

De Anza College  
Instructional Annual Program Review 2021-22

**Instructions:** The first column is section and question number, followed by ask without explanation The third column fully describes the information that the IPBT is requesting. The blank column is where you will type your response. Save program review as a Word document. This is the document you will send to your Dean. It will be posted on the De Anza website in pdf format.

In addition to this document, please also submit to your Dean the Resource Request spreadsheet making sure facilities requests are on “Facilities” tab and large-ticket items are on Large-ticket Items” tab.

	<b>Information Requested</b>	<b>Explanation of Information Requested.</b>	<b>Enter your answers here</b>
	Department Name:		Computer Information Systems
	Program Mission Statement:	How does your program mission statement relate to the mission of De Anza College and our Institutional Core Competencies”? ( <a href="https://www.deanza.edu/about-us/mission-and-values.html">https://www.deanza.edu/about-us/mission-and-values.html</a> ).	De Anza's Computer Information Systems department has been a leading educational institution in Silicon Valley since the college was founded. Over the years it has developed a rich and diverse series of courses in many areas. Our courses meet the needs of both the transfer student and the industry professional
I.A.1	What is the Primary Focus of Your Program?	Choose from General Education, Transfer. Career/Technical, Learning Resources/Academic Services, personal enrichment or N/A	Transfer
I.A.2	Choose a Secondary Focus of Your Program.	Choose from General Education, Transfer. Career/Technical, Learning Resources/Academic Services, personal enrichment or N/A	Career/Technical

I.B.1	# Certificates of Achievement Awarded	State the number of Certificates of Achievement awarded during the 2020-21 academic year. Please refer to: <a href="https://www.deanza.edu/ir/AwardsbyDivision.html">https://www.deanza.edu/ir/AwardsbyDivision.html</a> . If you do not offer Certificates of Achievement please state “none offered”.	147
I.B.2	# Certificates of Achievement -Advanced Awarded:	State the number of Certificates of Achievement - Advanced awarded during 2020-21 academic year. Please refer to <a href="https://www.deanza.edu/ir/AwardsbyDivision.html">https://www.deanza.edu/ir/AwardsbyDivision.html</a> If you do not offer Certificates of Achievement” please state “none offered”.	0
I.B.3	# ADTs (Associates Degrees for Transfer) Awarded	State the number of Associate Degree Transfer awarded by you department during the 2020-21 academic year. Please refer to <a href="https://www.deanza.edu/ir/AwardsbyDivision.html">https://www.deanza.edu/ir/AwardsbyDivision.html</a> . If you do not offer Associate Degree Transfer, please state “none offered”.	145
I.B.4	# AA and/or AS Degrees Awarded:	State the number of Associate of Arts or Associate of Science degrees awarded during the 2020-21 academic year. Please refer to <a href="https://www.deanza.edu/ir/AwardsbyDivision.html">https://www.deanza.edu/ir/AwardsbyDivision.html</a> .-If you do not offer Associate of Arts or	Associate of Arts: 181

		Associate of Science Degree, please state “none offered”.	
I.B.5.	Trends in # Total Awards	If applicable to your program, has total number of certificates and degrees increased, decreased or stayed the same? What thoughts do you have on these changes?	# ADTs (Associates Degrees for Transfer) Awarded is steadily increasing each year with a 64% increase between 2019-20 and 2020-21.  Number of certificates awarded has more than doubled since 2019-20 when we began holding quarterly workshops.
I.B.6.	Strategies to Increase Awards	What strategies (1, 2, 3. . . .) does your department have in place to ensure students are obtaining awards when it is applicable to their educational goal? (e.g. Outreach, In-reach, graduation workshops, collaborations with other offices, etc.)	Once per quarter, just before registration opens CIS department holds a pathways workshop inviting all CIS students. CIS Department Chair and CTE Counselors facilitate with other CIS faculty there to answer questions as well. Two topics are focused on: <ol style="list-style-type: none"> <li>1. CIS pathways – what course(s) should students take next</li> <li>2. Certificates and Degrees students have earned or could earn by just completing 1-2 more courses</li> </ol> Ensure all instructors know which certificates and degrees the classes they teach apply to.
I.C.1	CTE Programs: Review of Perkins Core Indicator and SWP Outcomes Metrics:	Review the most recent Perkins Core Indicator and SWP Outcomes Metrics data for your program(s). Cite planned interventions and activities to enhance student and program outcomes. Perkins Core Indicator Reports provided by Margaret Bdzil. Cal-PASS Launchboard SWP Metrics: <a href="https://www.calpassplus.org/LaunchBoard/Home.aspx">https://www.calpassplus.org/LaunchBoard/Home.aspx</a>	A review of the 2022-23 Core Indicator Report for this TOP code indicated that students are performing above the negotiated levels for the 11 of the 18 Perkins V indicators for which data are available. The following are the CTE Cohort performance levels for De Anza’s CIS: Software Development and Database Practitioner programs, as compared with the State/District-negotiated performance levels.  1P1: Postsecondary Retention & Placement – 96.32% vs. 74.53% (State) 2P1: Earned Postsecondary Credential – 56.54% vs. 81.32% (State) 3P1: Non-Traditional Program Enrollment – 29.46% vs. 23.43% (State) 4P1: Employment – 59.06% vs. 73.00% (State)

