.6	27.7	-1.4%
COMS-120	3	23.3	2	29.5	2	29.5	26.9	26.4%
COMS-165	3	29.0	4	31.3	5	26.8	28.8	-7.6%
COMS-215	2	28.5	3	23.3	2	28.0	26.1	-1.8%
COMS-216	2	16.0	1	12.0	1	27.0	17.8	68.8%
COMS-217	1	16.0	1	26.0	1	30.0	24.0	87.5%
COMS-218	1	10.0	1	12.0	1	16.0	12.7	60.0%
Program Average*	**18**	**24.8**	**18**	**25.4**	**17**	**27.4**	**25.8**	**10.4%**
Institutional Average*	**1,048**	**24.1**	**954**	**24.6**	**986**	**25.3**	**24.6**	**5.0%**

Sources: SQL Queries for Fall 2024 Program Review for enrollment data and number of section offerings; Concurrent Section Reports to identify concurrent/cross-listed sections

Average Section Size across the three-year period for courses, and both within academic years and across the three-year period for the program and institutional levels is calculated as:

$$\frac{\text{Total \# Enrollments}}{\text{Total \# Sections}}.$$

It is not the average of the three annual averages.

RPIE Analysis: Over the past three years, the Computer Studies Program has claimed an average of 25.8 students per section. The average class size in the program is higher than the average class size of 24.6 students per section across the institution during this period. Average class size in the program increased by 10.4% between 2021-2022 and 2023-2024. Average class size at the institutional level increased by 5.0% over the same period.

Average class size in the following courses changed by more than 10% (±10%) between 2021-2022 and 2023-2024:

Courses with increases in average class size:

- *COMS-217 (87.5%)*
- *COMS-216 (68.8%)*
- *COMS-218 (60.0%)*
- *COMS-120 (26.4%)*

No Computer Studies courses experienced a decrease in average class size of at least 10% over the past three years.

Program Reflection:

We added COMS 218 to Fall rotation, which provides a small bump in class size, as well as adding an adjunct who teaches our upper-division classes remotely Therefore the increase in average class size is expected since we strengthened and expanded offerings while enjoying a 7.5% increase in enrollment.

3. Fill Rate and Productivity

Fill Rate			
	Enrollments	**Capacity**	**Fill Rate**
2021-2022	446	550	81.1%
2022-2023	458	550	83.3%
2023-2024	465	520	89.4%
Three-Year Program Total	**1,369**	**1,620**	**84.5%**
Productivity			
	FTES	**FTEF**	**Productivity**
2021-2022	48.6	4.5	10.8
2022-2023	50.6	4.7	10.8
2023-2024	50.9	4.6	11.1
Three-Year Program Total	**150.1**	**13.8**	**10.9**
Sources: SQL Queries for Fall 2024 Program Review; SQL Server Reporting Services – Term to Term Enrollment FTES Load Comparison Report (by Credit Course)			

RPIE Analysis: Between 2021-2022 and 2023-2024, the fill rate within the Computer Studies Program ranged from 81.1% to 89.4%. [The fill rate has not been calculated at the institutional level.] The program-level rate across the three-year period was 84.5%. Between 2021-2022 and 2022-2023, enrollment increased while capacity remained constant, resulting in an increase in fill rate. Between 2022-2023 and 2023-2024, enrollment increased and capacity decreased, resulting in an increase in fill rate.

Productivity within the Computer Studies Program was relatively stable over the three-year period, ranging from 10.8 to 11.1. [Productivity has not been calculated at the institutional level.] The three-year productivity of 10.9 is lower than the target level of 17.5, which reflects 1 FTEF (full-time equivalent faculty) accounting for 17.5 FTES (full-time equivalent students) across the academic year. (This target reflects 525 weekly student contact hours for one full-time student across the academic year.)

Program Reflection:

The program fill rates have increased over the three-year period, while the FTEF has remained constant, resulting in slight increases in productivity. Historically, the program has been hindered due to branding and capability – being more focused on job-ready office skills than modern computer technical or academic skills. Recently, within the last year, we have sought to rectify these detractions by adding modern courses that align more with Computer Science. We have made some staffing changes, and we also changed the name to reflect the new offerings. The Computer Science program is expected to increase enrollment with these new offerings which will get us closer to the target level of productivity. As it stands, the Computer Science program has only recently acquired the capacity to address this issue.

