Program Review Summary Page

For Instructional Programs

Program or Area(s) of Study under Review: Digital Design Graphics Technology (DDGT)

Term/Year of Review: Fall 2021

Summary of Program Review:

A. Major Findings

1. Strengths:

- DDGT Students are employed
- DDGT has a significantly higher retention and course completion rates over the institution
- Curriculum for courses and programs is current and up-to-date
- Instructor performance and student satisfaction are high
- Students have easy access to course recorded class lectures and materials
- Instructors come from local industry and are certified on the programs they instruct
- DDGT is current with CLO and PLO assessment as it assesses all offered classes every semester and PLO's annually

2. Areas for Improvement:

- General awareness of the program to local schools and industry
- Enrollment
- Additional faculty will be needed to lead the Architectural and Civil additions to the program
- Increased representation of local businesses at Advisory Committees
- Tracking student AS Degree and CoA completions

3. Projected Program Growth, Stability, or Viability:

The DDGT program is stable with the potential to grow. The current course offerings are consistently filled with predictable numbers and course retention and class completion is higher than the institutional averages.

New courses are planned to be added to the program in the next year with a focus on new and growing industry technologies. Additional courses in 3D Printing, new courses for 3D Scanning and data acquisition, and new courses with Augmented Reality are going to keep the program at the forefront of technology and prepare our students with new skills for local industries. A new Civil Drafting and Design CoA will also add additional training at NVC not currently offered.

New instructional modalities, specifically piloting a Hy-Flex model in SPR22 could really create a boost in enrollment with greater flexibility to students.

B. Program's Support of Institutional Mission and Goals

1. **Description of Alignment between Program and Institutional Mission:**

The DDGT program is in the Career Technical Education (CTE) division providing cutting-edge technology and training to students preparing them for employment in local industries.

As a regional Autodesk Training Center (ATC), we provide training in the latest release of multiple Autodesk software titles. All instructors in the program are certified with Autodesk on the programs they instruct on. Students earn industry recognized Autodesk Certificates of Training in all DDGT courses with opportunities to take higher level certifications onsite.

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

In addition to the DDGT AS Degree, the DDGT program has added additional local CoA's with Mechanical Drafting and Design CoA and Architectural Drafting and Design CoA with fourteen certificates already completed.

As an Autodesk Training Center, in the last three years:

- 227 Autodesk Certificates of Completion were awarded
- 5 Autodesk Certified User exams were passed
- 2 Autodesk Certified Professional exams were passed

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

- The DDGT program has offered multiple boot camps on 3D Printing for local high schools
- The DDGT program has worked with Napa Learns Virtual Academy (now part of Napa Valley Education Foundation) offering a class on 3D Printing in an online format during Covid to allow students to continue educational training with an emphasis on employment
- The DDGT program has updated all curriculum courses and programs
- The DDGT program has added additional courses and CoA's for additional student certifications
- The DDGT program plans on adding additional courses and CoA's within the next year

C. New Objectives/Goals:

- Pilot the new Hy-Flex instructional modality to improve flexibility for student enrollment
- Request additional equipment (computers, 3D Printers, drones, lidar) to allow for expansion of class cap sizes and additional course offerings
- Create additional courses to expand current course offerings and add new courses to offer training that is not currently available utilizing new technology (3D Scanning, Augmented Reality)
- Create a one-year Civil Drafting and Design CoA
- Continue to work with local high schools to spread general awareness of course offerings
- Reach out to local industries and companies to expand representation at advisory committees and to spread awareness of the program
- Track all student AS Degree and CoA completions and to work with the NVC administration to verify those completions

D. Description of Process Used to Ensure "Inclusive Program Review"

The DDGT program is a one-person department

Program Review Report Fall 2021

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	**Digital Design Graphics Technology**
Degree(s)/Certificate(s)	Architectural Drafting and Design: CoA Digital Design Graphic Technology: AS Digital Design Graphic Technology: CoA Mechanical Drafting and Design: CoA
Courses	DDGT 110
	DDGT 120
	DDGT 121
	DDGT 130
	DDGT 230
	DDGT 231
	DDGT 240
	DDGT 241

Taxonomy of Programs, June 2021

I. PROGRAM DATA

A. Demand

1. Headcount and Enrollment

	2018-2019	2019-2020	2020-2021	Change over 3-Year Period
Headcount				
Within the Program	80	72	44	-45.0%
Across the Institution	8,176	8,181	7,208	-11.8%
Enrollments				
DDGT-110	29 **FA18=17** **SPR19=17** **TOTAL=34**	34 **FA19=19** **SPR20=17** **TOTAL=36**	18 FA20=0 **SPR21=19** TOTAL=19	-37.9%
DDGT-120	12 **FA18=13**	10 **FA19=11**	12 **FA20=13**	0.0%
DDGT-121	11 **SPR19=11**	9 **SPR20=9**	6 **SPR21=7**	-45.5%
DDGT-130	24 **SU18=16** **FA18=10** **TOTAL=26**	29 **SPR20=15** **SU19=14** **TOTAL=29**	- **FA20** **NAPA** **LEARNS =** **7**	-100%
DDGT-230	18	--	23	27.8%
DDGT-240	12 **FA18=12**	9 **FA19=9**	9 **FA20=9**	-25.0%
DDGT-241	11 **SPR19=11**	5 **SPR20=5**	8 **SPR21=9**	-27.3%
Within the Program	117 **125**	96 **99**	76 **87** **102**	-35.0% **-36.0%** **-18.4**
Across the Institution	32,545	33,102	30,409	-6.6%
Source: SQL Enrollment Files				

RPIE Analysis: The number of students enrolled (headcount) in the Digital Design Graphics Technology Program decreased by 45.0% over the past three years, while headcount across the institution decreased by 11.8%. Enrollment within the Digital Design Graphics Technology Program decreased by 35.0%, while enrollment across the institution decreased by 6.6%.

Enrollment in the following courses changed by more than 10% (±10%) between 2018-2019 and 2020-2021:

Course with an enrollment increase:

- *DDGT-230 (27.8%)*

Courses with enrollment decreases:

- *DDGT-130 (-100%)*
- *DDGT-121 (-45.5%)*
- *DDGT-110 (-37.9%)*
- *DDGT-241 (-27.3%)*
- *DDGT-240 (-25.0%)*

***Note:** While enrollments among concurrent courses are reported separately (at the course level) in Section I.A.1, concurrent courses are reported as one (joint) observation in Section I.A.2.*

Program Reflection:

Let me start by saying that I have reviewed the numbers in the Data table and I have added my numbers in red as a comparison. I am not going to argue with differences as they are pretty close. I am curious as to how they are counting students though, are they including all students on day one or students on consensus day? I counted the students who showed up on day one of class.

I also realized that they counted the summer bootcamps of DDGT130 in with the normal course offerings of Fall and Spring courses. I am not sure how I feel about this as those summer boot camps were only originally offered to high school students and were marketed in a totally different manner than all other DDGT courses offered through NVC (Napa Valley College). As I recall, the costs of courses and materials were covered by alternate funding sources and were free to the students. We only offered the summer boot camps for two years while the funding was available. This gives a false representation of enrollment of this course over the last three years.

To an outside observer, the numbers in the DDGT program appear to be very poor. However, to someone who is very familiar with the program, the numbers are not quite what they seem. Let me evaluate each course:

DDGT110 – This class is typically offered every semester and we have a steady enrollment between 15-20 students. When Covid happened in March (SPR20), we had more drops in the class than we have ever had (8/17 students dropped). In FA20, we had to cancel the class due to low enrollment. This has NEVER happened in over 20 years in the program. If you look at the numbers of the class prior to Covid, the numbers were consistent.

DDGT120 – Enrollment numbers remain steady. This is the first course in the two-year program and is only offered in the Fall. Enrollment typically is around 10-14 students. This class is offered concurrently with DDGT240, the third course in the two-year program.

DDGT121 – Enrollment numbers are expected. This is the second course in the two-year program and is only offered in the Spring. Enrollment is typically around 8-10 students. There is usually a higher drop-off between the first and second class in the program than between the remaining classes in the program. Usually, if a student makes it to the third semester, they are usually going to finish the program. This course is offered concurrently with DDGT241, the fourth course in the two-year program.