			<p>Core Indicator 1 Postsecondary Retention &amp; Placement data for De Anza College's Programming, Database and Network programs is strong for all groups of individuals except for Youth in Foster Care. The cohort as a whole at 95.99 is up 2.93 percentage points from 2020-21, above the College as a whole by 2.9 percentage points, and 4.2 percentage points above negotiated level.</p> <p>Core Indicator 2 Earned Postsecondary Credential slid to less than 40% of where it was in 2020-21. We did hold virtual CIS pathways workshops but It should be noted that the majority of students in computer science are transferring to four-year colleges and that this number is increasing each year. After listening to speakers from Facebook, Google, etc. and doing their homework in possible careers in the tech industry they become convinced that they will have a more rewarding career if they continue on to receive a Bachelor's degree.</p> <p>Core 3 Non-traditional Program Enrollment is slightly above the negotiated level and 2.83 points above 2020-21. The Women in Computer Science club has remained connected and active during the last year. The club held virtual events with guest speakers and panel discussions involving successful computer science women from industries in Silicon Valley. Between 2014-15 and 2019-20 the percentage of females in the program rose from 29% to 34%. The success rates for females in 2019-20 was 82% while for males it was 75%.</p> <p>Core Indicator 4 Employment level for 2021-22 at 63.79 is significantly higher than 2020-21's 57.88, but still appreciably lower than the negotiated level of 73.23. The exception is group of individuals with economically disadvantaged families. Focus has been on mitigating student food and housing insecurities which may be a factor in why this group achieved greater percentage of employment than the other groups.</p>
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<p>I.C.2 ZZZ</p>	<p>CTE Programs: Labor Market Demand and Industry Trends:</p>	<p>Review and summarize statewide and regional labor market (LMI) data for occupations that are closely aligned with your program. Cite current industry trends. Provide an overview of your program advisory committee's recommendations relating to existing and new course and certificate/degree offerings. Cite additional data when applicable. California EDD LMI Info: <a href="https://www.labormarketinfo.edd.ca.gov/cgi/dataanalysis/areaselection.asp?tablename=occprj">https://www.labormarketinfo.edd.ca.gov/cgi/dataanalysis/areaselection.asp?tablename=occprj</a></p>	<p>Observing the Labor Market projections for San Jose-Sunnyvale-Santa Clara metropolitan area, there will be steady growth in jobs for all computer occupations between 2018 and 2028. In particular for 2016-2026:</p> <ul style="list-style-type: none"> <li>• The number of jobs for software application developers is expected to increase by 40%</li> <li>• Jobs for computer systems analysts are expected to increase 12%</li> <li>• The number of jobs for information security analysts is expected to increase by 28.4%</li> <li>• The number of jobs for database administrators is expected to increase by 17.5%</li> <li>• The number of jobs for computer network support specialists is expected to increase by 11.9%</li> <li>• Jobs for network and computer systems administrators are expected to grow 9.2%</li> </ul> <p>To meet these needs the following courses have been added (and applicable certificates/degrees updated) and two new AA degrees have been created.</p> <p>DATABASE:</p> <ul style="list-style-type: none"> <li>• Data Visualization Methodology and Tools (CIS 64G)</li> <li>• R Programming (CIS 64H)</li> <li>• Database Development Practitioner Certificate of Achievement – Advanced and AA Degree</li> </ul> <p>SECURITY:</p> <ul style="list-style-type: none"> <li>• Cloud Security Fundamentals (CIS 105)</li> <li>• Renaming of CIS 56 and renaming of Certificates and AA Degree</li> </ul> <p>PROJECT MANAGEMENT:</p> <ul style="list-style-type: none"> <li>• Business and Requirement Analysis (CIS 95H)</li> <li>• Applying Emotional Intelligence for Effective Project Management (CIS 95J)</li> <li>• Certificate of Advanced Achievement and an AA in Project Management Certificate of Achievement Advanced and AA Degree</li> </ul> <p>PYTHON PROGRAMMING</p>
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			<ul style="list-style-type: none"> <li>• CIS 9 Introduction to Data Science</li> <li>• In progress: Machine Learning program built on Python</li> </ul> <p>The employment in Santa Clara County and California is strong for Computer User Support Specialists with an increase of 22.4% predicted between 2016-2026. It is currently estimated San Jose-Sunnyvale-Santa Clara Metropolitan Statistical Area has 10,410 openings for Computer User Support Specialists. The median income for this career that requires some college but no degree is \$74,768.</p> <p>Thus, CIS department entered into partnership with Google creating IT Technician Support Certificate with five noncredit courses mirrored as credit. This curriculum is now approved by Curriculum Department to be offered starting Fall 2022.</p> <p>CIS Department intends to enter into another certificate with Google: Data Analytics Professional Certificate.</p> <p>CHALLENGE: Curriculum Committee timeline which does not allow for us to update curriculum to keep pace with the technological development input from our ADVISORY BOARD:</p> <ul style="list-style-type: none"> <li>•Our Advisory Board feedback indicated that the skill of programming in Python is as much in demand as other areas such as programming in Java and web development.</li> <li>•In the area of database skills our teaching of SQL is precisely what is needed as indicated by the Board. With the introduction in 2015 of CIS 64F Introduction to Big Data and Analytics, we are teaching one of the second most desired database skills, Hadoop. R Programming course and a course dedicated to analytics are suggested additions.</li> <li>•Web Development certificate was considered one of the most beneficial for those without a Bachelor's degree. In the area of web development, new course Representational Style Transfer (REST) paired with JSON protocol is the suggested direction for updating and enhancing the present Web development course offerings. Ruby on Rails was suggested. More emphasis on PHP would also benefit students.</li> </ul>
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I.D.1	Academic Services and Learning Resources: # Faculty Served	Only for programs that serve staff or students in a capacity other than traditional instruction, e.g. tutorial support, service learning, etc. State number of faculty served per year (Fall, Winter and Spring): Provide number from previous year, and # increase or decrease. To the extent possible, specify what data you used to arrive at this number.	N/A
I.D.2	Academic Services and Learning Resources: # Students Served	Only for programs that serve staff or students in a capacity other than traditional instruction, e.g. tutorial support, service learning, etc. State number of students served per year (Fall, Winter and Spring): Provide number from previous year APRU, and # increase or decrease. To the extent possible, specify what data you used to arrive at this number.	N/A
I.D.3	Academic Services and Learning Resources: # Staff Served	Only for programs that serve staff or students in a capacity other than traditional instruction, e.g. tutorial support, service learning, etc. State number of staff served per year (Fall, Winter and Spring): Provide number from previous year APRU, and # increase or decrease. To the extent possible, specify what	N/A