4. Labor Market Demand

Economic Development Department Standard Occupational Classification	Numeric Change in Employment	Projected Growth (% Change in Positions; 2020 Base	Projected Number of Positions

Description Codes: 11-3021, 15-1231, 15-1232, 15-1242, 15-1251, and 15-1299	(Baseline Year to Projected Year)	Employment vs. 2030 Projected Employment)	(Total Job Openings)
Napa County (2020-2030)	60	14.3%	390
Bay Area[A] (2020-2030)	22,280	17.6%	121,390
California (2020-2030)	27,800	8.9%	233,310
Source: Economic Development Department Labor Market Information, Long Term Projections (Ten Years), Occupational Projections (http://www.labormarketinfo.edd.ca.gov) *[A]Bay Area counties include: Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma. Figures also include San Benito County (reported with projections for Santa Clara County).*			

RPIE Analysis: The figures reported in the table above pertain to the Standard Occupational Classification for the following positions:

- *Computer and Information Systems Managers (11-3021)*
- *Computer Network Support Specialists (15-1231)*
- *Computer User Support Specialists (15-1232)*
- *Database Administrators (15-1242)*
- *Computer Programmers (15-1251)*
- *Computer Occupations, All Other (15-1299)*

The Economic Development Department projects that the number of positions within Napa County will increase by 14.3% (60 positions) between 2020 and 2030. The increase in Napa County exceeds the increase of 8.9% anticipated across the state. The number of positions in the Bay Area (not including Napa County) is expected to increase by 17.6% (22,280 positions) between 2020 and 2030.

Program Reflection:

We have responded to the trend and increased our course offering and provided new emphasis in the form of an Information Technology Certificate, of which the final course was approved through the Curriculum process last month.

B. Momentum

1. Retention and Successful Course Completion Rates

	Retention Rates (Across Three Years)			Successful Course Completion Rates (Across Three Years)		
Course	**Rate**	**Course Rate vs. Program Rate**		**Rate**	**Course Rate vs. Program Rate**	
		Above	**Below**		**Above**	**Below**
COMS-101	92.9%	***X***		75.6%	X	
COMS-120	88.8%	--	--	73.8%	X	
COMS-165	83.8%		***X***	71.1%		X
COMS-215	88.9%	--	--	65.6%		***X***
COMS-216	87.1%		X	70.0%		X
COMS-217	88.9%	--	--	75.0%	X	
COMS-218	89.5%	--	--	78.9%	X	
Program Level	**88.9%**			72.6%		

Institutional Level	90.9%	73.2%

Source: SQL Queries for Fall 2024 Program Review
-- Indicates a value that is within 1% of the program-level rate.
Bold italics denote a statistically significant difference between the course-level rate and the program-level rate.
Bold denotes a statistically significant difference between the program-level rate and the institutional rate. The lower of the two rates is highlighted in bold.
Note: Grades of EW (Excused Withdrawal) for spring 2020 and beyond are not included in the calculations of the three-year retention and successful course completion rates reported above. This approach reflects the standard recommended research practice of not including EWs in either the numerator or the denominator for these rates.

RPIE Analysis: Over the past three years, the retention rate for the Computer Studies Program was significantly lower than the retention rate at the institutional level. The retention rate for COMS-165 was significantly lower than the program-level rate. The retention rate for COMS-101 was significantly higher than the program-level rate. The retention rate for the Computer Studies Program falls within the first quartile (Q1) among program-level retention rates (across 60 instructional programs, over the past three years). The retention rate for Computer Studies is among the lowest 25% of retention rates among NVC programs.

Over the past three years, the successful course completion rate for the Computer Studies Program reflected the rate at the institutional level. The successful course completion rate for COMS-215 was significantly lower than the program-level rate. The successful course completion rate for Computer Studies falls within the second quartile (Q2) among program-level successful course completion rates (across 60 instructional programs, over the past three years). The successful course completion rate for Computer Studies is among the lowest 50% of successful course completion rates among NVC programs.

Over the past three years, the difference between retention and successful course completion at the program level (16.3%) was lower than the difference at the institutional level (17.7%). (The difference was not statistically significant.) This figure represents the proportion of non-passing grades assigned to students at the end of the semester (i.e., grades of D, F, I, NP).

