Resolution for the Proposal for
A Certificate in 3D Digital Fabrication and Design

WHEREAS, the Visual Arts Department proposed to create **a Certificate in 3D Digital Fabrication and Design**, and

WHEREAS, the proposed program will offer students an opportunity to gain experience in both aesthetic and technical aspects of designing, prototyping and fabricating with digital software and production tools, and

WHEREAS, the proposed program will prepare students for a wide range of career paths in the growing field of 3D fabrication, including prototype creation for manufacturing, product design, medical device design, architectural visualization, 3D design for 3D printing firms, and fashion design, and

WHEREAS, no other institution on Long Island currently offers a certificate program in this field and there are very limited options for similar training in the New York Metropolitan Area, and

WHEREAS, the proposed program has a potential to attract additional students to the College who desire to combine this Certificate with their major program,

WHEREAS, the proposed program consists of six courses that are already offered by the Visual Arts Department and thus does not require any additional resources, and

THEREFORE, BE IT RESOLVED that the Faculty Senate approve **the Proposal for a Certificate in 3D Digital Fabrication and Design**

Submitted by Curriculum and Academic Planning Committee (CAP), May 8, 2021

The Program Announcement approved by CAP, May 7, 2021

[CAP Membership]
Tejas Bouklas, Svetlana Jovic, Yu Lei, Matthew Lippert, Anissa Wicktor Lynch, Sheyi Oladipo, Dana Sinclair, Kerry Weir, and Ryoko Yamamoto (Chair)

New Program Proposal:
Certificate or Advanced Certificate Program

Form 2C

Version 2016-10-13

This form should be used to seek SUNY's approval and New York State Education Department's (SED) registration of a proposed new academic program leading to a certificate or an advanced certificate. Approval and registration are both required before a proposed program can be promoted or advertised, or can enroll students. The campus Chief Executive or Chief Academic Officer should send a signed cover letter and this completed form (unless a different form applies[1]), which should include appended items that may be required for Sections 1 through 5 and 10 of this form, to the SUNY Provost at *program.review@suny.edu*. The completed form and appended items should be sent as a single, continuously paginated document.[2] If Sections 7 and 8 of this form apply, External Evaluation Reports and a single Institutional Response should also be sent, but in a separate electronic document. Guidance on academic program planning is available here.

Table of Contents

NOTE: Please update this Table of Contents automatically after the form has been completed. *To do this, put the cursor anywhere over the Table of Contents, right click, and, on the pop-up menus, select "Update Field" and then "Update Page Numbers Only." The last item in the Table of Contents is the List of Appended and/or Accompanying Items, but the actual appended items should continue the pagination.*

[1]Use a different form if the proposed new program will lead to a graduate degree or any credit-bearing certificate; be a combination of existing registered programs (i.e. for a multi-award or multi-institution program); be a breakout of a registered track or option in an existing registered program; or **lead to certification as a classroom teacher, school or district leader, or pupil personnel services professional** (e.g., school counselor).

[2]This email address limits attachments to 25 MB. If a file with the proposal and appended materials exceeds that limit, it should be emailed in parts.

Section 1. General Information		
a) Institutional Information	Date of Proposal:	**4/30/21**
	Institution's 6-digit SED Code:	**234000**
	Institution's Name:	SUNY College at Old Westbury
	Address:	P.O. Box 210, Old Westbury, NY 11568
	Dept of Labor/Regent's Region:	Long Island
b) Program Locations	List each campus where the entire program will be offered (with each institutional or branch campus 6-digit SED Code): Old Westbury = 234000	
	List the name and address of off-campus locations (i.e., extension sites or extension centers) where courses will offered, **or check here [X] if not applicable**:	
c) Proposed Program Information	Program Title:	3D Digital Fabrication and Design
	Award(s) (e.g., Certificate.):	Certificate
	Number of Required Credits:	Minimum [24] If tracks or options, largest minimum [ ]
	Proposed HEGIS Code:	1009
	Proposed 6-digit CIP 2010 Code:	50.0102
	If the program will be accredited, list the accrediting agency and expected date of accreditation: N/A	
	If applicable, list the SED professional licensure title(s)[3] to which the program leads: N/A	
d) Campus Contact	Name and title: Dr. Duncan Quarless, Provost and Senior Vice President for Academic Affairs Telephone: 516-876-3135 E-mail: quarlessd@oldwestbury.edu	
e) Chief Executive or Chief Academic Officer Approval	**Signature affirms that the proposal has met all applicable campus administrative and shared governance procedures for consultation, and the institution's commitment to support the proposed program.** ***E-signatures are acceptable.*** Name and title: Dr. Duncan Quarless, Provost and Senior Vice President for Academic Affairs Signature and date: DRAFT – 4/28/21	
	If the program will be registered jointly[4] with one or more other institutions, provide the following information for each institution: N/A	
	Partner institution's name and 6-digit SED Code: Name, title, and signature of partner institution's CEO (or **append** a signed letter indicating approval of this proposal):	

[3] If the proposed program leads to a professional license, a specialized form for the specific profession may need to accompany this proposal.
[4] If the partner institution is non-degree-granting, see SED's CEO Memo 94-04.