DDGT130 – This is a new course in the program regarding 3D Printing and has only started being offered as of 2018. We are still evaluating what regularity this course should be offered. At this time, it makes sense to only offer it once a year in the Spring. I have already mentioned that the Summer boot camp offerings in the first two years are inflating the numbers in this course. I would also like to mention that if we are going to incorporate the boot camps, we should consider including this course when it was offered through Napa Learns in FA20. This is the same class I teach as DDGT130 at Napa Valley College and the students who enrolled through the Napa Learns program had their tuition and materials covered by the Napa Learns program and students were also able

to earn college credit. (I included this in blue in the data table.) This course was also cancelled in SPR20 due to low enrollment from Covid.

DDGT230 – This is the first course in the one-year local skills Architectural Drafting and Design Certificate of Achievement (CoA). This course is also required for the DDGT AS Degree and the DDGT CoA. This course typically has enough of a demand to offer it once every other year (or once during the two-year program offering). As this class is only offered once every other year, it typically has an enrollment of around 20 students. There is a growing demand for more architectural courses in the DDGT program and I have unarchived DDGT231, the continuation course, and it is included in the Architectural Drafting and Design CoA. DDGT231 has not been offered in the last three years as we are having difficulties finding an instructor.

DDGT240 – In FA17, we had a starting class in DDGT120 of 30 students, the largest class we ever had and extremely uncharacteristic of the normal enrollment numbers (by about 2.5 times normal class size). As this group of students continued through the two-year program, their class enrollment numbers were more than double the average enrollment for each respective class. By FA18, the remaining students were in DDGT240 and then in DDGT241 in SPR19. When you compare DDGT240 and DDGT241 from the first year of the data numbers to the last, it makes the program seem like it is getting smaller when in fact, the last two years had an upwards completion rate compared to the years prior to the three this table reflects. Typical enrollment for DDGT240 is usually around 6-8 students. This class is offered concurrently with DDGT120, the first course in the two-year program.

DDGT241 – Enrollment numbers are actually currently higher than typical years. As previously mentioned under DDGT240, the first year of data started with a higher, atypical enrollment number. Typical enrollment for DDGT241 is around 4-6 students. SPR21, we had 9 students which is much higher than normal.

An easier way to view the numbers in the core program is actually in succession:

DDGT240 FA18=12, DDGT241 SPR19=11
DDGT120 FA18=13, DDGT121 SPR19=11, DDGT240 FA19=9, DDGT241 SPR20=5
DDGT120 FA19=11, DDGT121 SPR20=9, DDGT240 FA20=9, DDGT241 SPR21=9
DDGT120 FA20=13, DDGT121 SPR21=7

Let me be clear, we are not trying to dismiss the downwards enrollment and headcount numbers but the really large atypical enrollment numbers of DDGT240 and DDGT241 in the first year with the included summer DDGT130 bootcamp and the reduced number of students from Covid in the last year really are skewing the numbers to seem more extreme than they actually are. For example, if you imagine that DDGT110 was not canceled in FA20 and had a minimum enrollment of 15 students, that would have bumped up our total enrollment for FA20/SPR21 to 102 and cut the reduction percentage in half. I have added this in orange in the data table.

The program has been reviewing ways to increase enrollment and we are excited to be piloting in all DDGT courses in SPR22 a new teaching modality (Hy-Flex) where students can enroll in courses in any format they wish: face-to-face, online synchronous, or online asynchronous. The goal here is to offer the courses with increased flexibility for student schedules so they can attend in any format that works best for them. I am hoping to also pilot this in FA22 as well as that is when we are able to offer DDGT120, the start of the two-year program.

2. Average Class Size

	2018-2019		2019-2020		2020-2021		Three-Year	
	Sections	**Average Size**	**Sections**	**Average Size**	**Sections**	**Average Size**	**Average Section Size**	**Trend**
DDGT-110	2	14.5	2	17.0	1	18.0	16.2	24.1%
DDGT-120/240	1	24.0	1	19.0	1	~~44.0~~ **21.0**	~~29.0~~ **21.3**	~~83.3%~~ **-12.5%**
DDGT-121/241	1	22.0	1	14.0	1	14.0	16.7	-36.4%
DDGT-130	2	12.0	2	14.5	-- **1**	-- **7.0**	13.3	-100%
DDGT-230	1	18.0	--	--	-- **1**	-- **23.0**	~~18.0~~ **20.5**	~~-100%~~ **27.8%**
~~DDGT-241*~~	--	--	--	--	~~1~~	~~8.0~~	~~8.0~~	--
Program Average*	7	16.7	6	16.0	4	19.0	~~17.0~~ **17.6**	~~13.8%~~ **5.4%**
Institutional Average*	1,313	24.8	1,348	24.6	1,171	25.9	25.1	4.4%

Source: SQL Enrollment and Course Sections Files

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.

Concurrent sections are reported as one observation.

- DDGT-120 and DDGT-240 reported as DDGT-120 in 2018-2019 and 2019-2020. **AND FOR 2020-2021.**
- DDGT-120, DDGT-230, and DDGT-240 are reported as DDGT-120 in 2019-2020. **DDGT230 SHOULD NOT BE INCLUDED WITH DDGT120 AND DDGT240 AS DDGT230 IS A SEPARATE CLASS AND IS NOT CONCURRENT WITH ANY OTHER SECTION.**
- DDGT-121 and DDGT-241 reported as DDGT-121 in 2018-2019. **AND FOR 2019-2020 AND 2020-2021.**
- DDGT-241 was not concurrent with any courses in 2020-2021. **NOT TRUE. DDGT241 IS ALWAYS CONCURRENT WITH DDGT121**

*RPIE Analysis: Over the past three years, the Digital Design Graphics Technology Program has claimed an average of ~~17.0~~ **17.6** students per section. The average class size in the program has been lower than the average class size of 25.1 students per section across the institution during this period. Average class size in the program increased by ~~13.8%~~ **5.4%** between 2018-2019 and 2020-2021. Average class size at the institutional level increased by 4.4% over the same period.*

Average class size in the following courses changed by more than 10% (±10%) between 2018-2019 and 2020-2021:

Courses with increases in average class size:

- ~~*DDGT-120/240 (83.3%)*~~

- *DDGT-110 (24.1%)*
- ***DDGT-230 (27.8%)***

Courses with decreases in average class size:

- ***DDGT-120/240 (-12.5%)***
- *DDGT-130 (-100%)*
- ~~*DDGT-230 (100%)*~~
- *DDGT-121/241 (-36.4%)*

Program Reflection:

I corrected the data in the table in red. Note: I added the Napa Learns numbers to the table in blue.

I do not look at the information provided for increases or decreases in class size as relevant. I am actually rather confused why it is reviewed this was as it only compares the first year against the third year and ignores all the data from year two. For example, the data states that we decreased in DDGT130 by 100% because the class was not successfully offered in the last year (enrollment affected by Covid) but if you compare the first year against the second year, you will see that enrollment was going up.

I believe that the most valuable information you can find on this table is from the "Average Section Size" column. As our numbers are consistently between 16.2 and 21.3 for established courses and is at 13.3 for DDGT130 (a new course which only began being offered in 2018), I would say that we are offering the correct number of sections for our classes.

Ideally, I hope to increase course enrollment across all DDGT courses and I hope that the new Hy-Flex modality pilot will help.

I am also planning on incorporating new courses into the program over the next few years including a new one-year Civil Drafting and Design CoA. I am hoping that if there are more courses offered in the program, it might drive more enrollment across all DDGT courses.