The following Computer Studies courses claimed a difference (between retention and successful course completion) that exceeded the 16.3% difference at the program level:

- *COMS-215 (23.3%)*
- *COMS-101 (17.3%)*
- *COMS-216 (17.1%)*

Program Reflection:

The retention and successful course completion rates within the Computer Studies program highlight areas of both achievement and opportunity for growth. Over the past three years, the program's retention rate has been slightly below the institutional average, indicating a need for targeted interventions to enhance student engagement and persistence. However, our successful course completion rates have generally aligned with institutional levels, demonstrating that once students remain enrolled, they tend to succeed in their coursework.

Key strategies to improve retention include increasing access to in-person and synchronous learning opportunities, which research suggests can enhance student engagement and success. Additionally, the program is committed to expanding support services, such as tutoring and mentorship programs, and a strong relationship with the campus MESA program to provide students with the resources they need to overcome academic challenges.

2. Student Equity

	Retention Rates (Across Three Years)		Successful Course Completion Rates (Across Three Years)	
	Program Level	**Institution Level**	**Program Level**	**Institution Level**
Unknown Gender			66.7%	69.3%
19 or Younger			68.5%	71.1%
African American/Black			61.7%	68.2%
Latinx/Hispanic			72.3%	69.4%
First-Generation			73.2%	69.4%
Not Disabled			72.4%	73.0%
Non-Veteran	***89.0%***	90.9%		

Source: SQL Queries for Fall 2024 Program Review

Bold italics denote a statistically significant difference between rates at the program and institutional levels, with the lower of the two rates in ***bold italics***.

*Data suppressed due to low N (<10 students in cohort).

Notes:

Grades of EW (Excused Withdrawal) for spring 2020 and beyond are not included in the calculations of the three-year retention and successful course completion rates reported above. This approach reflects the standard recommended research practice of not including EWs in either the numerator or the denominator for these rates.

The age groupings are based on the student's age of August 15 of each academic year.

The shaded cells in the table do not have data reported because evidence of disproportionate impact was not found at the institutional level (for those demographic group – metric combinations).

RPIE Analysis: This analysis of student equity focuses on the seven demographic groups with significantly lower retention and/or successful course completion rates found at the institutional level (vs. the corresponding rates among all other demographic groups, combined) over the past three years. Tests of statistical significance were conducted to compare program-level and institution-level rates among the seven groups listed above.

Within the Computer Studies Program, the retention rate among non-veterans was significantly lower than the rate at the institutional level.

Within the Computer Studies Program, there were not any statistically significant differences between successful course completion rates of demographic groups at the program level vs. the institutional level.

These finding regarding equity reflect the findings that emerged from the comparison of retention and successful course completion at the program vs. institutional level, where the program-level retention rate was significantly lower than the institution-level rate and the program-level successful course completion rate reflected the institution-level rate. (See Section I.B.1 above.)

Program Reflection:

The COMS program seeks to prepare students for careers in technical and computer-related roles. We also offer preparation for academic computer science. These roles are well known to be attractive to people joining the workforce such as veterans, first generation students, and Latinx students. We are not surprised about the findings, and we celebrate that our rates are in line with the institution. The difference in non-veteran retention between 89% vs 90% may be statistically significant, but is likely not practically important.

3. Retention and Successful Course Completion Rates by Delivery Mode (of Courses Taught through Multiple Delivery Modes, i.e., In-Person, Hybrid, and Online)

	Retention Rates (Across Three Years)			Successful Course Completion Rates (Across Three Years)		
	In-Person	Online	Hybrid	In-Person	Online	Hybrid
Online vs. Hybrid						
COMS-101		89.2%	91.7%		80.7%	***68.3%***

Source: SQL Queries for Fall 2024 Program Review
This table compares student performance in courses offered through multiple delivery modes within the same academic year.
Bold italics denote a significantly lower rate within that delivery mode.

<u>RPIE Analysis</u>: Over the past three years, one course within the Computer Studies Program was offered through multiple delivery modes within the same academic year. In 2023-2024, COMS-101 was offered through online and hybrid formats. This analysis focuses on program-level rates. Since COMS-101 was the only course to be offered through multiple delivery modes, the program-level rates are the same as the rates for COMS-101.