Section 2. Program Information

2.1. Program Format

Check all SED-defined formats, mode and other program features that apply to the **entire program**.

a) Format(s): [ ]Day [ ]Evening [ ]Weekend [ ]Evening/Weekend [ ]Not Full-Time

b) Modes: [ ]Standard [ ]Independent Study [ ]External [ ]Accelerated [ ]Distance Education
NOTE: *If the program is designed to enable students to complete 50% or more of the course requirements through distance education, check Distance Education, see Section 10, and* ***append*** *a Distance Education Format Proposal*

c) Other: [ ] Bilingual [ ] Language Other Than English [ ] Upper Division [ ] Cooperative [ ] 4.5 year [ ] 5 year

2.2. Related Degree Programs

All coursework required for completion of the certificate or advanced certificate program must be applicable to a currently registered degree program at the institution (with the possible exception of post-doctoral certificates in health-related fields). Indicate the registered degree program(s) by title, award and five-digit SED Inventory of Registered Programs (IRP) code to which the credits will apply:

All the courses required for the completion of the 3D Digital Fabrication and Design Certificate are included as possible electives in the three current undergraduate degree programs offered by the Visual Arts Department: Bachelor of Arts in Visual Arts (82418), Bachelor of Science in Electronic Media (82420), and Bachelor of Fine Arts in Visual Arts (35708). These courses are very popular with students and are all offered every semester.

2.3. Program Description, Purposes and Planning

a) What is the description of the program as it will appear in the institution's catalog?

The 3D Digital Design and Fabrication Certificate combines creative and practical arts to prepare students for a wide range of careers. Courses focus on both aesthetic and technical aspects for designing, prototyping and fabricating original ideas. Through this Certificate students will gain experience in the artistic design process and the methods to create them utilizing digital software and production tools. This series of six courses will cover the uses for both additive fabrication (3D printing) and subtractive fabrication (laser cutting and CNC routing) that can be applied to one's own studio design practice as well as innovative industrial and product design production.

All students who wish to receive a Certificate in 3D Digital Fabrication and Design must complete 24 Visual Arts credits with a cumulative grade point average of 2.30 (C+). The 24 credits must consist of six courses taught in the Visual Arts department. Candidates for the certificate must obtain a Visual Arts faculty advisor. The certificate is designed for students seeking to learn the 3D fabrication and design process: 3D software, graphic design, 3D printing, use of computer aided fabrication, CNC router, laser cutters and 3D printers. These will all be applied to sculpture and graphic and product design projects that students in the program will be expected to produce.

b) What are the program's educational and, if appropriate, career objectives, and the program's primary student learning outcomes (SLOs)? ***NOTE:*** *SLOs are defined by the Middle States Commission on Higher Education in the Characteristics of Excellence in Higher Education (2006) as "clearly articulated written statements, expressed in observable terms, of key learning outcomes: the knowledge, skills and competencies that students are expected to exhibit upon completion of the program."*

Primary Student Learning Outcomes for the 3D Digital Fabrication and Design Program are:

- *Students will understand and engage in the concepts and foundations related to 3D Digital Fabrication and Design, and engage directly with the planning associated with the creative process.*

- *Students will execute the 3D creative process through the use of 3D fabrication machines, including: 3D printers, laser cutters, CNC router used with 3D Design computer software and its application in 3D design and fabrication.*

- *Students will demonstrate their understanding of the conceptual, creative, and technical processes through lectures and discussions, specific projects, hands on practice in the Visual Arts Department 3D Fabrication lab, and group critiques of the work.*

- *Students will demonstrate a knowledge and familiarity with the various career paths available in the field of 3D fabrication, such as prototype creation for manufacturing, product design, medical device design, architectural visualization, 3D design for 3D printing firms, fashion and jewelry design, and other applications.*

c) How does the program relate to the institution's and SUNY's mission and strategic goals and priorities? What is the program's importance to the institution, and its relationship to existing and/or projected programs and its expected impact on them? As applicable, how does the program reflect diversity and/or international perspectives?

The Certificate in 3D Digital Fabrication and Design fits well within Old Westbury's Strategic Plan 2018-2023. It supports the Strategic Plan's planned growth in quality, enrollment, and new initiatives over the next few years. The degree upholds the commitment to the development of programs that move the College forward as "a competitive, comprehensive college offering quality undergraduate and graduate degrees in the arts and sciences and professional areas." By enhancing the College's academic appeal and reputation, and the retention of self-motivated students, it also supports the targeted enrollment growth. By providing a professionally oriented program, with an emphasis on practical-based learning, geared towards new technology at an affordable cost, the Certificate program supports Old Westbury's ideal as "a dynamic and diverse public liberal arts college that fosters academic excellence through close interaction among students, faculty and staff." It is in keeping with the College mission of providing quality higher education in an environment that cultivates applied learning, critical thinking, empathy, creativity and intercultural understanding, as well as its endeavor "to stimulate a passion for learning and a commitment to building a more just and sustainable world."

The proposed Certificate program will not have a major impact on the offering of existing Visual Arts degree programs, as the small number of anticipated students will primarily utilize the excess capacity in existing courses. Although it could increase enrollment in the various Visual Arts degree programs, as students enrolled in Certificate courses may discover a greater interest in the visual arts and transfer to a Visual Arts major or add one as a second major. The Certificate will also attract additional students to the college who desire to combine the Certificate with their major program.