		data you used to arrive at this number.																																																									
I.E.1	Full Time Faculty (FTEF)	For ALL programs: State the number of FTEF assigned to your department/program. Refer to your program review data sheet: <a href="https://www.deanza.edu/ir/program-review.20-21/index.html">https://www.deanza.edu/ir/program-review.20-21/index.html</a> .	<p>28.7 (both full-time and part-time)</p> <table border="1"> <thead> <tr> <th></th> <th>2016-17</th> <th>2017-18</th> <th>2018-19</th> <th>2019-20</th> <th>2020-21</th> <th>5-yr %Inc</th> </tr> </thead> <tbody> <tr> <td><b>Full Time Load</b></td> <td>8.6</td> <td>8.6</td> <td>8.7</td> <td>9</td> <td>8.9</td> <td>3%</td> </tr> <tr> <td><b>Full Time %</b></td> <td>33.90%</td> <td>32.90%</td> <td>34.90%</td> <td>34.40%</td> <td>30.90%</td> <td>-9%</td> </tr> <tr> <td><b>Overload</b></td> <td>2.4</td> <td>2.8</td> <td>2.6</td> <td>3.2</td> <td>3.6</td> <td>48%</td> </tr> <tr> <td><b>Overload %</b></td> <td>9.60%</td> <td>10.60%</td> <td>10.30%</td> <td>12.30%</td> <td>12.60%</td> <td>31%</td> </tr> <tr> <td><b>Part Time Load</b></td> <td>14.4</td> <td>14.9</td> <td>13.7</td> <td>13.9</td> <td>16.2</td> <td>13%</td> </tr> <tr> <td><b>Part Time %</b></td> <td>56.50%</td> <td>56.50%</td> <td>54.90%</td> <td>53.30%</td> <td>56.50%</td> <td>0%</td> </tr> <tr> <td><b>Total FTEF</b></td> <td>25.5</td> <td>26.3</td> <td>24.9</td> <td>26.1</td> <td>28.7</td> <td>13%</td> </tr> </tbody> </table>		2016-17	2017-18	2018-19	2019-20	2020-21	5-yr %Inc	<b>Full Time Load</b>	8.6	8.6	8.7	9	8.9	3%	<b>Full Time %</b>	33.90%	32.90%	34.90%	34.40%	30.90%	-9%	<b>Overload</b>	2.4	2.8	2.6	3.2	3.6	48%	<b>Overload %</b>	9.60%	10.60%	10.30%	12.30%	12.60%	31%	<b>Part Time Load</b>	14.4	14.9	13.7	13.9	16.2	13%	<b>Part Time %</b>	56.50%	56.50%	54.90%	53.30%	56.50%	0%	<b>Total FTEF</b>	25.5	26.3	24.9	26.1	28.7	13%
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I.E.2	# Student Employees	If applicable to your program, state number of student employees and if there were any changes between number this academic year and the previous two academic years.	<p>1-2 students per quarter are paid tutors. The requirement is that the paid tutor has tutored in a class as a volunteer teaching assistant and/or as a general (pre-pandemic this meant in the CIS lab) volunteer teaching assistant.</p> <p>All during pandemic it has been challenging recruiting our volunteer teaching assistants and, thus, our paid tutors. At times during the quarter there has been only one paid peer tutor.</p>																																																								
I.E.3	Full Time Load as a %	State the percentage of courses taught by full-time faculty (exclude overload). Refer to your program review data sheet. <a href="https://www.deanza.edu/ir/program-review.20-21/index.html">https://www.deanza.edu/ir/program-review.20-21/index.html</a> or access within the program review tool.	30.9																																																								
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		Deans will make a report regarding staff serving multiple programs.	
I.E.5	Changes in Employees/Resources	Briefly describe how any increase or decrease resources/employees (exclude teaching faculty) has impacted your program. What strategies does your program have in place to ensure students are being supported and able to reach their full capacity when faced with these changes and challenges? (e.g. Mentors, embedded tutors, extended lab hours, instructional support, non-credit support, etc.)	<p><b>Employees:</b> We are under the impression that there will be retirement(s) in the position(s) of CIS Lab Technician and the CIS Lab Coordinator in the near future.</p> <p>It is of utmost importance that the CIS Lab Coordinator have experience in programming in high-level programming languages. This is necessary for communication of needs between them and ETS classified professionals, faculty, administrators and students.</p> <p>This is an equally important requirement for the CIS Lab Technician.</p> <p><b>Teaching Assistants and Tutoring:</b> The online learning environment forced CIS department to reinvent our tutoring for our students. Process was developed and managed by our Lab Coordinator and Lab Technician to offer peer tutoring online in lieu of in the CIS Computer Lab. Faculty are having students from their previous classes serve as volunteer Teaching Assistants in their classes. Students are volunteering as teaching assistants in the general online Zoom tutoring rooms, but the number is much smaller and times shorter.</p>
	<b>Enrollment</b>		
II.A	Enrollment Trends	What changes in enrollment have you seen in the last three years? Refer to <a href="https://www.deanza.edu/ir/program-review.20-21/index.html">https://www.deanza.edu/ir/program-review.20-21/index.html</a> or access within the program review tool. You do not need to list enrollments; rather reflect on enrollment trends. What strategies does your department	<p>Since 2018-19 enrollment has increased by 1,317 students or 15%.</p> <p>However, the true picture is being masked by the addition of Python classes and the popularity of Python programming language. De Anza CIS Department was one of the first Community Colleges in the area to introduce a sequence of Python courses.</p> <p>The entry course for most CIS transfer students is CIS 22A. The enrollment for that course over the last 3 years is flat and actually down 11.1% since 2015-16.</p>

		have in place to increase or maintain current enrollment trends?	
II.B.	Enrollment Trends for disproportionately impacted student groups	<p>Using the program review data tool, what is the enrollment of African American, Latinx, Filipinx, and Pacific Islander students as a percentage of your entire program compared to other student groups in campus-wide percentages? You do not need to list enrollments, but rather reflect on what the trends look like. Link to equity plan and strategic plans</p> <ol style="list-style-type: none"> <li>1. What could be contributing to the differences?</li> <li>2. What strategies does your department have in place to increase or maintain enrollment of these student groups?</li> </ol> <p>Are there other trends that you see when drilling into the data that may be important to explore?</p>	<p>Considering African American, Asian, Filipinx, Latinx, Native American, Pacific Islander student groups, the percentage of each group has not changed more than +/- one percentage point over the last three years.</p> <p>Looking at the data for the entry course for most transfer students, CIS 22A, the percentages are in parallel with those for the department as a whole.</p> <p>Considering Santa Clara County data, Asian CIS student group at 54% is higher than the County at 39%. CIS White student population is 16% of the whole and Latinx is 13%. Both of these are under the respective percentages in the County of 30.6% and 25%.</p> <p>The Asian student sees themselves as belonging in computer science with many having parents employed in IT. Latinx students do not see themselves as belonging. There are two African American faculty in the CIS Department, but, to the best of my knowledge, there are no Latinx instructors in the department or as classified professionals in the lab. While there are a few female CIS students in the TA/tutoring pool, the overwhelming majority are Asian male.</p> <p>CIS 40 is being taught in Fremont Union High School District in hopes that students not on the regular AP track will find a pathway for themselves in IT Support, computer science, or data science fields.</p> <p>In 2021-22 CIS and Math teamed up to offer the first CIS cohort. For Fall 2021, MATH 1A and CIS22A became an offering in LinC program. This was followed in Winter 2022 by offering LinC class with CIS 22B and MATH 1B. We plan to repeat this for Fall and Winter but add a Linc for CIS 22C and MATH 1C. However, looking at the program review tool, the number of</p>

			<p>Latinx is listed as N/A. This means we are not reaching the student group that we are trying to serve with LinC offering.</p> <p>Five noncredit courses, in addition to those in the IY Technician Support Certificate, have been created and approved to mirror existing courses. Since 2021-22 was the first year they were offered, it is too soon to tell if these will draw more students from the underrepresented student groups.</p>
II.C.	Overall Success Rate	<p>What changes in student success rates have you seen in the last three years? You do not need to list success rates, rather reflect on trends in success rates.</p> <ol style="list-style-type: none"> <li>1. What could be factors that influence success rates? Please refer to: <a href="https://www.deanza.edu/ir/program-review.20-21/index.html">https://www.deanza.edu/ir/program-review.20-21/index.html</a></li> <li>2. What strategies does your department have in place to increase or maintain current success rates?</li> </ol>	<p>Over the last three years success rates have risen slightly from 75% to 77%.</p> <p>Success rates for core programming classes of CIS 22A, CIS 22B, and CIS 22C are between 75% - 77% with the lowest success rate currently for CIS 22A at 75%.</p> <p>Strategies:</p> <ol style="list-style-type: none"> <li>1) Currently instructors in beginning programming classes may choose to implement zyBooks interactive digital text.</li> <li>All students have free access to CodeLab tutorial. On Canvas students have access to slide presentations from the textbook. Thus, even if the student cannot afford to or decides not to purchase the text the student has access to needed information. In the future we should keep with providing CodeLab tutorial.</li> <li>2) To improve success rates in CIS 22A faculty need to collaborate more including sharing student resources, teaching paradigms, and assignments given.</li> <li>3) More authentic assessment of student work.</li> <li>4) Learn to use social media more proactively to encourage learning collaborations and a sense of community.</li> </ol>

II.D.	Success, Non-Success and Withdraw Rates for disproportionately impacted student groups	<p>Using the <a href="#">Disproportionate Impact Tool</a> within the <a href="#">Program Review Tool</a> explore differences in success rates by ethnicity, gender and special student populations (foster youth, individuals with disabilities, Veterans and low income students). Of the rows that are highlighted (which indicate there are disproportionate impacts for that group):</p> <ol style="list-style-type: none"> <li>1. What differences do you see in successful course completion rates?</li> <li>2. What are your thoughts on these differences?</li> </ol> <p>What strategies might be helpful in closing gaps in successful course completion?</p>	<p>The departmental gap is 15 percentage points. That is bad. But what is worse is the gap of 25% in the beginning programming class that most students planning to transfer as a computer science major start with: CIS 22A Beginning Programming Methodologies in C++. Latinx success rates are at a 29% percentage point gap.</p> <p>Faculty teaching this course need to be engaged with each other to find solutions and to discuss pedagogy that can help close this gap.</p> <p>Building community: In 2021-22 CIS and Math teamed up to offer the first CIS cohort. For Fall 2021, MATH 1A and CIS22A became an offering in LinC program. This was followed in Winter 2022 by offering LinC class with CIS 22B and MATH 1B. We plan to repeat this for Fall and Winter but add a Linc for CIS 22C and MATH 1C. However, looking at the program review tool, the number of Latinx is listed as N/A. This means we are not reaching the student group that we are trying to serve.</p> <p>CIS Department entered into an agreement to be part of a NSF grant to support specifically Latinx students as they transfer from two year college to University of California</p> <p>Other strategies in place for all classes:</p> <ul style="list-style-type: none"> <li>• All programming students have free access to CodeLab online tutorial.</li> <li>• Teaching Assistants embedded in the class. These students were previous students of the instructor whose class they are volunteering in as TAs.</li> <li>• All beginning level programming students have free access to ZyBooks. As one observes the syllabi while clearing prerequisites across the country from other California community colleges to Ivy League Universities, ZyBooks has become the most popular text for programming courses offered to underclassmen.</li> </ul>
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			<ul style="list-style-type: none"> <li>• Paid peer tutors funded by Perkin’s Grant.</li> <li>• Mentor working to build bridges with industry</li> <li>• Noncredit mirrored courses that will both be free and with no stress about grades</li> </ul>
II.E.	Changes Imposed by Internal/External Regulations	Address program changes implemented as a response to changes in College/District policy, state laws, division/department/program level requirements or external agencies regulations? How did the change(s) affect your program? (e.g. any curriculum, reorganization of program AB 705, noncredit curriculum, loss of personnel, etc.)	<p>Motivation for changes in the CIS Department comes from our Advisory Board and from what CIS faculty experience happening in all aspects of IT.</p> <p>The Computer Science AS Transfer Degree has been available to students since Fall, 2015. Students may follow the C++ pathway or the Java pathway to achieve the A-D-T Computer Science degree.</p> <p>To assist students in completing their transfer courses including those that are part of the Computer Science A-D-T degree, CIS 22C Data Abstraction and Structures is being offered using three different approaches: exclusively with C++ code usage, exclusively with Java code usage, and language independent.</p> <p>UC Irvine was the one UC demanding Python. We have worked to implement a pathway that allow students to complete a pathway in C++ or Java that is accepted by other UCs and CSUs and then complete two Python courses which prepare them to transfer to UC Irvine.</p> <p>Data Science is a fast-growing area. The Python sequence CIS 40, CIS 41A, and CIS 41B along with CIS 9 Introduction to Data Science prepares the student to move on into the variety of Data Sciences majors at four year institutions.</p> <p>AA Degree for Database and Project Management are now being awarded. Courses in the cybersecurity program are being updated. Courses for Google supported IT Support Technician Certificate will be offered in 2022-23 and development in Data Analytics Professional Certificate is in progress.</p>
	<b>Equity</b>	In order to meet the goals within our <a href="#">State Equity</a>	

		<a href="#">Plan, Institutional Metrics, and Educational Master Plan</a> , the following section asks you to reflect on questions focused on student equity to help inform our goals.	
III.A.	Equity Plans for groups other than the acknowledged disproportionately impacted groups	Are there other groups of students besides the acknowledged disproportionately impacted groups of African American, Latinx, Filipinx, and Pacific Islander students that your department intentionally focused support for.	<p>Since Computer Science is often seen as a male profession, we focus on making our female students feel valued in the profession. They see themselves in the events offered by the Women in Computer Science Club and in fact the majority of full-time faculty in CIS Department are women.</p> <p>In spite of these efforts the ratio remains about 2:1 male versus female. However, success rates of female students has remained 5 – 7 percentage points above male over the last five years.</p>
III.B.	Program Success	Describe any events/program changes/successes that you would like to share relative to your equity efforts?	<p>Partnership with Google in the Development of the IT Technician Support Certificate in which all classes are offered as credit and noncredit. Approved for offering Fall 2022.</p> <p>Planned partnership with Google for development of Data Analytics Certificate. This certificate will overlap with two existing courses: CIS 64G and CIS 64H</p> <p>In addition to the IT Technician Support Certificate courses, we have mirrored 5 existing courses with noncredit courses:  CIS 340 mirrors CIS 40 Introduction to Programming in Python with the particular goal to lure students into computer science with this gentle introduction to programming course.  CIS 318A mirrors CIS 18A Introduction to Unix/Linux and CIS 308 mirrors CIS 108 Personal Computer Security Basics. These classes teach skills needed by anyone working in IT.</p>

			<p>CIS 398 mirrors CIS 98 Digital Image Editing Software (Photoshop) and CIS 399 mirrors CIS 99 teach skills that many would like to have but not necessarily wish to pay for.</p> <p>Offer Panel Discussion and Guest Lectures:  Fall 2022 Mike Gainer from Google presented on “What actually occurs during a high-tech programming candidate interview and how to prepare for it”</p> <p>Spring2022: Christian Sweet presented on “Early Life at Google: Experiences in Interviewing, Internships, and Full-Time Employment”</p> <p>CIS Faculty Support Clubs in their role as faculty advisors. These clubs provide a community for our students where they learn about careers, internships, ideas about transferring as well as exploring topics that are beyond the scope of their CIS courses.</p> <ul style="list-style-type: none"> <li>➤ Google Developers Student Club</li> <li>➤ Developers Guild</li> <li>➤ Competitive Programming Club</li> <li>➤ Game Dev Club</li> <li>➤ Women in Computer Science</li> </ul>
III.C.	Equity Planning and Support	Has equity work generated any need for resources? If so, what is your request? Include staff/position needs.	Need for a faculty mentor. In the past this has meant giving a \$2500 stipend each quarter to adjunct faculty member who then assists in establishing bridges to IT businesses such as Google and Facebook. In the past this has meant information on partnership with a company, speakers, panelists, tours.
III.D.	Departmental Equity Planning and Progress	Identify which of the following resources you need? How would the resource help? <ul style="list-style-type: none"> <li>• Professional Development – what areas?</li> <li>• Enhanced support for students</li> </ul>	PROFESSIONAL DEVELOPMENT: Enhanced Support for Students: <ol style="list-style-type: none"> <li>1) Increase the number of faculty having Teaching Assistants in their classes whether the class is online or hybrid on campus.</li> <li>2) Continue the paid tutor program</li> <li>3) Continue mentor instructor outreach support from industry</li> </ol> DEPARTMENTAL COLLABORATIONS:

		<ul style="list-style-type: none"> <li>• Departmental Collaborations</li> <li>• Best Practices</li> <li>• Coaching/Consultation</li> </ul>	<p>Internal groups focused on specific area of our program such as beginning C++ classes and CIS 40 which has come to be our Introduction to Programming course. CIS 40/340 is the one programming course that is also offered as noncredit.</p> <p>BEST PRACTICES: Continue with providing zyBooks for entry level Programming courses.</p>
III.E.	Assistance Needed to close Equity Gap	Would you like assistance with identifying strategies and/or best practices and/or resources to help facilitate student success?	Involve all faculty in training to engage students and to support students holding the focus on what the students have learned.
	<b>Assessment Cycle</b>	Navigate to <a href="https://www.deanza.edu/slo/">https://www.deanza.edu/slo/</a> and click "TracDat is gone" which will take you to accordion listing SLO assessments under "Student Learning Outcomes and Assessments Summaries by Division:"	
IV.A	SLOAC Summary	Describe an accomplishment or enhancement that resulted from SLO assessment starting with Spring 2020 through end of Spring 2022..	Our contract with zyBooks to provide all beginning programming students has helped bring success rates for CIS 22B Intermediate Programming Methodologies Using C++ up to that of all departmental classes.
IV.B	Assessment	List the names of the courses in your department (e.g. CIS 22A) that are planned to be assessed by the conclusion of 2021-22 academic year.	CIS 22A, CIS 22B, CIS 40, CIS 41A, CIS 41B, CIS 64D, CIS 67A, CIS 67B, CIS 75D, CIS 75E, CIS 79, CIS 104
	<b>Resource Requests</b>		
V.A	Budget Trends	Over the past five academic years, describe impact, if any, of external or internal funding	<p>Our most important needs have been met:</p> <ul style="list-style-type: none"> <li>• zyBooks at no charge to student for all beginning programming students</li> </ul>

		<p>trends that you might be currently dealing with ( eg COVID demands) upon the program and/or its ability to serve its students.</p> <p>If you don't work with budget, please ask your Division Dean to give you the information.</p>	<ul style="list-style-type: none"> <li>• CodeLab at no charge to student for all programming classes</li> <li>• Peer paid tutors</li> <li>• Lab Coordinators who are well versed in programming</li> </ul> <p>Continuing these resources is of utmost importance.</p>
V.B	Funding Impact on Enrollment Trends	<p>Over the past five academic years, describe the impact, if any, of external or internal funding changes upon the program's enrollment and/or its ability to serve its students. Refer to Program Review data sheets for enrollment information:</p>	<p>1) For our transfer students, our core classes are over- crowded and students must often wait between taking sequential courses.</p> <p>2) We are restricted in the number of cutting edge courses we can offer for those wishing to improve the technical skills in their quest for employment or expanding their career options.</p> <p>3) Too few classrooms equipped with computer for each student.</p>
V.C.1	Faculty Position(s) Needed	<p>Describe each request as: "Replace due to Vacancy", "Growth", or if none state "None Needed Unless Vacancy"</p>	<p>For 2022-23 the department will have 15 classes that would normally be taught by full-time instructors taught by part-time instructors. This is due to two faculty choosing Article 18 beginning with 2022-23 and one faculty member seeking one year of unpaid leave. In addition, full-time faculty will have 5 classes as reassigned time.</p> <p>Our numbers indicated that we should have been assigned a growth position sometime in the last 5 years. Now, with the two new Article 18 requests this is critical.</p> <p>Over the years Computer Information Systems department has benefited tremendously from part-time instructors who were full-time industry employees. However, if you are employed in IT at this time in history, you do not have the luxury of time to spend your evenings teaching a course at a Community College. This makes needing full-time instructors more necessary.</p>

V.C.2	Justification for Faculty Position(s):	Do you have assessment data available to justify this request for a faculty position? If so provide the SLO/PLO assessment data, reflection, and enhancement that support this need. If not, provide other data to support this need.	<p>The beginning programming class that most students planning to transfer as a computer science major start with is CIS 22A Beginning Programming Methodologies in C++. The gap between the underrepresented groups and the underrepresented groups is 25% which is way above the departmental equity gap of around 15%.</p> <p>The percentage of classes being taught by full time instructors for 2021-22 was 30.9% or 82 classes. Considering that two CIS instructors are beginning Article 18 in 2020-21 and another is taking unpaid leave for 2022-23, 15 fewer classes will be taught by full-time instructors bringing the percentage down to 25%, well below the College's average of 36.2%.</p>
V.D.1	Staff Position(s) Needed	<p>Choose: "Replace due to Vacancy", "Growth", "None Needed Unless Vacancy"</p> <p>Only make request for staff if relevant to your department only. Division staff requests should be in the Dean's summary.</p>	<p>Replace due to vacancy: It is my understanding that both our CIS Lab Coordinator and CIS Lab Technician will be retiring in the near future.</p> <p>It is of utmost importance that the CIS Lab Coordinator have experience in programming in high-level programming languages. This is necessary for communication of needs to and from classified professionals in ETS, faculty, administrators and students.</p> <p>This is an equally important requirement for the CIS Lab Technician.</p>
V.D.2	Justification for Staff Position(s):	Do you have assessment data available to justify this request for a staff position? If so, provide the SLO/PLO assessment data, reflection, and enhancement and/or CTE Advisory Board input to support this need. If not, provide other data to support this need.	<p>The CIS Lab is a community. It is where students meet up to collaborate with each other. It is the hub where students meet with peer volunteer teaching assistants to figure out the bugs in their program and where they meet with peer tutors to learn more about the programming constructs. It is where students strengthen their skills by helping others. Fortunately, between the lab coordinator and lab technician an online version of the physical lab with teaching assistants and tutors was created to support students during the pandemic. I credit the community feeling the lab creates with a substantial part of our students' success in transferring to prestigious universities. This June 2022 we will be sending off three computer science to UC Berkeley and one to Stanford.</p>

V.E	Equipment Requests	List all equipment resource needs on the Excel spreadsheet. Be sure to include to justification and costs in appropriate columns.	See Spreadsheet
V.F	Facility Request	List all facility needs on the spreadsheet. Be sure to include to justification and costs in appropriate columns.	See Spreadsheet
V.G	Other Needed Resources	List any other resource needs on the spreadsheet. Be sure to include to justification and costs in appropriate columns.	See Spreadsheet
V.H.1	Staff Development Needs	Based on what you have written above, what professional development support/resources do you need to achieve your goals?	<ul style="list-style-type: none"> <li>• Professional Development class based on engaging all students in the classroom making every student feel valued.</li> <li>• Assistance with setting class expectations centered on student collaboration in this new world of social media, use of new techniques such as having students decide on method of assessment for themselves. Ideally these classes would be special sessions held in department meeting.</li> <li>• Workshop to take online teaching to the next level.</li> </ul>
V.H.2	Staff Development Needs Justification	Please provide reasons for your professional development needs. If you have assessment data available to justify this request for professional development, please provide the SLO/PLO assessment data, reflection, enhancement, and/or CTE Advisory Board input, etc. to support this need. If not, provide other data to support this need.	Equity training based on our particular subject area is needed. Based on the program review data we have made no progress in closing the gap between under-represented student groups and the general student population.
VI.	Closing the Loop	Over the last five years, how did you assess the results of the requested resources, and what	In addition to meeting target on all course level and program level outcome assessments, three main methods for assessment: 1) Increase success rates

		were those results? How do you plan to reassess the outcomes after receiving each of the additional resources requested this year	2) Increase number of certificates and degrees awarded 3) Closing the gap between under-represented student groups and the general student population.
	Submitted by:	APRU writer's name	Mary Pape
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