Within the Computer Studies Program:

- *The retention rate in online sections was lower than the retention rate in hybrid sections. (The difference was not statistically significant.)*
- *The successful course completion rate in hybrid sections was significantly lower than the successful course completion rate in online sections.*

Program Reflection:

The department suspects that if the data were disaggregated over the three years we would see a marked increase in retention and successful completion last year over the previous two. We added a part time teacher last fall. Many students in that course required additional preparation to compensate for the lack of a dedicated teacher for COMS 215. To that end, in the opinion of the department, the class should be offered in a face-to-face or zoom synchronous modality and so we have petitioned for a full-time position to have an on-campus instructor.

COMS-165 over the last three years was above 70% for Retention and Success Course Completion. There were some changes made in the course in terms of more challenging homework assignments being used. Moving forward, more effort will be put into reviewing difficulty level and resources being available to students. We hope that this helps to bring the data closer to the Institutional Level expectations.

C. Student Achievement

1. Program Completion

	2021-2022	2022-2023	2023-2024
Degrees	**5**	**2**	**9**
AS Degrees (Computer Studies)	1	--	--
AS-T Degrees (Computer Science)	4	2	9
Certificates of Achievement (Microcomputer Applications Specialist & Management Information Systems)	**2**	**--**	**--**
Institutional: AS Degrees	**306**	**287**	**227**
Institutional: AS-T Degrees	**110**	**111**	**122**
Institutional: Certificates of Achievement	**409**	**384**	**341**
Source: SQL Queries for Fall 2024 Program Review			

RPIE Analysis: The Computer Studies Program conferred 16 degrees between 2021-2022 and 2023-2024. The Computer Studies Program accounted for 1.4% of AS and AS-T degrees conferred by NVC across the three-year period (with 0.1% of AS degrees and 4.4% of AS-T degrees). Between 2021-2022 and 2023-2024, the number of degrees conferred by the program increased by 80%. During the same period, the number of AS and AS-T degrees awarded by NVC decreased by 16.1%.

The Computer Studies Program conferred 2 certificates in 2021-2022, which accounted for 0.5% of certificates awarded by NVC that year.

Program Reflection:

We are very surprised the number is so low. We expect the data to not be representative of the strength of our program and perhaps to be missing entries. Computer Science and related studies are one of the most popular majors among our MESA/STEM students.
That said, the program is still in its early stages, and the fact that we have already had degree completions is a testament to the potential that offering Computer Science courses provides to the institution. The program has been gaining momentum in the last three years and we celebrate our successful completions.

2. Program-Set Standards: Job Placement and Licensure Exam Pass Rates

Measure	Program-Set Standard* (& Stretch Goal)	Recent Performance			
		Year 1	Year 2	Year 3	Three-Year Total
Job Placement Rate	60% (75%)	Not reported due to small N (< 10 in each cohort)			66.7%
Licensure Exam Pass Rate	Licensure exams are not required for this program.				
Source: Perkins IV Core 4 Employment data for Program (2-Digit TOP Code: 07 Information Technology) for job placement rates (https://misweb.cccco.edu/perkins/Core_Indicator_Reports/Summ_CoreIndi_TOPCode.aspx).					

<u>RPIE Analysis</u>: The job placement rate among Computer Studies students was 66.7% over the past three years. This rate exceeds the program-set standard. [Job placement rates for individual years are not reported due to the small number of students in recent Computer Studies cohorts.]

Program Reflection:

This is remarkable! The job market for after-college computer science students is very competitive. Sometimes resulting in multiple tens or hundreds of applications being sent out, multiple interview cycles and rejections. Over the last three years it has been increasingly difficult to 'land' an entry-level job in tech. The fact that our program has seen 66% job placement with only 18 degrees conferred is a sign of two things: 1) we are doing things right and fulfilling our mission to prepare students for careers in technical fields. 2) there is clear demand for students having the skillset we equip them with.