As the most diverse campus in SUNY, Old Westbury provides access and opportunity to those having the ability, motivation, and inspiration to learn and grow. The College's distribution of White (26.4%), Black (24.7%), Hispanic (33.2%), and Asian (10.6%) students is closely mirrored by Visual Arts majors with 27.9% White, 25.2% Black, 28.8.9% Hispanic, and 14.4% Asian students.

d) How were faculty involved in the program's design?

Faculty in the Visual Arts department developed the certificate program through creating and teaching the included courses, drafting the Proposal, developing the 3D fabrication lab and equipment, and creating a specific area devoted to the fabrication process. Several discussions took place at different Department meetings over a period of several years to discuss and examine the possibilities and outcomes of a certificate in 3D fabrication for the department and the College, including researching related certificate programs at other institutions.

e) How did input, if any, from external partners (e.g., educational institutions and employers) or standards influence the program's design? If the program is designed to meet specialized accreditation or other external standards, such as the educational requirements in Commissioner's Regulations for the Profession, **append** a side-by-side chart to show how the program's components meet those external standards. If SED's Office of the Professions requires a specialized form for the profession to which the proposed program leads, **append** a completed form at the end of this document.

There is no special accreditation needed or other external standards for this specific program. Faculty consulted generally with colleagues in the field in their planning for the program.

f) Enter anticipated enrollments for Years 1 through 5 in the table below. How were they determined, and what assumptions

were used? What contingencies exist if anticipated enrollments are not achieved?

Prior to the COVID pandemic, a poll was conducted among the General Education students taking courses in the Visual Arts department. 200 students responded to the poll. Among them, 80 declared to be interested in the program, 43 were very interested, and, significantly, 21 said would they would apply to the program if it was offered.

The program is a professional development initiative and as such will attract a majority of part-time students who are looking to enhance their professional skills and knowledge by learning cutting edge technology. 3D digital fabrication and design are new technologies that are currently in very high demand in the product and graphic design markets. We anticipate a modest enrollment in the first 3 years and steady growth after the third year as the existence and quality of the program become more well known.

Year	Anticipated Headcount Enrollment			Estimated FTE*
	Full-time	Part-time	Total	
1		3	3	1.5
2		5	5	2.5
3		8	8	4.0
4		10	10	5.0
5		12	12	6.0

*Assumes that, on average, part-time students will be enrolled half-time.

g) Outline all curricular requirements for the proposed program, including prerequisite, core, specialization (track, concentration), capstone, and any other relevant component requirements, but do not list each General Education course.

Core Certificate Courses		
Course Number & Title	**Cr**	**Prerequisite(s)**
VA 4265 3D Digital Design	4	EC I
VA 4360 Advanced 3D Design and Animation	4	VA 4265 3D Digital Design
VA 2320 Graphic Design I	4	EC I
VA 4320 Graphic Design II	4	VA 2320 Graphic Design I
VA 2750 Sculpture I	4	EC I
VA 4750 Sculpture II	4	VA 2750 Sculpture I
Term credit total:	**24**	

***Capstone**: Online portfolios of projects related to VA4360, VA4320, and VA4750, respectively, which can be utilized by students after they complete the program as a unified portfolio for career and professional purposes.*

h) Program Impact on SUNY and New York State

h)(1) ***Need:*** What is the need for the proposed program in terms of the clientele it will serve and the educational and/or economic needs of the area and New York State? How was need determined? Why are similar programs, if any, not meeting the need?

Other educational institutions on Long Island including: Nassau Community College, Farmingdale College, Stony Brook University, Hofstra University, Suffolk Community College, Long Island University (C.W. Post campus), and New York Institute of Technology, do not offer formalized programs similar to the proposed Certificate Program in 3D Digital Fabrication and Design. At most, courses in 3D Design are offered (Hofstra, Stony Brook, Farmingdale and NCC) as part of the design component in an art degree.

The only institutions in the area that offer courses in 3D fabrication and design are located in New York City: New York University, The School of Visual Arts (SVA) and the Cooper Union. SVA offers courses in its MFA in computer art (tuition: $19,600 per semester) and design programs as well as in its VFL (Visible Future Lab) offerings. These courses don't lead to a degree. NYU's School of Professional Studies similarly offers courses in 3D fabrication and design (cost: $4,270 per course) and one course offering in a minor in Digital Art and Design. Out of the three institutions, the Cooper

