

# Faculty Request Form - Spring 2024

## Department/Area and Name of Submitter

Design and Manufacturing Technologies - Mike Appio

### Details on Faculty Positions Requested

\* if requesting more than one position within the same area, please provide the area's priority ranking for each position to help inform RAPP of the priority preferences as determined by the area.

Position Name	Replacement or Growth	Retirement/Resignation Date	Instruction, Non-Instruction, Both	If Both, indicate the ratio	*Area Ranking
Faculty	Replacement	Gary Lamit Retirement 2013	Instruction	N/A	1
Faculty	Growth New Area	Additive Manufacturing / 3D Printing /CAD	Instruction	N/A	2

### Guiding Principles

De Anza College's mission and Educational Master Plan serve as guiding principles for programs to facilitate continuous development, implementation, assessment and evaluation of their program effectiveness as part of ongoing planning efforts.

De Anza identified the following areas within its Educational Master Plan:

- Outreach, Retention, Student-Centered Instruction and Services, Civic Capacity for Community and Social Change

Through its Equity Plan Re-Imagined, it identified the following framework to work towards narrowing long-standing equity gaps:

- **Racial Equity:** Faculty members, classified professionals and administrators should: recognize the realities of race and ethnicity for students of color. Develop intersectional understanding of the ways in which institutional racism shapes educational access, opportunity and success for Black, Filipinx, Latinx, Native American, Pacific Islander and other disproportionately affected students.
- **Student Success Factors:** The College should ensure students: Feel connected to the college; Have a goal and know what to do to achieve it; Actively participate in class and extracurricular activities; Stay on track – keeping their eyes on the prize; Feel somebody wants them to succeed and helps them succeed; Have opportunities to contribute on campus and feel their contributions are appreciated.

Based upon these guiding principles, please provide information for each of the following areas:

#### A. Instructional Faculty

### Faculty Position Request Data Sheet

Limits: From 2018-19 to 2023-24



### Fill Rates

Applied Technologies - Design & Manufacturing Tech-DA

	2018-19	2019-20	2020-21	2021-22	2022-23
<b>Enrollments</b>	1,530	1,255	875	874	982
<b>Sections</b>	117	108	88	110	111
<b>Fill Rate</b>	103%	87%	84%	71%	80%

Average Section Fill Rate over time

### Success and Equity

Applied Technologies - Design & Manufacturing Tech-DA

	2018-19	2019-20	2020-21	2021-22	2022-23
<b>Success Rate</b>	76%	77%	74%	80%	80%
<b>Withdraw Rate</b>	9%	11%	13%	10%	8%
<b>Equity Gaps</b>	-2%	-3%	-9%	-7%	-5%

Success and Equity Trends

### Faculty Load Ratios

Applied Technologies - Design & Manufacturing Tech-DA

	2018-19	2019-20	2020-21	2021-22	2022-23
<b>Full Time</b>	42%	47%	54%	50%	43%
<b>Part Time</b>	35%	31%	33%	29%	40%
<b>Overload</b>	23%	22%	13%	20%	17%
<b>FTEF (full time only)</b>	2.7	2.7	2.3	2.7	2.3

Faculty Load Ratios

### Awards

Applied Technologies - Design & Manufacturing Tech-DA

	2018-19	2019-20	2020-21	2021-22	2022-23
<b>Certificates</b>	43	47	47	63	44
<b>Associate Degrees</b>	18	17	10	20	15
<b>Associate Degree for Transfer</b>	0	0	0	0	0

Awards

Data is for the academic year, including summer term and early summer/second spring terms for Foothill College. Enrollments include students who are counted for apportionment for the report years (i.e., Apprenticeship, noncredit and other students who do not necessarily have a reported grade). Cross-listed courses are included in the home department. Some courses may continue to be listed but no longer have data due to renumbering or because the course was not offered in the past five years.

**1. How does the department use the data listed above to develop, adapt, and improve teaching and learning to respond to the needs of changing environments, populations served, and evolving institutional and state priorities?**

De Anza College's **Design and Manufacturing Technologies (DMT)** is committed to continuous program improvement and student equity through industry-informed curricula, instructional best practices, and supplement support that is responsive to the needs of its diverse student populations. DMT faculty and staff analyze student and program outcomes data from a variety of sources. The Department's NSF-funded **Manufacturing Automation and Additive Design Excellence (MAADE)** grant objectives are aligned with the college's instructional improvement and equity goals.

Based on **Fill Rate** data provided, DMT's course enrollments were **negatively impacted** by the effects of the **COVID** pandemic. The program's heavy reliance on the use of instructional equipment and facilities made 100% online instruction impractical and course offerings were reduced. Notwithstanding, **DMT course enrollments and fill rates** have been **trending upward** to **982** in **2022-23**. Based preliminary **2023-24 enrollments** of **1,121**, DMT is approaching pre-pandemic enrollment levels. **Success** and **Equity** data are also showing improvement over the past five years with **80% Success** and reduced **Withdraw Rates** to **8%** for **2022-23**. **Equity Gaps** are now within **5%** of the college-wide rate of 79%. DMT programs continued to award certificates and degrees at consistent rates, with a significant **uptick** in **2021-22** to **63 certificates** and **20 A.S. degrees** awarded.

## B. Non Instructional Faculty

1. Describe the data used to develop, adapt, and improve teaching, learning, and/or support to enable this position to respond to the needs of changing environments, populations served, and evolving institutional and state priorities (this may include a description of the population served, student needs and experiences from surveys or focus groups, or ratios related to the number of students served relative to current occupational standards).

N/A

## C. Instructional and Non Instructional Faculty Justifications

1. How does this request align with the goals in the Educational Master Plan?

Design and Manufacturing Technologies (DMT) program offers **industry-driven**, career education and training in the areas **computer-numerical control (CNC)** machining, **computer-aided design (CAD)**, **3D printing/additive manufacturing (AM)**, and **robotic automation**. DMT's overarching goals are aligned with De Anza's college-wide mission by fostering curriculum innovation, technological advancements, and **responsive instructional design**.

Based on the recommendation of the **Business and Industry Leadership Team (BILT)** and regional labor market demand, the DMT Department is **expanding** its course and program offerings in **3D printing/additive manufacturing (AM)**. To implement a robust 3D printing/AM program, the DMT Department is requesting **one (1) replacement** and **one (1) new FTE faculty** member (1.00). Having a full-time faculty member dedicated to the 3D printing/AM program is crucial to develop new and update existing curricula in this rapidly evolving sector. Moreover, a full-time faculty member will have the capacity to engage in the following **program improvement activities**.

Facilitate on and off-campus **outreach** activities, including Dual Enrollment offerings, program information event, and tours.

- Initiate **high-impact networking** with industry partners.
- Expand **internship** and **mentoring** programs for students.
- Connect program completers with **employment** and **careers**.

2. How does this request align with the College's Equity Plan Re-Imagined?

DMT prepares individuals for advanced manufacturing careers, promotes diversity, equity, inclusion and belonging among disproportionately-impacted and underrepresented populations, and addresses current and emerging workforce demand. Recruiting diverse faculty who can enact linguistically and culturally informed, **responsive teaching and learning practices** is key to creating an inclusive instructional environment and enhancing student equity. The addition of **two (2) FTE faculty** members for DMT, one (1) replacement and one (1) new, will ensure department capacity to fully address student **Success and Equity** gaps and improve outcomes for disproportionately impacted populations. Given the external commitments of adjunct faculty members, they are unable to engage at the level necessary to fulfill these goals. Specific strategies that new DMT full-time faculty members can contribute to **enhance equity** and **improve student and program-level outcomes** are highlighted below.

- Expand outreach to high schools, alternative and adult schools, community-based organizations, and industry.
- Facilitate peer tutoring and professional mentors offer 1:1 support to students.
- Increase internship opportunities to connect students with careers.

3. How does the program use data to develop, adapt, and improve teaching, learning, and/or support to respond to the needs of students, changing environments, other populations served, and evolving institutional and state priorities? - NOTE, THIS IS A DUPLICATED QUESTION WITH A.1 and B.1, PLEASE DISREGARD THIS QUESTION.

N/A Duplicated

4. How does the position support on-going college operations and/or student success?

The addition of new full-time faculty members will ensure that the DMT Department can fully implement its stated program improvement objectives and student Success and Equity goals. Without adequate program staffing, DMT will not be able to expand the 3D printing/AM program, fully address Success and Equity goals, nor schedule course offerings so that students can complete certificate and degree requirements in a timely manner.

5. Why is the position needed and how would the position contribute to the health, growth, or vitality of the program?

To promote the DMT Department's expansion into the area of 3D printing/AM, while maintaining current offerings in CNC machining, CAD and quality assurance; it is imperative to increase Department FTE instructional capacity dedicated to this rapidly growing sector.

6. Describe the current staffing and history of staffing in your area and how the current staffing affects the health, growth, or vitality of the program.

At present, the DMT Department has three (3) full-time, tenured faculty members and eight (8) active adjunct faculty members. From the ranks of the adjunct faculty, two (2) are retiring at end of 2023-24. Most adjunct faculty only teach one or two classes per year and have specialized subject-matter knowledge. They are not able to teach the full range of courses offered in 3D printing/AM, including CAD and Geometric Dimensioning and Tolerancing (GD&T). Having the replacement and new full-time DMT faculty member dedicated to the 3D printing/AM is instrumental to ensure that this program can grow, support equity and student success goals, and maintain active industry partnerships in this high-wage, high-demand advanced manufacturing sector.

7. Explain how the work will be accomplished if the position is not filled.

Unfortunately, the work and faculty staff time needed to continue to grow and maintain DMT's 3D printing/AM program cannot be undertaken on an ongoing basis with the existing department faculty, both full-time and adjunct. Having dedicated full-time faculty will be crucial to fully implement and institutionalize the NSF MAADE goals and objectives for 3D printing/AM: innovate curriculum, expand industry partnerships, reduce equity gaps, enhance student success, and increase program outcomes.

8. Other information, if any.

N/A

### Dean/Manager Comments

The De Anza Additive Manufacturing/3D printing program is one of its kind in California at the community college level, providing us with a unique and high-demand educational opportunity. 3D printing has swiftly adapted to production and supply chain needs after COVID 19, and the forecasts are very positive and state that the 3D printing market will nearly triple in size by 2026. The applications for AM/3D are in all industries - aerospace & defense, architecture, automotive, consumer products, electronics, entertainment, fashion manufacturing, energy, and medical. This provides so many job opportunities for the students we train. The department has expanded course offerings, demonstrating a commitment to meet growing student interest and industry demand. The department is also successfully teaching the dual enrollment classes. They are also doing a good job of promoting the DMT courses and programs to female students.

To maintain and expand our course offerings, the department's growth hinges on the hiring of a full-time faculty member. While we have the necessary equipment, market, and industry backing, the hiring of full-time faculty is vital for delivering the courses and improving program outcomes. Without whom, it could lead to an inability to deliver all courses promptly, which could lead to potential delays for students in finishing their degrees. I fully support the request for a full-time faculty position, as it will help the department grow in the right direction. Thank you for your consideration.

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This form is completed and ready for acceptance.

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