II. CURRICULUM

A. Courses

Subject	Course Number	Date of Last Review & Approval by the Curriculum Committee *(Courses with last review dates of six years or more must be scheduled for immediate review)*	Has Prerequisite/ Corequisite* *Yes/No* (Include Date of Last Review)	In Need of Revision *Indicate Non-Substantive (NS) or Substantive (S)* (Include Anticipated Academic Year)	To Be Archived *(as Obsolete, Outdated, or Irrelevant)* (Include Anticipated Academic Year)	No Change
COMS	101	05/10/2018 BOT	No			X
COMS	115	1/29/2021	No			X
COMS	120	10/16/2020	No			X
COMS	161	3/19/2021	No			X
COMS	165	3/4/2022	No			X
COMS	190	1/29/2021	No			X
COMS	215	4/3/2020	No			X
COMS	216	3/4/2022	Yes			X
COMS	217	3/6/2020	No			X
COMS	218	1/29/2021	Yes			X
BUSN	870	5/30/2021 archived	Archived	Archived	Archived	X
BUSNC	600	3/10/2022 archived	Archived	Archived	Archived	X
BUSNC	601	3/10/2022 archived	Archived	Archived	Archived	X
BUSNC	605	3/10/2022 archived	Archived	Archived	Archived	X
BUSNC	610	To Be Archived	To Be Archived	To Be Archived	25-26	X
BUSNC	615	To Be Archived	To Be Archived	To Be Archived	25-26	X
BUSNC	620	To Be Archived	To Be Archived	To Be Archived	25-26	X
BUSNC	625	To Be Archived	To Be Archived	To Be Archived	25-26	X
BUSNC	630	To Be Archived	To Be Archived	To Be Archived	25-26	X

*Note: Prerequisites need to be validated (in subsequent process) through the Curriculum Committee.

Program Reflection:

COMS 101 has been reviewed and updated as of October 2024. All other courses are within the six-year window. Some of our courses still qualify for CTE classification, however as Computer Studies has recently been reclassified to Computer Science and moved to the SME division, a definitive review timeline or plan has not been identified yet. Goals for the coming year include identifying which courses still qualify for CTE classification and so we will review and update those courses within the appropriate 2-year window. However, any changes will likely be non-substantive.

B. Degrees and Certificates+

Title of Degree or Certificate	Implementation Date	Required Documentation Complete++	In Need of Revision+ ***and/or*** ***Missing Documentation***	To Be Archived* *(as Obsolete, Outdated, or Irrelevant)*	No Change

		Yes/No	(Include Anticipated Academic Year)	(Include Anticipated Academic Year)	
Computer Science (AS-T)	Fall 2021	Yes			X

*Note: Discontinuance or archival of degrees and certificates must go through the Program Discontinuance process or the Program Archival Task Force.

+Degrees and Certificates cannot be implemented until all included required courses in them are approved and active.

++Documentation includes Program Narrative and for CTE programs only: Advisory Committee Recommendation, Labor Market Information, and Regional Consortia meeting minutes.

Program Reflection:

The AST is new, follows Model Curriculum, and does not require review.

III. LEARNING OUTCOMES ASSESSMENT

A. Status of Learning Outcomes Assessment

Learning Outcomes Assessment at the Course Level

	Number of Courses with Outcomes Assessed		Proportion of Courses with Outcomes Assessed	
Number of Courses	Over Last 4 Years	Over Last 6 Years	Over Last 4 Years	Over Last 6 Years
7	7	7	100%	100%

Learning Outcomes Assessment at the Program/Degree/Certificate Level

Degree/Certificate	Number of Outcomes*	Number of Outcomes Assessed		Proportion of Outcomes Assessed	
		Over Last 4 Years	Over Last 6 Years	Over Last 4 Years	Over Last 6 Years
General PLOs for Program	3 listed as "current"	0	0	0%	0%

Program Reflection:

The program did not offer a degree until three years ago. Identifying and implementing an SLO assessment and review plan is among the priorities of the Computer Science department for the coming academic year.

B. Summary of Learning Outcomes Assessment Findings and Actions

To be reviewed.

Program Reflection:

IV. PROGRAM HIGHLIGHTS

The program-level plan that emerged from the last review (fall 2021) included the following initiatives:

- New COMS AST degree
- New IT Tech Certificate
- New IT MC degree
- Four new courses COMS 217, COMS 218 and COMS 190 and COMS 161
- Archive of 8 courses

A. Accomplishments/Achievements Associated with Most Recent Three-Year Program-Level Plan

The Program successfully accomplished all of its goals aside from the IT MC degree.