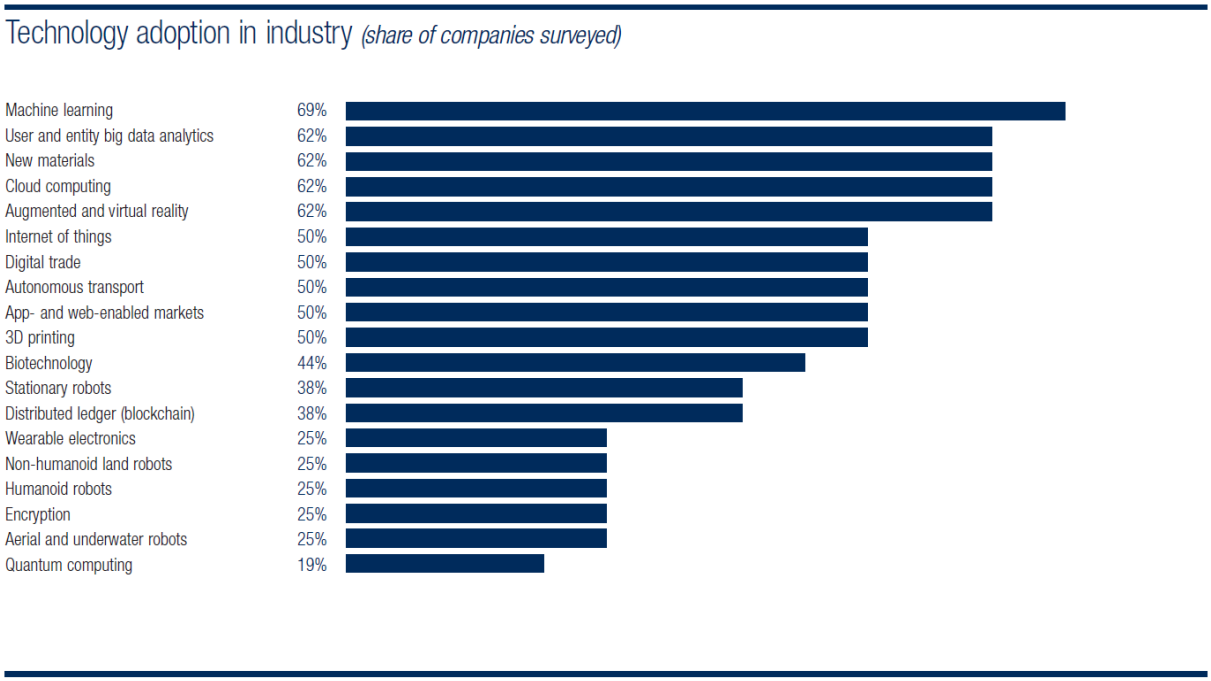
Union is the only one to offer a 3D Fabrication Certificate, course tuition varies from $490 to $790 per course. However, Cooper Union is more difficult for our target demographic, students on Long Island, to access than Old Westbury.

We believe that the Visual Arts Program is therefore extremely favorably positioned to recruit and retain to the proposed certificate a clientele that will continue to grow regionally and nationally due to the demand in various fields for 3D fabrication designers, by offering a competitive program for students and for professionals looking to continue their education.

Specifically, demand for a specialization in the 3D digital fabrication and design field is currently very high, as stated by "PR Newswire", and the World Economic Forum reports its use has been widely adopted by industry, both below.

> *The 3D printing market by revenue is expected to grow at a CAGR of over 18% during the period 2019–2025. The global 3D printing industry has been on a stable growth path over the last decade. 3D printing has opened a plethora of opportunities for mankind. It is permeating many industries and sectors, thereby creating ways to explore new products. The 3D printing market has been growing tremendously in the last decade, and it is witnessing investments by both public and private enterprises. Several governments across the world are keen to invest in this domain, and they have already started investing in the same. The US, UK, Germany, France, and China are the leading countries with the highest adoption and investment rates. The automotive industry is expected to expand at the fastest pace because of the growing acceptance of the technology in automotive part manufacturing. 3D printing technology is largely adopted in the aerospace and defense sectors. The aircraft industry is among the early adopters of the technology.*

Source: (https://www.prnewswire.com/news-releases/the-3d-printing-market-by-revenue-is-expected-to-grow-at-a-cagr-of-over-18-during-the-period-20192025-301114909.html)



Source: "The Future of Jobs Report," World Economic Forum (2018), p. 58 (http://www3.weforum.org/docs/WEF_Future_of_Jobs_2018.pdf).

More generally, according to the State of New York, employment in Art and Design is expected to grow by 6.3 percent between 2016 and 2026. (NYS Employment Projections 2016-2026. https://statistics.labor.ny.gov/lsproj.shtm)
The current technologies in 3D digital fabrication and design are in high demand in the professional field of design and fabrication, including product design, medical equipment, architectural firms, and various other applications of this new technology. The proposed program will benefit those in the area population who want to develop professionally. It will provide an on-site, affordable and accessible alternative for the talented, moderate income residents of central and western Long Island, as well as Queens and Brooklyn.

h)(2) ***Employment:*** For programs designed to prepare graduates for immediate employment, use the table below to list

potential employers of graduates that have requested establishment of the program and describe their specific employment needs. If letters from employers support the program, they may be **appended** at the end of this form. As appropriate, address how the program will respond to evolving federal policy on the "gainful employment" of graduates of certificate programs whose students are eligible for federal student assistance.

Although not designed to satisfy any particular employer's needs, the rapid development of 3D fabrication in several professional fields, such as medicine, product design and packaging, as well as general design, allows us to anticipate that graduates of the Program will be able to enter the job market rapidly or to update their skills to respond to a demand in their current positions.