3. Fill Rate and Productivity

Fill Rate*			
	Enrollments*	**Capacity**	**Fill Rate**
2018-2019	~~101~~ **103**	~~150~~ **130**	~~67.3%~~ **79.2%**
2019-2020	~~69~~ **82**	~~120~~ **110**	~~57.5%~~ **74.5%**
2020-2021	~~75~~ **76**	~~105~~ **100**	~~71.4%~~ **76.0%**
Three-Year Program Total	~~245~~ **261**	~~375~~ **340**	~~65.3%~~ **76.7%**
Institutional Level	83,156	101,258	82.1%
Productivity*			
	FTES	**FTEF**	**Productivity**
2018-2019	34.4	3.6	9.6
2019-2020	24.9	3.0	8.3
2020-2021	27.5	3.3	8.3

Three-Year Program Total	86.8	9.9	8.8
Source: SQL Enrollment and Course Sections Files			

*RPIE Analysis: Fill rates within the Digital Design Graphics Technology Program tend to be lower than the fill rate at the institutional level. [Compare program-level rate of ~~65.3%~~ **76.7%** to institution-level rate of 82.1% over the past three years.] Between 2018-2019 and 2019-2020, both enrollment and capacity decreased, resulting in a decrease in fill rate (due to a higher rate of decrease in enrollment). Between 2019-2020 and 2020-2021, enrollment increased while capacity decreased, resulting in an increase in fill rate.*

Productivity remained relatively consistent over the three-year period, ranging from 8.3 to 9.6. [Productivity has not been calculated at the institutional level.] The three-year program productivity of 8.8 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.)

**Note: Fill rates and productivity reported in the table do not include two Digital Design Graphics Technology section offerings for summer terms over the past three years. As a result, the enrollment figures reported here might differ from those reported in Section I.A.1.*

Program Reflection:

I reviewed the data and found it to be inaccurate. I used the original numbers from the table in 1A.1 and I recalculated them above in red. I am unclear why the institution does not include summer sections in this portion of the report. Note: I did not include the summer courses in my revised data either in the data table above. However, when summer course numbers are factored in, the percentages all go up.

I found that the data that I calculated was much closer to the institutional level and much more consistent across the three years. I am not surprised by the data as we tend to have class enrollments closer to the minimum class sizes.

FILL RATE AND PRODUCTIVITY

		2018/2019			2019/2020			2020/2021		
COURSE	CAP	SECTIONS	CAP	ENROLLMENT	SECTIONS	CAP	ENROLLMENT	SECTIONS	CAP	ENROLLMEN
110	15	2	30	29	2	30	34	1	15	18
120	20	1	20	12	1	20	10	1	20	12
121	15	1	15	11	1	15	9	1	15	6
130	15	1	15	10	1	15	15	0	0	0
230	20	1	20	18	0	0	0	1	20	23
240	15	1	15	12	1	15	9	1	15	9
241	15	1	15	11	1	15	5	1	15	8
			130	103		110	82		100	76
			103 / 130 =	79.2%		82 / 110 =	74.5%		76 / 100 =	76.0%
								3 YEAR TOTALS	340	261
									261 / 340 =	76.8%

I would like to explain why our class CAPs are set they way they are – equipment limitations. DDGT130 is the intro to 3D Printing course we offer and we only have one 3D Printer which can be a bottleneck for printing student assignments. Each student has an allotment of 60 cubic inches of material to print with and will typically print at least three projects each. With 15 students, this is at least 45 projects that need to be printed and we can only print so many projects at a time. Most projects will take at least a day to print and will need to be in the bath (that dissolves the supporting material away leaving only the plastic) for another day or two. However, there have been cases where a project will take up to six days to print and we have had projects need to be in the bath for weeks. We let the students know at the beginning of the class that they will not receive all of their printed projects at the end of the semester but rather by the beginning of the following semester to give us extra time to print. As for the other courses, we only have thirty-two computers split between two classrooms. When you take a computer away for the instructor office, the DDGT Technician, the two instructor machines at the front of each classroom, this leaves you with twenty-eight machines. We have divided the computers with typically 20 computers in one room and the remaining eight in the second room. (Note: sometimes we have to get creative and shuffle them around.) We only use the second room for the second-year students as they typically have smaller class enrollments. They can also utilize these dedicated computers to their "renderings" for their class assignments. Remember that first year and second year students are taught concurrently. We utilize the room with 20 computers to teach all the other courses that have larger class sizes. We have had times when students have had to bring in laptops and work off of their own machines to accommodate larger classes. We have requested an increase in the number of computers in our building to 46 to allow 21 student computers in each room, an instructor computer in each room, an instructor office machine and a DDGT Technician computer. This would allow our program to grow into the future.

I am not commenting on the "Productivity" as I am unclear how the numbers were calculated so I cannot confirm this information.

4. Labor Market Demand

Economic Development Department Standard Occupational Classification Description (SOC Code): 17-3011, 17-3012, 17-3013, 17-3019	Numeric Change in Employment	Projected Growth (% Change in Employment)	Average Annual Job Openings (New Jobs + Replacement Needs)
Napa County (2018-2028)	-10	-11.1%	80
Bay Area[A] (2018-2028)	-110	-1.7 %	6,500
California (2018-2028)	200	+0.8%	25,740

Source: Economic Development Department Labor Market Information, Occupational Data, Occupational Projections (http://www.labormarketinfo.edd.ca.gov)
[A]Bay Area counties include: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solono, 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 Standard Occupational Classifications for the following positions:

- *architectural and civil drafters*
- *electrical and electronics drafters*
- *mechanical drafters*
- *drafters, all other*

The Economic Development Department projects a decrease of 10 positions for Napa County and a decrease of 110 positions for the Bay Area for the types of positions described above by 2028 (compared to 2018). The decrease in positions in Napa County translates into an 11.1% decrease for the industry, and the decrease for the Bay Area translates into a 1.7% decrease. Positions within California are projected to increase. Approximately 80 openings are projected each year in Napa County, while 6,500 openings are projected each year in the Bay Area (through 2028).

Program Reflection:

The DDGT program has always prided itself on the variety of skills that are taught throughout the two-year program. The DDGT program has always been more than just "drafting" and I have often referred to it as design and visualization. At the core, the DDGT program is also an Autodesk Training Center (ATC) which allows us to teach students the latest release of industry standard Computer Aided Design (CAD) software including AutoCAD, Inventor, Fusion 360, Revit, and 3ds Max. AutoCAD is a versatile program used in many industries and companies worldwide. Inventor and Fusion 360 are for 3D Mechanical Design. Revit is for Architectural Design. Inventor, Fusion 360, and Revit all work in a Parametric Environment meaning the parts "know" about each other and as you update the design, those changes "trickle" out and update the rest of the project. 3ds Max is a visualization program allowing you to take your designs from the previously mentioned software programs and create photo-realistic 3D Animations and videos for clients, permits, marketing, investors, and more.

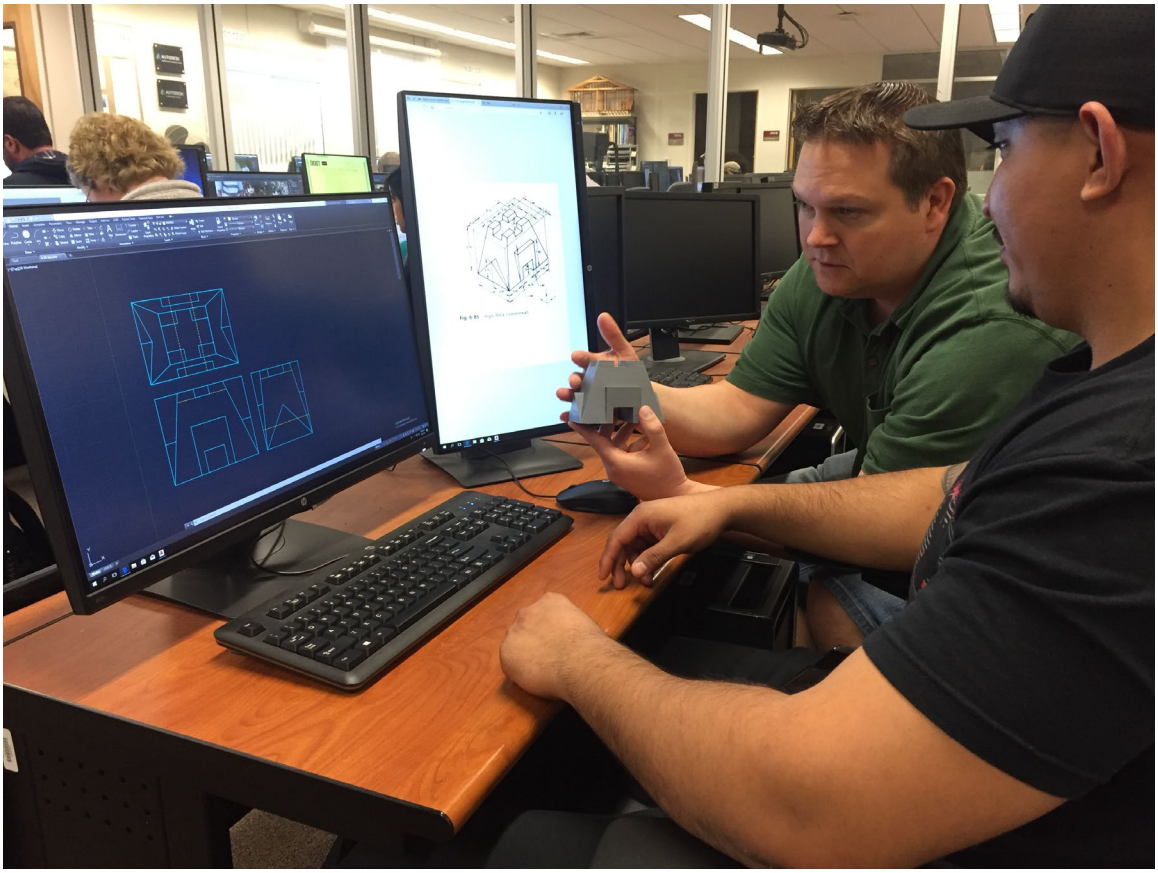
As an ATC, we also have the ability to offer certified training in the Autodesk programs. All of our DDGT instructors are certified and all of our courses incorporate an Autodesk Certificate of Completion as follows:

DDGT110 – AutoCAD Fundamentals
DDGT120 – AutoCAD Fundamentals
DDGT121 – Inventor Introduction to Solid Modeling
DDGT130 – Fusion 360 Fundamentals
DDGT230 – Revit Architecture
DDGT231 – Revit Conceptual Design & Visualization
DDGT240 – 3ds Max Fundamentals
DDGT241 – AutoCAD Advanced
Note: If you were to go and receive this training at other ATC's, you would be charged over $1,000 per title and we only charge the students a fee of $125 to cover the cost of the materials. Upon completion of the AS Degree, a student can have five or six certifications completed. Since this is done through Autodesk and not through the Napa Valley College, NVC does not have the following information. In the the last three years:
227 Autodesk Certificates of Completion were awarded.
5 Autodesk Certified User exams were passed.
2 Autodesk Certified Professional exams were passed.
Note: The exams are not required and are costly so many students do not attempt them even though it is highly suggested.

The DDGT program also incorporates multiple Adobe programs including Photoshop, Dreamweaver, Premiere, and After Effects. Photoshop is a graphical editor where you can create and modify graphics. We teach it in a technical way but it can also be used artistically. Dreamweaver allows you to create websites. All students who go through the two-year program create and maintain a professional level portfolio which we host for free. Students have received job offers based on their websites. Premiere is a video editor so students can create professional level mechanical animations showcasing assembly and functionality of their designs. After Effects is a compositor that allows students to add special effects to their animation such as fire and water for added realism.

The DDGT program also incorporates advanced technologies including 3D Printing, 3D Scanning, and Augmented Reality.

The DDGT program has been using 3D Printing in the program for around twenty years. Some assignments are 3D Printed to help students visualize 3D data from 2D design. Other assignments are printed and students must "reverse engineer" drawings based on the physical model – a skill that is frequently utilized in the industry. Students are also taught how to make their own designs and 3D Print parts and assemblies – skills that are not as easy as they sound. Part orientation, thicknesses, tolerances, clearances, materials, and costs are just some of the design considerations.



This image showcases the instructor helping a student create 2D Orthographic views (left monitor) from a 3D view (right monitor) using a 3D Printed model of the part.

The DDGT program has a 3D Scanner by Trimble and is used in combination with the Real Works software. 3D Scanning uses a laser to create millions of points in a 3D Environment that can be overlayed over your own design to check for clearances between the real-world environment and your digital design and also allows you to gather data for analysis. This is used for mechanical design, architecture, forensics, and more. Industry is using these skills on an increasing basis. We are currently creating a one-year Civil Drafting and Design CoA that will also incorporate the 3D Scanning.

Here is an image of point cloud data of the Notre Dame. Fortunately, this cathedral had been scanned a few years prior to the fire that devastated the building. They now have the data to rebuild it exactly as it was thanks to this information.

The DDGT program has only recently acquired enough Microsoft Hololenses to offer a class on Augmented Reality. Augmented Reality is where you can super impose interactive 3d holograms over the real world. Users can interact with the model, move it, rotate it, "walk through it" and more in the real world! We are currently in the process of creating additional classes that will utilize this technology.

This image showcases the Microsoft Hololens with a user looking at a digital, interactive hologram overlayed over the real world.

I have gone through all of this information for two reasons. First, many people do not understand what it is we actually do in the DDGT program and think that it is "just drafting". Secondly, you can see that with all we do, we do not simply fit into one simple category in the labor market data.

The labor market data only looks at the following data:

- *architectural and civil drafters*
- *electrical and electronics drafters*
- *mechanical drafters*

The labor data states that the drafting industry demand is decreasing - something I do not agree with. Fortunately, we do a lot more than just "draft". As I tell my students, software comes and goes. Certain skills come and go. You do not want to set yourself up in a job or career where you fit a "niche" because at some point, you will find yourself out of work. When you can wear many "hats" with many skillsets, you become more valuable to your employer. When times may get tough, you can stay employed because you have other skills. You can update the company website, you can create marketing materials, etc. you can do more than just "draft."

I would like to see the labor data for the following industries as we encompass many of these fields (with TOP Codes):

020100 Architecture and Architectural Technology
029900 Other Architecture and Environmental Design

061400	Digital Media
061410	Multimedia
061430	Website Design and Development
061440	Animation
061460	Computer Graphics and Digital Imagery
069900	Other Media and Communications
095300	Drafting Technology
095310	Architectural Drafting
095320	Civil Drafting
095340	Mechanical Drafting
095360	Technical Illustration
100900	Applied Design
210540	Forensics, Evidence, and Investigation

B. Momentum

1. Retention and Successful Course Completion Rates

	Retention Rates (Across Three Years)			Successful Course Completion Rates (Across Three Years)		
Level	**Rate**	**Course Rate vs. Program Rate**		**Rate**	**Course Rate vs. Program Rate**	
		Above	**Below**		**Above**	**Below**
DDGT-110	94.4%	--	--	79.2%		X
DDGT-120	96.9%	X		84.4%	X	
DDGT-121	100%	X		83.3%	X	
DDGT-130	92.2%		X	82.4%	--	--
DDGT-230	95.1%	--	--	87.8%	X	
DDGT-240	93.3%		X	80.0%		X
DDGT-241	95.8%	--	--	70.8%		X
Program Level	**94.9%**			***81.4%***		
Institutional Level	90.3%			75.6%		

Source: SQL Enrollment Files
-- 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.

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 Digital Design Graphics Technology Program was significantly higher than the rate at the institutional level. The retention rates among all DDGT courses generally reflected the program-level rate (without any statistically significant differences). The retention rate for the Digital Design Graphics Technology Program falls in the 83rd percentile among program-level retention rates (across 59 instructional programs, over the past three years).

Over the past three years, the successful course completion rate for the Digital Design Graphics Technology Program was significantly higher than the rate at the institutional level. The successful course completion rates among all DDGT courses generally reflected the program-level rate (without any statistically significant differences). The successful course completion rate for the Digital Design Graphics Technology Program falls in the 60th percentile among program-level successful course completion rates (across 59 instructional programs, over the past three years).

Over the past three years, the difference between retention and successful course completion at the program level (13.5%) was lower than the difference at the institutional level (14.7%). This figure represents the proportion of non-passing grades assigned to students (i.e., grades of D, F, I, NP).

The following Digital Design Graphics Technology courses claimed differences (between retention and successful course completion) that exceeded 10%:

- *DDGT-241 (25.0%)*
- *DDGT-121 (16.7%)*
- *DDGT-110 (15.2%)*
- *DDGT-240 (13.3%)*
- *DDGT-120 (12.5%)*

Program Reflection:

I am proud of the retention rates and the successful completion rates we have in the DDGT department. In the core classes, DDGT120, 121, 240, and 241, I require students to meet with me three times a semester one-on-one outside of class time. This is an assignment. During Spring, students are required to meet with me once in February, March, and April. In Fall, students are required to meet with me once in September, October, and November. During this time, we review Canvas and see where they are in the class. We review their assignments, if they are ahead or behind, quiz scores, and classroom participation. I let them know how they are doing and what they need to be focusing on. It also gives the students a chance to address any questions or concerns they may have privately. It also gives me an opportunity to get to know the students a bit more and get more of a connection with what they want to get out of the program. It helps me make sure that students are not falling behind.

I have not implemented this in the DDGT110 or DDGT130 but after reviewing this data, I think I will try that and see if I notice any changes. I have not done it in the none-core classes as these students, specifically in

DDGT110, are enrolled in other majors and typically take this class as it is a requirement so they tend not to be as invested in the program as students in the core program.

I think that one of the reasons I have been so successful in retention and successful completion rates is because I try to approach the instruction of the class not from a position of authority but rather from the perspective of a peer or colleague. I have always been passionate about what we teach in the Program and I have always tried to convey that passion to the students. I have had numerous students tell me that they appreciate my teaching style.

As an Autodesk Training Center, we are required to have students' complete evaluations of the class, the facility, and the instructor when they are requesting their Certifications of Completion. Here is my instructor performance review from Autodesk over the last three years:

- 2018 = 97.18% approval (91 Evaluations)
- 2019 = 95.48% approval (78 Evaluations)
- 2020 = 97.60% approval (52 Evaluations)
- 2021 = 96.88% approval (21 Evaluations)

This is a 96.7% instructor approval rating over 242 evaluations over the last three years. This is also evident on NVC Student evaluations of the instruction as well (not included in this documentation).

I would also like to take this a step further and look at the retention of students over the two-year program and not only on individual courses. If you look at the enrollment of students continuing from one class to the next in the two-year program in succession, you will also see that there are a significant number of students who continue on. I have personally noted that there is typically a larger student drop-off of continuing students during the first year than the second year. Typically, if a student starts the third semester, they will stick out through the remainder of the program. I have asked other department heads of two-year programs and they have noted similar trends.

DDGT240 FA18=12, DDGT241 SPR19=11
DDGT120 FA18=13, DDGT121 SPR19=11, DDGT240 FA19=9, DDGT241 SPR20=5
DDGT120 FA19=11, DDGT121 SPR20=9, DDGT240 FA20=9, DDGT241 SPR21=9
DDGT120 FA20=13, DDGT121 SPR21=7

Lastly, I will point out that DDGT241 will typically have a higher difference in percentage of students between retention and successful course completion due to smaller class sizes. Enrollment in DDGT241 typically is around 5-6 students so every student who does not complete the class has a higher impact upon percentages. This is to be expected.

2. Student Equity

	Retention Rates (Across Three Years)		Successful Course Completion Rates (Across Three Years)	
	Program Level	**Institution Level**	**Program Level**	**Institution Level**
African American/Black	50.0%	86.8%	59.0%	65.0%
Latinx/Hispanic			83.1%	72.6%

First Generation			80.7%	74.4%

Source: SQL Enrollment Files

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***.

Shaded cells pertaining to retention rates indicate that statistically significant differences for those groups were not found at the institutional level.

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: This analysis of student equity focuses on the three 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 three groups listed above.

Within the Digital Design Graphics Technology Program, the retention rate among African American/Black students was lower than the rate at the institutional level. (The difference was not statistically significant.)

Within the Digital Design Graphics Technology Program, the successful course completion rate among African American/Black students was lower than the rate at the institutional level. (The difference was not statistically significant.)

These patterns deviate from the findings from the comparison of retention and successful course completion at the program vs. institutional level, where the program-level rate exceeded the institution-level rate for both retention and successful course completion. (See Section I.B.1 above).

Program Reflection:

I found that the data in the table being provided as a percentage to be misleading. When I asked for a hard number, I found out that we only had a total of two students who identified as "African American/Black" over the three years. This is obviously too low a sample size to have any meaningful reflection on. I would suggest in the future that all data in all tables be provided as hard numbers as well as percentages to more accurately provide data.

I would like to add that the DDGT program has been tracking its own statistical data from students completing the Autodesk Certificates of Training since 2007. This has been done to track data for marketing purposes and tracks information such as:

- Where did you hear from us?
- Where are you located?
- Gender Statistics
- Age Statistics
- What company do you work for?
- What industry do you work in?

Note: This information can be provided upon request.

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

This section does not apply to the Digital Design Graphics Technology Program, as courses associated with the program were not offered through multiple delivery modes within the same academic year between 2018-2019 and 2020-2021.

C. Student Achievement

1. Program Completion

	2018-2019	2019-2020	2020-2021
Degrees			
Digital Design Graphic Technology: AS	4	1	6
Institutional: AS Degrees	**386**	**408**	**408**
Average Time to Degree (in Years)+			
Digital Design Graphic Technology: AS	*	*	*
Institutional: AS	**4**	**4**	**3**

Source: SQL Award Files

*Time to degree/certificate within the program reported among cohorts with at least 10 graduates within the academic year. Asterisk indicates that data have been suppressed.

+Average time to degree/certificate was calculated among students who completed a degree/certificate within 10 years (between first year of enrollment at NVC and award conferral year). Among 2018-2019 completers, the average time to degree/certificate was calculated among students who enrolled at NVC for the first time in 2009-2010 or later. Among 2019-2020 completers, the average time to degree was calculated among students who enrolled at NVC for the first time in 2010-2011 or later.

RPIE Analysis: The number of AS degrees conferred by the Digital Design Graphics Technology Program increased by 50.0% between 2018-2019 and 2020-2021. Over the same period, the number of AS degrees conferred by the institution increased by 5.7%. The Digital Design Graphics Technology Program accounted for 1.0% of the AS degrees conferred by the institution in 2018-2019 and 1.5% of those conferred in 2020-2021. The average time to degree is not reported due to small cohort sizes.

Program Reflection:

There is missing data in the table above. The table only includes the DDGT AS Degree. It is missing the following certificates:

- Architectural Drafting and Design CoA (There are 0 certifications for this as we have not been able to find an instructor for DDGT231)
- Mechanical Drafting and Design CoA (When I requested this data, I was told that there have been 2 awarded certificates. This confuses me as I have copies of the 14 certificates that I have submitted on for approval.)
- DDGT CoA (At least 10. All students who have completed the DDGT AS Degree automatically have met the requirements for the DDGT CoA but there could be additional students who have completed

the requirements for the DDGT CoA but not the DDGT AS Degree as the AS Degree requires additional course completions.)

I am planning on contacting my Dean and the Office of Instruction to establish a better communication protocol. When I submit certificates that I have approved, how do I know if they have been processed and completed?

I go over the requirements for the DDGT AS Degree, DDGT CoA Certifications, and Autodesk Certifications every semester in the core classes of the two-year program so that students know what is required to earn them.

The courses in the one-year CoA's are all DDGT courses so I know when they have completed the necessary courses for these certifications and I personally fill out the certificates and submit them on for approval. I would like to do this with the DDGT CoA and the DDGT AS Degree but this does not work as easily. It is not uncommon for students to still need to complete additional courses after completing all the necessary DDGT courses so I am not there to make sure they fill out the paperwork. What I will plan on doing in the future though is to meet with all students in DDGT241 and help them fill out the DDGT CoA and the DDGT AS Degree. I will hang onto them and check each semester as to their progress towards completion. Once they have completed all the necessary courses, I will submit the certificate on their behalf. I can do this as I have access to their grades as an advisor. I know there are students who have completed the necessary courses for certifications / AS Degree but have chosen not to submit the necessary paperwork. I will be more proactive into the future.

Additionally, as previously mentioned, as an Autodesk Training Center, we have been offering student certifications on Autodesk software. Since this is done through Autodesk and not through the Napa Valley College, NVC does not have the following information. In the last three years:

- 227 Autodesk Certificates of Completion were awarded.
- 5 Autodesk Certified User exams were passed.
- 2 Autodesk Certified Professional exams were passed.

Note: The exams are not required and are costly so many students do not attempt them even though it is highly suggested.

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%)	66.7%	80.0%	100%	77.8%
Licensure Exam Pass Rate	Licensure exams are not required for this program.				
Sources: Perkins IV Core 4 Employment data for Program (TOP Code 1030) for job placement rates (https://misweb.cccco.edu/perkins/Core_Indicator_Reports/Summ_CoreIndi_TOPCode.aspx);					

*Program-set standards and stretch goals reported in the table are the standards and goals established in 2019.

RPIE Analysis: Among Digital Design Graphics Technology Program students, job placement rates have consistently exceeded the program-set standard of 60%. The job placement rates have met the stretch goal of 75% in two of the past three years.

Program Reflection:

The DDGT Program does not guarantee job placement but we do have job opportunities that arise. I have a requirement for all students to submit a signed document stating that they have read the course syllabus the first week of school. We go over it during class and this is an assignment. For the core classes in the program, I also include a check box on the form asking students if they would like to be notified for any potential job opportunities. For those who check "yes", I add their contact information to a spreadsheet I maintain. When a job opportunity comes along, I forward the information to all students on the contact list and they can respond directly to the interested party if they wish. We get job opportunities ranging from small side jobs (like a local resident wanting to do an addition on their house), to employers looking for full time workers. I express the importance to students to make sure you find an employer who is flexible to work around your school schedule so you can complete your education. I also express what a great opportunity it is for students to be able to work in the industry while they are still in school as they can immediately see the application of the skills they are learning. Students have enough of a skillset to get an introductory drafting position after the first semester of the two-year program.

If a student drops out of the two-year program before completing it, or if a student asks me to, I will remove the student from the contact list.

There are no required Licensure Exams for this program but there are additional optional Autodesk Certifications that can be taken that are industry recognized. Autodesk has three levels of certifications:

- Certification of Training – Students earn these in each of the DDGT courses in various Autodesk software products. Again, this is over a $1,000 value for each title that we only charge students $125 per title. This Certification states that you have received training.
- Certified User – This exam costs a minimum of $90 and you have a timed practical exam. Autodesk recommends 90 hours of experience with the program before you attempt this exam. This certification states that you have a basic understanding of this software.
- Certified Professional – This exam costs a minimum of $150 and have a time practical exam. This is a more difficult exam than the Certified User. Autodesk recommends that you have 450 hours of experience with the program before you attempt this exam. All DDGT instructors have completed the Certified Professional level exam on the products they teach. This certification states that you have an advanced knowledge of this software.

Note: I have had students who have taken DDGT110 with only 90 hours of experience take and pass the Certified Professional level exam. I have also had students go through the two-year program and not be able to pass the exam. I have the students talk to me before attempting the exams and I tell them if I think they are ready or not, then I give them additional resources to study to prepare themselves for the exam.

We encourage students to take these exams but due to the costs, we do not require them. The DDGT Program is also an Autodesk Certification Center (ACC) and students can request to take exams onsite. We

are affiliated with Certiport for these exams and students can purchase the exams directly from Certiport and schedule an exam with Gary Strommen or the DDGT Technician.

I am pleased to see so many of our students working.

II. CURRICULUM

A. Courses

Subject	**Course Number**	**Date of Last Review** *(Courses with last review dates of 6 years or more must be scheduled for immediate review)*	**Has Prerequisite*** Yes/No **& Data of Last Review**	**In Need of Revision** *Indicate Non-Substantive (NS) or Substantive (S)* ***& Academic Year***	**To Be Archived** *(as Obsolete, Outdated, or Irrelevant)* **& Academic Year**	**No Change**
DDGT	110	1/16/2018	N/A	NS – Textbook Updates (2023-2024)		
DDGT	120	1/16/2018	N/A	NS – Textbook Updates (2023-2024)		
DDGT	121	1/16/2018	Y – DDGT120 1/16/2018	NS – Textbook Updates (2023-2024)		
DDGT	130	6/1/2018	N/A	NS – Textbook Updates (2023-2024)		
DDGT	230	8/12/2019	N/A	NS – Textbook Updates (2023-2024)		
DDGT	231	8/12/2019	Y – DDGT230 8/12/2019	NS – Textbook Updates (2023-2024)		
DDGT	240	1/16/2018	Y – DDGT121 1/16/2018	NO NS – Textbook Updates (2023-2024)		
DDGT	241	1/16/2018	Y – DDGT240 1/16/2018	NS – Textbook Updates (2023-2024)		

*As of fall 2018, prerequisites need to be validated (in subsequent process) through Curriculum Committee.

B. Degrees and Certificates[+]

Degree or Certificate & Title	**Implementation Date**	**Has Documentation** Yes/No	**In Need of Revision+** *and/or* *Missing Documentation* **& Academic Year**	**To Be Archived*** *(as Obsolete, Outdated, or Irrelevant)* **& Academic Year**	**No Change**
Architectural Drafting and Design: CoA	2019	YES	NO		X
Digital Design Graphic Technology: AS	N/A	YES	NO		X
Digital Design Graphic Technology: CoA	N/A	YES	NO		X
Mechanical Drafting and Design: CoA	2019	YES	NO		X

*As of fall 2018, discontinuance or archival of degrees or certificates must go through the Program Discontinuance or Archival Task Force.

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

Program Reflection:

I like to take a lead from "Marvel" as they have "phases" of the movies and television shows they have released and plan on releasing in the future. I looked at the DDGT Curriculum in a similar manner when I took over as Program Coordinator for the program.

Phase I – update or archive all existing courses (Complete. DDGT231 was archived, all other courses were updated.)
Phase II – update all existing programs (Complete. DDGT AS Degree and DDGT CoA were updated.)
Phase III – add new classes and new certificates of achievement (Complete. DDGT130 was added. DDGT231 was unarchived and updated. Architectural Drafting and Design CoA and Mechanical Drafting and Design CoA created and implemented.)

Next Step:
Phase IV – add new courses and certificates of achievement to expand the DDGT program. I have not added these to the tables above as I have not officially started this process. Note: all brief descriptions below are unofficial as I am still researching industry applications. My goal is to get this into Curriculum and start the approval process within the next year.

- I plan on creating a one-year Civil Drafting and Design CoA that will cover the Autodesk Civil 3D software and 3D Scanning equipment allowing students to work with point cloud data. As I understand from my Program Advisory committee, industry is phasing away from surveyors and replacing it with the 3D Scanning technology.

- A class on technical graphics teaching how Autodesk and Adobe software can be utilized together to create technical illustrations like maps, vector logos, and business cards.
- A second level course on 3D Printing that will incorporate robotics. Students will learn how to design and 3d print advanced assemblies that will incorporate motors and actuators. Soldering of standard hardware to strengthen and extend the longevity of 3d printed parts in assemblies will be incorporated. 3D Printing of carbon fiber and flexible ABS will be introduced. Control of motor equipment will be controlled by a linux operated raspberry pi using python coding.
- A class on the introduction to Civil 3D software. (The first course in a series for the Civil Drafting and Design CoA.)
- A class on the application of 3D Scanning in the Civil industry. Incorporation of 3d point cloud data positioned accurately in a Geographic Information System (GIS). (The second course in a series for the Civil Drafting and Design CoA.)
- A class on the advanced application of Civil Drafting and 3D Scanning. To be determined. (The third course in a series for the Civil Drafting and Design CoA.)
- A class on the advanced use of AutoCAD. Currently, the only way to obtain this information is to take the two-year program as this is mostly covered in the fourth semester. This would be a continuation of DDGT110 for those students who want more AutoCAD training without taking the two-year program.
- A class covering Augmented Reality. The creation / use of digital 3D Models from AutoCAD, Inventor, Fusion 360, or Revit converted to interactive 3D Holograms using the Microsoft Hololens technology.

Phase V

- Creation of a course utilizing drone technology to gather GIS and Lidar (Light detection and ranging) for data analysis. This could be used in conjunction with the Civil Drafting and Design CoA as Lidar can also be thought of as a 3D Laser Scanner on a drone.

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
8	7	7	87.5%	87.5%

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
Architectural Drafting and Design: CoA	N/A				
DDGT: AS Degree	4	4	4	100%	100%
DDGT: CoA	N/A				
Mechanical Drafting and Design: CoA	N/A				

Program Reflection:

The only course that has not been offered, and therefore not assessed, in the last six years is DDGT231. The original class was not required for any degree or certificate and the class was outdated. As a result, the class had low student interest and was archived until it could be updated. I updated it and reinstituted back into the program and included it into a one-year Architectural Drafting and Design CoA. This is a continuation of DDGT230. It should be noted that DDGT230 is only offered once every two years and DDGT231 will be the same. We currently are in the process of looking for a new instructor for both of these courses which is why it has not been assessed yet.

The DDGT program updated all CLO's and PLO's within the last three years for all courses and certificates to better align with course objectives and make assessing them more efficient. CLO's assess the skills students learn to master the Autodesk software and align with the Autodesk Certificates of Training. Additional CLO's typically assess milestone assignments showcasing a range of skills needed to meet the assignment requirements. PLO's have been updated to better align with course CLO's and better reflect the output of each course.

- Create physical and digital media
- Effectively apply current technology
- Perform industry specific skills
- Effectively work in a team environment

All PLO's are still valid but unfortunately, due to Covid, we have not been able to implement the last PLO "Effectively work in a team environment". This is typically accomplished in DDGT241 when the class works on their final project as a group. They learn how to effectively manage time, distribute work evenly, prioritize tasks, and to compromise and be flexible in order to reach milestones along the way and ultimately complete their final project. The project is generally open ended to give the students as much flexibility as I can but does require students to equally participate and utilize ALL of the skills taught over the two-year program. I have found that if I can give the students the ability to create their own project, as opposed to me assigning one, they will be much more involved and passionate in the project, ultimately creating a better product.

The DDGT program typically has anywhere between 3-5 courses offered every semester. We assess all courses offered every semester and we assess the DDGT AS Degree PLO's once a year at the end of Spring.

B. Summary of Learning Outcomes Assessment Findings and Actions

Assessment data over the last three years is providing unreliable data. Due to California wildfires, campus closures, Covid, and course transitions to online synchronous formats, gathering of reliable, stable data has not been possible. Additional assessment data is needed after courses stabilize. With that said, here are some findings that we have found and their action plans.

All courses in the DDGT program have a CLO for Autodesk Certification [of Training] as the first CLO. The Certifications are based on the training provided in Autodesk approved courseware, in this case being the ASCENT courseware that is provided to the students as part of their materials fee. After the ASCENT courseware has been covered, historically a quiz is provided in the next few days as an open book quiz and students may refer to the courseware and use the software to answer the questions. After reviewing the data from several courses, it was decided to postpone the quiz back several additional weeks after the ASCENT courseware was covered to give students additional time with the software and be better prepared for the quiz. Additional assessment data is needed to analyze the results.
Note: The Autodesk Certificate of Training is based on attendance, not the quiz score. The quiz is done for NVC requirements.

In DDGT121, SLO3 states "Ability to implement technical skills in the creation and maintenance of a student portfolio website utilizing the Adobe Dreamweaver software." Historically, more technical information is covered in the first half of the semester and Adobe Photoshop and Dreamweaver is taught during the second half of the semester. Some students were finding it difficult to complete the website prior to the end of the semester as it is a lot of work and can be rather time consuming. It is very important for students to have their website completed before the end of the semester to set them up for success for the second year of the program. Students continue to post their work on their website as assignments in the second year and this would not be possible if they do not have their website completed in DDGT121. As an action, we decided to flip the order in which we cover the semester materials with the Adobe in the first half and the more technical information (some of which they are familiar with from topics covered in DDGT120) in the second half. This would allow students additional time to work on their website and have it completed prior to the end of the semester. Additional assessment is needed but in the first year since we made the change, we had positive results with 100% of the students completing their website on time.

In DDGT241, SLO3 states "The ability to create a portfolio video utilizing all programs and skills learned in the DDGT program." This is typically a group project. When I took over as DDGT Program Coordinator seven years ago, the students in the DDGT241 had six to eight weeks to work on this project at the very end of the final semester and it is crazy difficult to finish a project of this scope in that short time frame. Since I took

over, I changed the format of the project to cover the entire eighteen weeks of the semester with the last day of each week dedicated to reviewing the progress of the project and setting goals for the following week. The remaining classes in the week are spent on our normal course materials that still needed to be covered. This has led to more polished, completed final projects that have been less stressful than prior iterations. Over the last three years, due to the SLO data and action plans, I have further improved the format of the final project by actually including work of the final project at the end of DDGT240. At the end of DDGT240, students are required to have an outline of what they want their final project in DDGT241 to be. They have to have a story written out and a scope of work created. They are allowed to make changes over the winter break between DDGT240 and DDGT241 if they still wish but the idea is that they come into DDGT241 with a story already in place and can start the class immediately on their final project instead of spending the first few weeks coming up with the story. Unfortunately, due to Covid, students have had to work on this project as individuals instead of as a group over the last two years but the students have still had to have their individual outlines created at the end of DDGT240. This has had a positive result with students gaining an additional two or three weeks of time on their final projects. Additional assessment data will be needed once we can go back to group work.

Program Reflection:

I am basically a one-person department (with the exception of DDGT230 and DDGT231). I review the SLO data for every class, every semester and I review the PLO data once a year at the end of Spring. However, I do more than only review SLO and PLO data. I personally review the entirety of every class every time I offer it and look at what was effective and what needs to be improved. I am continually making notes throughout the semester of things that need to be changed the next time the class is offered. It could be updating questions on a quiz, finding more updated / relevant videos to include in my lecture presentations, modifying assignments that are too challenging (or not challenging enough), adding new assignments that need to cover specific skills that are not being learned, or removing assignments that may be redundant. I also review the way that I offer instruction such as changing the order of the way I cover course materials or providing a certain lecture or series of lectures as videos to follow instead of live lecture. The latter of which I have found to have a lot of beneficial advantages. Students can go through the videos at their own pace, rewatch if necessary, and then it gives me more time during class to answer questions or to assist.

Additionally, I discuss my ideas with the DDGT Technician. Not only does the DDGT Technician need to know what changes are being made to assignments, and my expectations of the students, as he does some of the grading but he also provides additional insight on how things can be improved.

Just because data is not being tracked in TracDat through SLO or PLO assessment, does not mean that improvements to the class or program are not being made.

IV. PROGRAM PLAN

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

- ○ Viability
- ● Stability
- ○ Growth

*Please select ONE of the above.

This evaluation of the state of the program is supported by the following parts of this report:

- 1A.1 – Contrary to the data found in the report, enrollment trends (Covid withstanding) have been stable and predictable. This is more evident when you take the last six or seven years into account, not just the last three.
- 1A.2 – Class sizes remain stable and predictable with an overall trend increase of 5.4% consistent with institutional average increase.
- 1A.3 – Class fill rates remain stable between 74.5% on the lower end and 79.2% on the upper end.
- 1B.1 – Retention rates are significantly higher than the institutional level with high levels of student approval.
- 1C.1 – AS Degree Program Completions are increasing with additional certifications being generated through our local skills CoA and Autodesk Certifications.
- 1C.2 – Job placement has increased every year over the last three years with 100% in year three.

Complete the table below to outline a three-year plan for the program, within the context of the current state of the program.

Program: Digital Design Graphics Technology
Plan Years: 2022-2023 through 2024-2025

Strategic Initiatives Emerging from Program Review	Relevant Section(s) of Report	Implementation Timeline: Activity/Activities & Date(s)	Measure(s) of Progress or Effectiveness
Track students progress across all DDGT Degrees and CoA's to increase completion rates.	Section 1 and 2	Spring 2022 Meet with students during monthly meetings and fill out Degrees and certificates as appropriate. Program Coordinator to submit upon completion of the necessary classes	Increase in DDGT AS Degrees and DDGT CoA's

Piloting courses in a Hy-Flex modality to increase flexibility to student schedules and increase program enrollment.	All Sections	Pilot to begin Spring 2022 Four courses will be offered in this new modality: DDGT110, DDGT130, DDGT121, and DDGT241	Increase in student enrollments and course completions.
Creation of new courses to address the needs of students and local industry by expanding existing training paths and creating new ones.	Section 1 and 2	Year 1 Begin curriculum submissions.	Increase in student headcounts.
Creation of a new Civil Drafting and Design CoA to offer additional training the program is not currently offering and address the needs of local industry.	Section 1 and 2	Year 1 Begin curriculum submissions.	Increase in student headcounts.
Continue outreach to local high schools to spread awareness and increase enrollment	Section 1	This is done during the Spring semester annually. Presentation live / via zoom to local high schools in areas of related fields describing the DDGT program.	Increase in student enrollments.
Increase number of computers in computer lab to address smaller cap sizes and to expand the program	Section 1	Request has been made Fall 2021	Increase in enrollment and course offerings.
Additional equipment for 3D Printing to expand the 3D Printing portion of the program.	Section 1 and 2	Year 1 Request to be made in Unit Plan for equipment.	Increase in enrollment in DDGT130 and implementation of new course DDGT131
Drones capable of carrying heavy payloads and cameras for data acquisition and analysis.	Section 1 and 2	Year 2 Request to be made in Unit Plan for equipment. Begin curriculum submissions.	Increase in student headcounts.
Implement required Autodesk Certifications	All Sections	Year 1 Request to be made in Unit Plan to cover expenses of exams. Certified User / Certified Professional or combination TBD	Increase in industry recognized Autodesk Certifications.

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.

Note: Resources to support program plans are allocated through the annual planning and budget process (not the program review process). The information included in this report will be used as a starting point, to inform the development of plans and resource requests submitted by the program over the next three years.

Description of Current Program Resources Relative to Plan:

The DDGT department is in a state of stability and can continue status quo but will need additional resources in order to grow and expand to meet the needs of students and industry alike.

- An increase in computer lab computers will allow larger class sizes and for us to expand class caps. It will also allow us to offer multiple classes at the same time although sound through our glass wall partition between room 3901 and 3902 may be an issue to address with additional soundproofing needed.
- Additional 3D Printing equipment would allow us to expand the 3D Printing course offerings and increase cap size. Additional equipment would include:
    - Additional 3D Printers with additional capabilities (with the ability to print in materials other than plastic)
    - Raspberry Pi computers, motors, and actuators for robotics implementation and control
    - Soldering stations with access to standard hardware components to implement with 3D Printing to improve strength, functionality, and improve longevity of parts and assemblies.
- The purchase of Drones and data collecting equipment (cameras / lidar) will allow the DDGT program to grow with industry needs. Increased use of 3D Scanning and 3D Point cloud data is becoming / has become standards in the industry replacing the need for surveyors in many cases. Creation of a Civil Drafting and Design CoA and affiliated courses will add training that is not currently offered in the program that directly aligns with industry needs.
- Industry recognized Autodesk Certified User and Certified Professional exams are not currently required in the DDGT program due to the costs. Certifications are available for all of the programs we cover in the two-year program including AutoCAD, Inventor, Fusion 360, and Revit. If funding of these certifications became available, we could require the students to take the exams. With successful completion of these certifications, students would have more confidence going out into the workforce and show future employers that the students are employable. It would also give the instructors in the program data to see if the training the students are receiving is adequate or if it needs to be modified.

V. PROGRAM HIGHLIGHTS

A. Recent Improvements

- DDGT will be piloting in SPR22 a Hy-Flex modality for all DDGT courses.
- DDGT has added 3D Scanning and Augmented Reality Microsoft Hololenses into the program which will be utilized starting SPR22. Due to Covid and instruction online for the last two years, students have not had access to the equipment.
- All DDGT courses and programs have been updated through Curriculum within the last three years.
- Two new one-year CoA's have been added to the program with 14 certificates already earned:
    - Architectural Drafting and Design CoA
    - Mechanical Drafting and Design CoA
- The DDGT130 Intro to 3D Printing was created and implemented within the last three years has been successfully offered multiple times and we are now looking at expanding it with a second course.

B. Effective Practices

- All lectures in the DDGT program are recorded and posted on our department website with password protection. The use of a password is required to make sure that only students can watch the lectures and to make sure we are not violating any license agreements with ASCENT and Autodesk. We have been doing this since Fall 2014 and this has had a huge positive impact on our program. If students miss a class, did not get the material the first time, or need a refresher, students can watch the lectures as many times as they want. This also helps to free up the time of the instructor and the assistant so they are not repeating the same information. The student can go watch the lecture, then ask for additional help if necessary. Lectures for prior classes are kept online for students to refer to.
- In the core classes (soon to be implemented across all DDGT courses), students are required to meet one-on-one with the instructor outside of class three times a semester. These are assignments referred to as "monthly meetings". This gives the instructor an opportunity to go over Canvas and the students progress in a private setting to discuss and address any issues. This also gives the students an opportunity to ask any questions they may have. Since not all of the grading is done by the instructor and some is done by the DDGT Technician, this also give the instructor an opportunity to verify that the student is not falling behind and to create better communication between the instructor and student. This has been successful although I have also found that the students who need this the most and are falling behind, tend to skip this assignment. I believe this has helped with class retention and course completions.
- Transitioning to an online format due to Covid over the last two years has increased the use of Canvas and has made it a better tool for the students. Prior to Covid, we only utilized Canvas to post assignment and quiz scores. Due to Covid and teaching online synchronously, I have delved into Canvas much deeper and now utilize it to post modules, the course schedule, and we now take our quizzes and tests online. We will continue this even after we return face-to-face.
- The use of the 3D Printer in the program has had a huge impact as a learning tool for students.
    - We have 3D Printed many assignments that are given out as 2D illustrations and students can actually hold the 3D Printed version. This helps them visualize the 2D drawing views with the actual 3D part or assembly.
    - We have also been able to add "Reverse Engineering" assignments into the program which is utilized in multiple classes. Reverse Engineering is a common task in the industry

where a part or assembly is fabricated before a drawing is created as a prototype. Once the prototype is proven, then a drawing is created based on the physical model where the drafter must measure the dimensions themselves. We have identical 3D Models made and students must create complete drawing based off of the 3D Model given to them.

- Keeping a list of student contacts for Job opportunities has helped many students find work and gain experience in the industry. Students are able to request having their contact information added to the contact list and when job opportunities arise, I send out the information to the list and they can choose to respond directly to the employer if they wish.

Feedback and Follow-up Form

Completed by Supervising Administrator:

Douglas Marriot

Date:

November 18, 2021

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

Employability skills across many industries, currency of technology and Strong Workforce investment, faculty adaptability to teach in multiple modalities (HyFlex model) in Spring 2022 to meet student needs and access

Areas of concern, if any:

Marketing of program, alignment with HS partners, enrollment data in Review

Recommendations for improvement:

Align more with HS partners to create bridges to program, evaluate Spring 2022 HyFlex "pilot" to strategically plan for future semesters

Anticipated Resource Needs:

Resource Type	**Description of Need (Initial, Including Justification and Direct Linkage to State of the Program)**
Personnel: Faculty	
Personnel: Classified	
Personnel: Admin/Confidential	
Instructional Equipment	
Instructional Technology	
Facilities	
Operating Budget	
Professional Development/ Training	
Library & Learning Materials	