B. Recent Improvements

The program has sought to add in-person full-time instruction to meet student (anecdotal) demand and align with (research supported) best practices.

C. Effective Practices

Tools effective to increasing student success include the offering of more courses in line with academic computer science, increasing instructor capacity through highly qualified remote part-time teachers, and expanding the diversity of its offerings by adding degrees and certificates. We have a emphasis on ensuring our instruction is relevant to students seeking to transfer or to getting started in a career in modern technology. We are data-driven and practice regular analysis of our effectiveness and relevance. We also listen to the testimony and feedback of our students, to align our capabilities with their expectations while remaining cognizant of market trends.

VI. PROGRAM PLAN

A. Based on the information included in this document, the program is described as being in a state of:

__ Viability

__ Stability

_X_ Growth

*Please select ONE of the above.

Explain why you selected that description of the state of the program.

The history and direction of the COMS program are ones of growth. Traditionally, COMS has equipped business students with the skills to utilize and understand technology. As technology has evolved, we have adapted by adding adjunct instructors to teach programming concepts, enabling students to succeed in Computer Science and Computer Engineering disciplines. These fields require more robust technical knowledge and benefit from hands-on instruction. Currently, our students are learning programming through asynchronous modalities, achieving strong success rates. However, research suggests—and our intuition supports—that adding in-person instruction would further enhance these rates. With the rise of AI and the Internet of Things, there is an increasing demand for professionals in security, machine learning, data analytics, and network management, leading to more technical and tech-related opportunities. We are poised to capitalize on these opportunities; we have the courses ready and have submitted a petition to add a full-time instructor. The program is young, but already we have 18 completions. Historically, the computer studies program has emphasized job-ready skills such as database management, Excel, and Word. Our transition to a Computer Science focus will introduce technical and academic degrees, enabling students to transfer as Computer Science majors. The program is vibrant and expanding.

B. Outline the three-year plan for the program by completing Columns A – D of the Three-Year Program Planning Template (the Excel file that will accompany the Program Review Report). For the fall 2024 program review cycle, the 3-year program plan will span 2025-2026 through 2027-2028.

Columns A – D are described below. Enter the plan components into the Excel file.

Screenshot of Excel table:

COLUMN A	COLUMN B	COLUMN C	COLUMN D
Program/Service	**Unit-Level Initiative**	**Anticipated Year of Implementation**	**Anticipated Outcome of Initiative**
Enter the components of the three-year program-level plan in the Three-Year Program Planning Template (Excel file) provided.			

VI. RESOURCES NEEDED TO IMPLEMENT PROGRAM PLAN

a. Describe the current state of program resources relative to the plan outlined above. (Resources include: personnel, technology, equipment, facilities, operating budget, training, and library/learning materials.) Identify any anticipated resource needs (beyond the current levels) necessary to implement the plan outlined above.

Description of Current Program Resources Relative to Plan:

b. Identify the resources needed in order to implement each component of the three-year plan for the program by completing Columns E – F of the Three-Year Program Planning Template (the Excel file that will accompany the Program Review Report). If more than one type of resource (e.g., operating expenses, technology, supplies, facilities, equipment, etc.) is needed to implement the initiative, list each need on consecutive rows following the unit-level initiative.

Note: Resources to support program plans are allocated through the annual planning and resource allocation process (not the program review process).

The completed Three-Year Program Planning Template will serve as a draft/starting point for upcoming annual planning and resource allocation cycles.

Columns A – F of the Three-Year Program Planning Template are described below. Enter the resources needed to implement the plan components into the Excel file.

Screenshot of Excel table:

COLUMN A	COLUMN B	COLUMN C	COLUMN D	COLUMN E	COLUMN F
Program/ Service	Unit-Level Initiative	Anticipated Year of Implementation	Anticipated Outcome of Initiative	Description of Resource Need	Type of Resource Need
Enter the resources needed to implement each component of the three-year program-level plan in the Three-Year Program Planning Template (Excel file) provided.					