Employer	***Need: Projected positions***	
	In initial year	**In fifth year**
N/A		

h)(3) ***Similar Programs:*** Use the table below to list similar programs at other institutions, public and independent, in the service area, region and state, as appropriate. Expand the table as needed. ***NOTE:*** *Detailed program-level information for SUNY institutions is available in the Academic Program Enterprise System (APES) or Academic Program Dashboards. Institutional research and information security officers at your campus should be able to help provide access to these password-protected sites. For non-SUNY programs, program titles and degree information – but no enrollment data – is available from SED's Inventory of Registered Programs.*

Institution	Program Title	Degree	Enrollment
The Cooper Union	3D Fabrication Certificate	Certificate	
SUNY New Paltz	Digital Design and Fabrication Minor	Minor	

The Cooper Union is a very selective program. The Minor in Digital Design and Fabrication at SUNY New Paltz is available only to students enrolled in a degree program and is geographically distant from our potential students. Our Certificate is a stand-alone program available for any students, including returning professionals and adult learners.

h)(4) **C*ollaboration:*** Did this program's design benefit from consultation with other SUNY campuses? If so, what was that consultation and its result?

No, no other SUNY campuses were consulted.

h)(5) ***Concerns or Objections:*** If concerns and/or objections were raised by other SUNY campuses, how were they resolved?

N/A

2.4. Admissions

a) What are all admission requirements for students in this program? Please note those that differ from the institution's minimum admissions requirements and explain why they differ.

There are no special admission requirements for this program beyond the college's normal admission requirements.

b) What is the process for evaluating exceptions to those requirements?

Many applicants to the Certificate program will be engaged in a professional field that includes the knowledge and skills conveyed in these courses. They, and other applicants, can present a portfolio that will be evaluated by the Visual Arts faculty teaching in the Certificate program to determine whether such admission waivers will be granted.

c) How will the institution encourage enrollment in this program by persons from groups historically underrepresented in the

institution, discipline or occupation?

SUNY Old Westbury has been named one of only 96 institutions of higher education across the nation in 2018, 2019, and 2020, to receive the Higher Education Excellence in Diversity (HEED) Award from INSIGHT into Diversity magazine, the oldest and largest diversity publication in higher education. The HEED Award is the only national honor recognizing U.S. colleges and universities that demonstrate an outstanding commitment to diversity and inclusion across their campus.

We expect that the majority of students enrolled in the Certificate Program will be students looking for advancement in their career, enhancement of skills, or a career change. In that perspective we expect that the enrollments will reflect the diversity of our current population of students. Enrollment in the three current Visual Arts degree is currently composed of the following student mix:

Composition of Visual Arts Majors – Fall 2020	
White	27.9% (31)
Black	25.2% (28)
Hispanic	28.8% (32)
Asian	14.4% (16)
Other	3.6% (4)
	100% (111)

2.5. Academic and Other Support Services

Summarize the academic advising and support services available to help students succeed in the program.

Academic advising is available to all students in the School of Arts and Sciences. The advising is done by specialized advisors in the School of Arts and Sciences and by faculty in the Visual Arts department.

Support services available to the students in the program include: the Electronic Media Lab and the 3D Fabrication Lab, both located in the Visual Arts department, with technical support provided by a lab technician on the premises, available to help students and trouble shoot. In addition, students have access to computers in other parts of the college, also including technical support. The Visual Arts department presents two lectures each semester, given by professional artists who are specialists in their field, including designers and 3D fabrication specialists.

2.6. Prior Learning Assessment

If this program will grant credit based on Prior Learning Assessment, describe the methods of evaluating the learning and the maximum number of credits allowed, **or check here [X] if not applicable**.

2.7. Program Assessment and Improvement

Describe how this program's achievement of its objectives will be assessed, in accordance with *SUNY policy*, including the date of the program's initial assessment and the length (in years) of the assessment cycle. Explain plans for assessing achievement of students' learning outcomes during the program and success after completion of the program. **Append** at the end of this form, **a plan or curriculum map** showing the courses in which the program's educational and, if appropriate, career objectives – from Item 2.3(b) of this form – will be taught and assessed. ***NOTE:*** *The University Faculty Senate's Guide for the Evaluation of Undergraduate Programs is a helpful reference.*

The program will undergo periodic internal review as part of the Visual Arts Department, guided by the Chair of the Department, in consultation with the Dean of the School of Arts and Sciences, the Director of Academic Assessment, and the Curriculum and Academic Planning Committee (CAP, a faculty governance

committee), in compliance with the College's Five-Year Program Review process, including the hiring of an external reviewer. The next review of the Visual Arts Department, under which this proposed certificate would be reviewed, is scheduled for 2021-2022. The foundation of this program's assessment will be an annual rolling learning outcome assessment of 20% of the outcomes included in the assessment plan, resulting in a full assessment over a five-year cycle, as well as biennial assessment of non-academic program effectiveness. Furthermore, the Department Chair will ascertain that the proposed program is in compliance with applicable standards of the Middle States Commission on Higher Education.

As discussed in paragraph 2.3.b., the program's primary student learning outcomes are as follows:

- *Students will understand and engage in the concepts and foundations related to 3D Digital Fabrication and Design, and engage directly with the planning associated with the creative process.*

- *Students will execute the 3D creative process through the use of 3D fabrication machines, including: 3D printers, laser cutter, CNC router used with 3D Design computer software and its application in 3D design and fabrication.*

- *Students will demonstrate their understanding of the conceptual, creative, and technical processes through lectures and discussions, specific projects, hands on practice in the Visual Arts Department 3D Fabrication lab, and group critiques of the work.*

- *Students will demonstrate a knowledge and familiarity with the various career paths available in the field of 3D fabrication, such as prototype creation for manufacturing, product design, medical device design, architectural visualization, 3D design for 3D printing firms, fashion and jewelry design, and other applications.*

A curriculum map indicating the practice and assessment of student learning outcomes by courses is attached as Appendix 1. In addition, the Department Chair will assess the program's efficacy and the appropriateness of existing policies and practices, including demographics, curriculum alignment, and graduates' success.

Section 3. Program Schedule and Curriculum

Complete the **SUNY Program Schedule for Certificate and Advanced Certificate Programs** to show how a typical student may progress through the program.

NOTE: *For an undergraduate certificate program, the* ***SUNY Program Schedule for Certificate and Advanced Certificate Programs*** *must show* ***all curricular requirements and the number of terms required to complete them.*** *Certificate programs* ***are not required*** *to conform to SUNY's and SED's policies on credit limits, general education, transfer and liberal arts and sciences.*

EXAMPLE FOR ONE TERM: Program Schedule for Certificate Program

Term 1: FALL 1			
Course Number & Title	**Credits**	**New (X)**	**Co/Prerequisites**
Sculpture I VA 2750	4		ECI
Graphic Design I VA 2320	4		ECI
3D Digital Design VA 4265	4		ECI
Term credit totals:	12		
ENG 113 English 102	3		
Term credit total:	16		

NOTE: *For a graduate advanced certificate program, the* ***SUNY Sample Program Schedule for Certificate and Advanced Certificate Programs*** *must include all curriculum requirements. The program is* ***not required*** *to conform with the graduate program expectations from in Regulation 52.2 http://www.highered.nysed.gov/ocue/lrp/rules.htm.*

a) If the program has fewer than 24 credit hours, or if the program will be offered through a nontraditional schedule (i.e., not on a semester calendar), what is the schedule and how does it impact financial aid eligibility? ***NOTE:*** *Consult with your campus financial aid administrator for information about nontraditional schedules and financial aid eligibility.*

N/A

b) For each existing course that is part of the proposed undergraduate certificate or the graduate advanced certificate, **append**, at the end of this form, a catalog description.

See Appendix 2 for course descriptions.

c) For each new course in the certificate or advanced certificate program, **append a syllabus** at the end of this document.

N/A

d) If the program requires external instruction, such as clinical or field experience, agency placement, an internship, fieldwork, or cooperative education, **append** a completed External Instruction form at the end of this document.

N/A

SUNY Sample Program Schedule for Certificate and Advanced Certificate Programs

Program/Track Title and Award: 3D Digital Fabrication and Design / Certificate

- Indicate **academic calendar type**: [X] Semester [ ] Quarter [ ] Trimester [ ] Other (describe):
- **Label each term in sequence**, consistent with the institution's academic calendar (e.g., Fall 1, Spring 1, Fall 2)
- Use the table to show **how a typical student may progress through the program**; copy/expand the table as needed. **Complete all columns that apply to a course.**

Sample 1 – full course load

Term 1: FALL 1				Term 2: SPRING 1			
Course Number & Title	**Credits**	**New (X)**	**Co/Prerequisites**	**Course Number & Title**	**Credits**	**New (X)**	**Co/Prerequisites**
Sculpture I VA 2750	4		ECI	Sculpture II VA 4750	4		VA 2750
Graphic Design I VA 2320	4		ECI	Graphic Design II VA 4320	4		VA 2320
3D Digital Design VA 4265	4		ECI	Advanced 3D Design and Animation VA 4360	4		VA 4265
Term credit totals:	12			**Term credit totals:**	12		

Program Totals (in credits):	**Total Credits: 24**

Sample 2 – partial course load

Term 1: FALL 1				Term 2: SPRING 1			
Course Number & Title	**Credits**	**New (X)**	**Co/Prerequisites**	**Course Number & Title**	**Credits**	**New (X)**	**Co/Prerequisites**
Sculpture I VA 2750	4		ECI	Graphic Design II VA 4320	4		VA 2320
Graphic Design I VA 2320	4		ECI	3D Digital Design VA 4265	4		ECI
Term credit totals:	8			**Term credit totals:**	8		
Term 3: FALL 2							
Course Number & Title	**Credits**	**New (X)**	**Co/Prerequisites**				
Advanced 3D Design and Animation VA 4360	4		VA 4265				
Sculpture II VA 4750	4		VA 2750				
Term credit totals:	**8**						

Program Totals (in credits):	**Total Credits: 24**

Section 4. Faculty

a) Complete the **SUNY Faculty Table** on the next page to describe current faculty and to-be-hired (TBH) faculty.

b) **Append** at the end of this document position descriptions or announcements for each to-be-hired faculty member.

N/A

NOTE: *CVs for all faculty should be available upon request. Faculty CVs should include rank and employment status, educational and employment background, professional affiliations and activities, important awards and recognition, publications (noting refereed journal articles), and brief descriptions of research and other externally funded projects. New York State's requirements for faculty qualifications are in http://www.highered.nysed.gov/ocue/lrp/rules.htm.*

c) What is the institution's definition of "full-time" faculty?

Full-time tenured/tenure-track faculty carry a teaching load of three (3) courses per semester, and have service and scholarship obligations.

SUNY Faculty Table

Provide information on current and prospective faculty members (identifying those at off-campus locations) who will be expected to teach any course in the graduate program. Expand the table as needed. Use a separate Faculty Table for each institution if the program is a multi-institution program.

(a)	(b)	(c)	(d)	(e)	(f)
Faculty Member Name and Title/Rank (Include and identify Program Director with an asterisk.)	**% of Time Dedicated to This Program**	**Program Courses Which May Be Taught (Number and Title)**	**Highest and Other Applicable Earned Degrees (include College or University)**	**Discipline(s) of Highest and Other Applicable Earned Degrees**	**Additional Qualifications: List related certifications, licenses and professional experience in field.**
PART 1. Full-Time Faculty					
* Tricia McLaughlin, Professor	34%	VA 4265 3D Digital Design VA 4360 Advanced 3D Design and Animation	M.F.A., Hunter College, CUNY	Visual Arts	Game Designer
Patty Harris, Associate Professor	34%	VA 2320 Graphic Design I VA 4320 Graphic Design II	M.F.A., Queens College, CUNY	Visual Arts	Graphic Designer
Eric Hagan, Assistant Professor	34%	VA 2750 Sculpture I VA 4750 Sculpture II	M.P.S., New York University, Tisch School of the Arts	Visual Arts	Sculptor, Designer
Part 2. Part-Time Faculty					
N/A					
Part 3. Faculty To-Be-Hired (List as TBH1, TBH2, etc., and provide title/rank and expected hiring date.)					
N/A					

Section 5. Financial Resources and Instructional Facilities

a) What is the resource plan for ensuring the success of the proposed program over time? Summarize the instructional facilities and equipment committed to ensure the success of the program. Please explain new and/or reallocated resources over the first five years for operations, including faculty and other personnel, the library, equipment, laboratories, and supplies. Also include resources for capital projects and other expenses.

No additional equipment needs to be purchased, no additional studio space is needed, no additional lab space is needed, and no additional faculty need to be hired. All courses are already offered for the degrees currently offered by the Visual Arts program.

b) Complete the five-year SUNY Program Expenses Table, below, consistent with the resource plan summary. Enter the anticipated academic years in the top row of this table. List all resources that will be engaged specifically as a result of the proposed program (e.g., a new faculty position or additional library resources). If they represent a continuing cost, new resources for a given year should be included in the subsequent year(s), with adjustments for inflation or negotiated compensation. Include explanatory notes as needed.

SUNY Program Expenses Table

(OPTION: You can paste an Excel version of this schedule AFTER this sentence, and delete the table below.)

Program Expense Categories	Expenses (in dollars)					
	Before Start	**Academic Year 1:**	**Academic Year 2:**	**Academic Year 3:**	**Academic Year 4:**	**Academic Year 5:**
(a) Personnel (including faculty and all others)	0	0	0	0	0	0
(b) Library	0	0	0	0	0	0
(c) Equipment	0	0	0	0	0	0
(d) Laboratories	0	0	0	0	0	0
(e) Supplies	0	0	0	0	0	0
(f) Capital Expenses	0	0	0	0	0	0
(g) Other (Specify):	0	0	0	0	0	0
(h) Sum of Rows Above	**0**	**0**	**0**	**0**	**0**	**0**

Section 6. Library Resources

NOTE: *This section does not apply to certificate or advanced certificate programs.*

Section 7. External Evaluation

NOTE: *This section does not apply to certificate or advanced certificate programs.*

Section 8. Institutional Response to External Evaluator Reports

NOTE: *This section does not apply to certificate or advanced certificate programs.*

Section 9. SUNY Undergraduate Transfer

NOTE: *This section does not apply to certificate or advanced certificate programs.*

Section 10. Application for Distance Education

a) Does the program's design enable students to complete 50% or more of the course requirements through distance education? [X] No [ ] Yes. If yes, **append** a completed *SUNY Distance Education Format Proposal* at the end of this proposal to apply for the program to be registered for the distance education format.

b) Does the program's design enable students to complete 100% of the course requirements through distance education? [X] No [ ] Yes

Section MPA-1. Need for Master Plan Amendment and/or Degree Authorization

NOTE: *This section does not apply to certificate or advanced certificate programs.*

List of Appended Items

Appended Items: Materials required in selected items in Sections 1 through 5 and Section 10 of this form should be appended after this page, with continued pagination. In the first column of the chart below, please number the appended items, and append them in number order.

Number	Appended Items	Reference Items
N/A	For multi-institution programs, a letter of approval from partner institution(s)	Section 1, Item (e)
N/A	For programs leading to professional licensure, a side-by-side chart showing how the program's components meet the requirements of specialized accreditation, Commissioner's Regulations for the profession, or other external standards	Section 2.3, Item (e)
N/A	For programs leading to licensure in selected professions for which the SED Office of the Professions (OP) requires a specialized form, if required by OP	Section 2.3, Item (e)
N/A	OPTIONAL: For programs leading directly to employment, letters of support from employers, if available	Section 2, Item 2.3 (h)(2)
See Appendix 1	For all programs, a plan or curriculum map showing the courses in which the program's educational and (if appropriate) career objectives will be taught and assessed	Section 2, Item 7
See Appendix 2	For all programs, a catalog description for each existing course that is part of the proposed program	Section 3, Item (b)
N/A	For all programs, syllabi for all new courses in the proposed program	Section 3, Item (c)
N/A	For programs requiring external instruction, *External Instruction Form* and documentation required on that form	Section 3, Item (d)
N/A	For programs that will depend on new faculty, position descriptions or announcements for faculty to-be-hired	Section 4, Item (b)
N/A	For programs designed to enable students to complete at least 50% of the course requirements at a distance, a *Distance Education Format Proposal*	Section 10

Appendix 1 - Curriculum Map

Legend: **P** = practiced/reinforced **A** = assessed	Students will understand and engage in the concepts and foundations related to 3D Digital Fabrication and Design, and engage directly with the planning associated with the creative process.	Students will execute the 3D creative process through the use of 3D fabrication machines, including: 3D printers, laser cutter, CNC router used with 3D Design computer software and its application in 3D design and fabrication.	Students will demonstrate their understanding of the conceptual, creative, and technical processes through lectures and discussions, specific projects, hands on practice in the Visual Arts Department 3D Fabrication lab, and group critiques of the work.	Students will demonstrate a knowledge and familiarity with the various career paths available in the field of 3D fabrication, such as prototype creation for manufacturing, product design, medical device design, architectural visualization, 3D design for 3D printing firms, fashion and jewelry design, and other applications.
VA2320 Graphic Design I	**P**	**P**		
VA 4320 Graphic Design II	**P/A**	**P**		
VA2750 Sculpture I		**P /A**	**P**	**P /A**
VA4750 Sculpture II		**P**	**P**	**P**
VA4265 3D Digital Design		**P/A**	**P/A**	**P**
VA4360 Advanced 3D Design and Animation		**P**	**P**	**P**

Appendix 2 - Courses Descriptions

*** VA 2320 Graphic Design I** **4 cr.**

This course introduces the elements and principles of graphic design as building blocks that lead to effective visual communication. A series of projects focus on developing problem-solving skills as well as knowledge of the software involved in creating successful design projects. Several influential design movements are covered in relation to specific principles of design. Emphasis is placed on taking initial ideas through to fully realized projects that communicate effectively. Areas covered include typography, page layout, book design, packaging and logo design, poster design and design for the web. Projects will be created in Adobe software: InDesign, Photoshop, Illustrator and Dreamweaver. Offered every semester. Satisfies Liberal Education Curriculum requirement. *Prerequisite: ECI.*

***VA 2750 Sculpture I** **4 cr.**

Sculpture I is an introduction to the concepts, materials, and methods of sculpture. The class will explore a wide variety of sculptural tools and techniques, both traditional and digital. The class will include an introduction to digital fabrication, basic mold making, and CNC milling. Along with form making and composition, the properties and potential of various materials will also be investigated. Emphasis is placed on the relationship of material to concept, and the processes used in making a sculpture. In addition, the course will address contemporary issues relating to sculpture in the late twentieth and early twenty-first centuries. Offered every semester. Satisfies Liberal Education Curriculum requirement.

***VA4265 3D Digital Design** **4 cr.**

This course will cover 3D modeling and an introduction to 3D animation. Polygon and Nurb modeling, as well as deformers and rigging, will be taught as tools for expressing students' own ideas for 3D environment, character and object designs. From these projects, students will be introduced to the methods of animating and 3D printing of their models. Offered every semester.

***VA4320 Graphic Design II** **4 cr.**

This course builds upon the elements and principles of graphic design outlined in Graphic Design I. Students will develop concepts that lead to effective design solutions across media platforms including: print design, packaging and logo design, web, eBook and environmental design. Students will use a variety of Adobe software: InDesign, Photoshop, Illustrator, Dreamweaver, Flash and ePub. Offered every semester. *Prerequisite: VA 2320 or permission of the instructor.*

***VA4360 Advanced 3D Design & Animation** **4 cr.**

This course is designed for students to further develop projects at an advanced level in the Electronic Media areas of animation, 3D design, and 3D printing and animation. Previous experience in the area of 3D design is required. Offered every other semester. *Prerequisites: VA 4265 or permission of the instructor.*

***VA4750 Sculpture II** **4 cr.**

Sculpture II builds upon the concepts and tools learned in Sculpture I with a more rigorous conceptual approach and an elevated development of materials and skills. The second semester of sculpture continues to develop the student's conceptual, visual and technical skills acquired in Sculpture I with increased levels of complexity and an emphasis on developing digital sculpture, interactivity and 2D fabrication. This course provides students with a solid understanding of the basis of digital fabrication as it applies to 3-D printing, CNC milling, small scale electronics and component-based assembly methods. Students will evolve their abilities to explore the interdependence of content and medium in a critical and contemporary art context. Offered every semester. Satisfies Liberal Education Curriculum requirement. *Prerequisite: VA 2750 or permission of the instructor.*

* Denotes courses for which a $25 lab fee is charged.