COMPUTER STUDIES **FALL 2024**

Completed by Supervising Administrator:

Christopher Farmer

Date:

12-10-2024

Strengths and successes of the program, as evidenced by analysis of data, outcomes assessment, and curriculum:

The Computer Studies program at Napa Valley College has demonstrated remarkable growth and alignment with industry trends, particularly in the burgeoning field of computer science and its related disciplines. This alignment is evidenced by labor market data, which highlights a significant upsurge in job creation within the sector. Specifically, the program is strategically placed to meet the increasing demands for skills in artificial intelligence (AI), data analytics, and network management—fields experiencing exponential growth due to technological advancements.

The program's success is further underpinned by its responsiveness to local and regional economic trends. According to the Economic Development Department, positions in computer and information systems management, as well as in support and programming roles, are expected to grow significantly within Napa County and the broader Bay Area by 2030. This positive job outlook serves as a testament to the program's relevance and its potential to equip students with the skills necessary for these high-demand roles.

Moreover, the program has effectively gauged and responded to high student demand at Napa Valley College. With a 7.5% increase in student headcount over the past three years, the program has successfully attracted a diverse student body eager to pursue careers in technical and computer-related fields. The introduction of new courses and the expansion of degree offerings, such as the Associate in Science for Transfer (AS-T) in Computer Science, reflect the program's proactive approach to enhancing educational pathways that align with both student interests and industry needs.

Overall, the Computer Studies program stands out for its robust curriculum, strategic alignment with labor market needs, and its commitment to addressing the educational aspirations of its students. These strengths collectively position the program as a vital contributor to the college's mission and the broader technological landscape.

Areas of concern, if any:

While the Computer Studies program at Napa Valley College is experiencing growth and success, several areas of concern need to be addressed to ensure continued development and student satisfaction. One primary concern is the absence of a dedicated full-time faculty position for the computer science curriculum. This gap has implications for course continuity, faculty availability, and ultimately, student success and program expansion.

There is also a significant demand among students for more in-person courses. The current offerings primarily rely on asynchronous modalities, which, while effective for some, do not fully meet the needs of all students. In-person instruction is often linked to higher retention and success rates, suggesting that expanding face-to-face or synchronous online course offerings could enhance student outcomes and engagement.

Additionally, the program currently lacks sufficient tutoring and supplemental support services for its students. Access to dedicated tutoring and additional resources is crucial for students navigating the challenging

coursework inherent in computer science disciplines. Providing these support structures could significantly improve student retention and success rates.

Another pressing issue is the technological infrastructure of the computer science classrooms, which is rapidly becoming outdated. Keeping pace with technological advancements is imperative for providing students with relevant, hands-on experiences that reflect current industry standards. Upgrading classroom technology will ensure that students receive an education that prepares them effectively for the workforce.

Finally, there is a need for improved testing environments, such as practice servers or online platforms, where students can engage with course materials more interactively. These environments are essential for students to apply theoretical knowledge in practical scenarios, enhancing their learning experience and readiness for industry challenges.

Addressing these concerns will require concerted efforts and resources but will be vital in maintaining the program's growth trajectory and fulfilling its mission to prepare students for careers in the rapidly evolving field of computer science.

Recommendations for improvement:

To address the current challenges and enhance the effectiveness of the Computer Studies program, several key recommendations are proposed. First, establishing a dedicated tutoring and support system for computer science courses. By providing students with access to tutoring services, perhaps in the form of supplemental instruction, the program can help bridge knowledge gaps, enhance understanding, and improve overall retention and success rates among students.

Additionally, creating opportunities for students to gain relevant hands-on experience. Creating an environment where students can have access to an actual server, or a cloud-based educational server would greatly benefit NVC students in preparing for the demands of the workforce and can significantly enhance their employability upon graduation.

Refurbishing and updating the computer labs is another important step. Modernizing these facilities will ensure that students have access to current technology, which is vital for their education and skill development in the rapidly evolving field of computer science. Up-to-date labs will provide students with a learning environment that closely mirrors the technological landscape they will encounter in their careers.

Finally, finding novel ways to quickly bring relevant content in the field to students in a more agile fashion, such as leveraging non-credit courses to address fast-moving changes in the field, such as AI literacy, presents an excellent opportunity for the program. Non-credit offerings can be quickly developed and implemented, allowing the program to remain agile and responsive to emerging trends and technologies. This approach can help students and community members alike stay informed and skilled in the latest advancements in computer science.

Additional information regarding resources: