

## CURRICULUM MODIFICATION PROPOSAL

### Title: Emerging Media Technology B.Tech Program Modification, Phase One

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New York City College of Technology, CUNY

## CURRICULUM MODIFICATION PROPOSAL FORM

This form is used for all curriculum modification proposals. See the [Proposal Classification Chart](#) for information about what types of modifications are major or minor. Completed proposals should be emailed to the Curriculum Committee chair.

<b>Title of Proposal</b>	<b>Emerging Media Technology Program Modification, Phase One</b>
<b>Date</b>	<b>8/30/2022</b>
<b>Major or Minor</b>	<b>major</b>
<b>Proposer's Name</b>	<b>Adam Wilson (primary contact), Allison Berkoy, and John McCullough</b>
<b>Department</b>	<b>Entertainment Technology</b>
<b>Date of Departmental Meeting in which proposal was approved</b>	<b>8/30/2022</b>
<b>Department Chair Name</b>	<b>John McCullough</b>
<b>Department Chair Signature and Date</b>	
<b>Academic Dean Name</b>	<b>Gerarda Shields</b>
<b>Academic Dean Signature and Date</b>	
<b>Brief Description of Proposal</b> (Describe the modifications contained within this proposal in a succinct summary. More detailed content will be provided in the proposal body.)	<ul style="list-style-type: none"> <li>- Specify new MAT and PHYS liberal arts requirements. Currently, each concentration has its own math and science requirements. We plan to unify these requirements across concentrations, using the Media Computation concentration as the model. Students will need to complete MAT 2440 "Discrete Structures and Algorithms I" and PHYS 1433 "General Physics I, Algebra Based" or higher.</li> <li>- New course: a prerequisite to "Culmination Project" (ENT 4499; will become ENT 4501), MTEC 3501 "Culmination Project Development."</li> <li>- New course: MTEC 4502 "Career and Portfolio Seminar."</li> <li>- ENT 1100 "Introduction to Entertainment Technology," MTEC 4800 "Interdisciplinary Team Project," ENT 4430 "Project Management," ENT 4498 "Career Seminar," and ENT 4900 "Internship" will be removed as requirements and become Degree Elective courses.</li> <li>- MTEC 1003 "Media Computation Skills Lab" and MTEC 2230 "Media Computation" will be retired; CST 1101 "Problem Solving with Computer Programming" and CST 1201 "Programming Fundamentals" will be removed from program requirements. These four introductory computing courses will be consolidated into a proposed sequence of two new courses, MTEC 1201 and MTEC 1202, "Computer Programming for Interactive Media I and II".</li> </ul>
<b>Brief Rationale for Proposal</b> (Provide a concise summary of why this proposed change is important)	<ul style="list-style-type: none"> <li>- Concentrations with lighter math and science requirements than those for the Media Computation concentration</li> </ul>

to the department. More detailed content will be provided in the proposal body).	<p>produce students who often struggle with quantitative skills necessary to tackle upper division courses.</p> <ul style="list-style-type: none"> <li>- MTEC 3501 "Culmination Project Development" will displace MTEC 4800 "Interdisciplinary Team Project" so that we maintain no more than four portfolio-contributing project courses: ENT 3320 "Technical Production," taken twice, MTEC 3501, and ENT 4501. Ideally, students will take one project course in each of their final four semesters.</li> <li>- We identified a need for more time and focus on project courses and portfolio development, which are important to the professional success of the students.</li> <li>- Some courses that we plan to switch from requirements to electives duplicate material provided in other classes; others are not universally applicable to all students in the program. See "Detailed Rationale" for a case-by-case treatment.</li> <li>- To more effectively connect introductory programming concepts and applications to the demands of upper-level MTEC courses, introductory programming courses should be taught in-department (see detailed rationale in attached new course proposals for MTEC 1201 and MTEC 1202).</li> </ul>
<p><b>Proposal History</b> (Please provide history of this proposal: is this a resubmission? An updated version? This may most easily be expressed as a list).</p>	N/A

Please include all appropriate documentation as indicated in the Curriculum Modification Checklist. For each new course, please also complete the New Course Proposal and submit in this document. Please submit this document as a single .doc or .rtf format. If some documents are unable to be converted to .doc, then please provide all documents archived into a single .zip file.

### ALL PROPOSAL CHECK LIST

Completed CURRICULUM MODIFICATION FORM including:	
<ul style="list-style-type: none"> <li>• Brief description of proposal</li> </ul>	X
<ul style="list-style-type: none"> <li>• Rationale for proposal</li> </ul>	X
<ul style="list-style-type: none"> <li>• Date of department meeting approving the modification</li> </ul>	X
<ul style="list-style-type: none"> <li>• Chair's Signature</li> </ul>	X
<ul style="list-style-type: none"> <li>• Dean's Signature</li> </ul>	X
<p>Evidence of consultation with affected departments</p> <p>List of the programs that use this course as required or elective, and courses that use this as a prerequisite.</p>	N/A
Documentation of Advisory Commission views (if applicable).	N/A
Completed <a href="#">Chancellor's Report Form</a> .	X

**EXISTING PROGRAM MODIFICATION PROPOSALS**

Documentation indicating core curriculum requirements have been met for new programs/options or program changes.	X
Detailed rationale for each modification (this includes minor modifications)	X

## Detailed Rationale

This proposal represents “phase one” of a larger curriculum change broken into two phases. We plan to submit phase two to the curriculum committee in the fall of 2023.

### Phase One Objectives

(focus: quantitative skills and professional development)

#### Unify Liberal Arts Requirements Across Program Concentrations

The Emerging Media Technology program has four concentrations: “Media Computation,” “Physical Computing,” “Game Design and Interactive Media,” and “Music Technology.” Each student must declare and take 5 courses in one of the concentrations.

Currently, math and science requirements differ across concentrations.

The Game Design and Interactive Media concentration and the Music Technology both require MAT 1190 “Quantitative Reasoning” and PHYS 1100 “The Physical Universe.” Media Computation requires MAT 2440 “Discrete Structure and Algorithms I” and PHYS 1433 “General Physics I: Algebra Based. Physical Computing requires MAT 1575 “Calculus II” and PHYS 1442 “General Physics II: Calculus Based.”

Students in the Game Design and Interactive Media concentration and the Music Technology concentration often struggle with quantitative material in our advanced courses. We attribute this in part to their level of preparation in math and science relative to students in the Media Computation and Physical Computing concentrations, who typically fare well in upper-level program courses. However, calculus II and calculus-based physics, currently required only of Physical Computing students, are not applied in any of our courses. Therefore, we propose to standardize math and science requirements for all students in accordance with the Media Computation requirements.

Inference of best-fit math and science courses from observation of student performance by concentration is reinforced by examination of the skills learned in MAT 2440, its prerequisite MAT 1375 (Precalculus), and PHYS 1433. Students in our most popular concentrations, Game Design and Music Technology, need to understand kinematics and vector math, convert between polar and rectangular forms of complex numbers, devise/select algorithms to solve self-identified problems, and quantify the efficiency of algorithms. These topics are covered adequately in the proposed math and science

courses, but not in the currently required courses. Application of the Media Computation math and science requirements across the program will prevent the need to re-teach material that only some students have been exposed to, freeing up time for more program-specific instruction.

Note: since we are a B.Tech program, we are allowed to require specific liberal arts courses within the Common Core. See the 2020 Pathways Guidelines excerpt below from <https://www.cuny.edu/wp-content/uploads/sites/4/page-assets/about/administration/offices/undergraduate-studies/pathways/about/policies/Pathways-Guidelines-1.pdf>.

- With some exceptions, when colleges have provided options within Common Core areas, students must be able to choose from among the courses listed in each area, assuming that they meet prerequisites or other qualifications for a course. Particular courses within an area may not be required or prohibited, again assuming students meet course qualifications.
  - *Exceptions: Colleges may specify Common Core courses to be taken by students in AAS and BTech programs; liberal arts and sciences courses in these programs must be drawn from the Common Core. Some AS programs have received waivers to specify particular courses students must take in STEM areas of the Common Core (Math and Quantitative Reasoning, Life and Physical Sciences, and Scientific World). If students take other courses in these areas, they will be certified as having completed the Common Core area, but it may not be possible for them to finish their degree programs within the regular number of credits. Some programs also received waivers to specify courses that are required by New York State or accrediting bodies. Colleges may specify that the sixth Flexible Core course be taken in a particular area of the Common Core and may specify foreign language requirements for students who do not meet proficiency levels.*

#### Streamline Introductory Courses in Computer Programming

While our program is interdisciplinary, with a focus on several subdisciplines related to interactive media, proficiency in computer programming is the single most important skill for all our students.

Currently, the programming languages most utilized in our upper-division courses include C# for Unity game engine, C/C++ for the Max/MSP real-time audio engine and Unreal game engine, Arduino's C++-like language for working with sensors and actuators, and JavaScript for general scripting (Max, Processing, etc.) and web application development.

Prior to engaging in these courses, students take introductory programming courses CST 1101 "Problem Solving with Computer Programming" (language of focus: Python), CST

1201 “Programming Fundamentals” (language of focus: Java), MTEC 1003 “Media Computations Skills Lab” (focuses: code versioning, Bash, JavaScript), and MTEC 2230 “Media Computation” (focuses: JavaScript, Ruby/Rails, Max, C, Matlab).

As our relatively young program has developed, our focus has gradually changed and coalesced around several subdisciplines in the field. In the process, the tools and programming languages that we find ourselves deploying across our upper-division courses – corresponding to tools and languages used in related industries – have diverged from those presented in our introductory programming courses.

While our students have been successful in and have absorbed conceptually useful information from CST 1101 and 1201, the languages of focus in those courses differ from those most used in our program and target industries. Targeting introductory courses in CST that better match our students’ needs is a possibility, but, when the tools and languages of choice inevitably shift further in our target industries, they may not shift in parallel in CST. It makes sense therefore to bring our introductory programming courses in-department, while leveraging the CST program for selected courses that supplement the skills our students need, such as CST 2403 “C++ Programming Part I.”

Our in-department introductory programming courses also need attention. MTEC 2230 has too many languages and technologies compressed into a single course, some of which are no longer so relevant to our upper-division offerings and the professional goals of our students. This course was established at a time when we needed a quick fix for a missing mid-level course in computation, and we now have the faculty and resources to move some of the conceptual materials to other existing 2000-level courses and present them in the languages of those courses.

MTEC 1003 is a single-credit lab course which would benefit from being folded into a more substantial and comprehensive programming introduction.

We therefore propose two new courses, MTEC 1201 and MTEC 1202, “Computer Programming for Interactive Media I and II”, to replace CST 1101, CST 1201, MTEC 1003, and MTEC 2230. These will be taken in sequence in a single language (JavaScript) so that students will not be distracted by shifting syntax while building new conceptual ideas upon prior knowledge. These courses are differentiable from CST offerings in that programming problems will address common applications in our concentrations, e.g. collision detection, audio signal processing, and entertainment-related forms of human-computer interaction. The CST department supports the creation of these courses (see [CORRESPONDENCE WITH CST DEPARTMENT](#)).

See the following sections for more detail:

[NEW COURSE PROPOSAL FORM, MTEC 1201 COMPUTER PROGRAMMING FOR INTERACTIVE MEDIA I](#)  
[NEW COURSE PROPOSAL FORM, MTEC 1202 COMPUTER PROGRAMMING FOR INTERACTIVE MEDIA II](#)

### Establish a Portfolio-Focused Career Seminar

Currently, all students in both the MTEC and ENT programs complete a 1-credit "Career Seminar" course (ENT 4498), typically in the final semester.

ENT 4498 covers professional goal setting, job search techniques, CV and cover letter writing, interviewing, and professional ethics. Students enrolled in the Entertainment Technology B.Tech, however, have different expectations for professional preparation than students in the Emerging Media Technology B.Tech.

Of primary importance to MTEC students is the development of a portfolio. Many of our students benefit from further study in graduate programs, and a well-presented portfolio of work is a necessary component of graduate school applications. A portfolio can also be immensely helpful for students who prefer to move directly into the workforce.

Because the development of a portfolio is time-intensive, our proposed course, MTEC 4502 "Career and Portfolio Seminar," will be taken for 3 credits. Students will not only build an online portfolio framework; they will also identify and package selections from projects completed at City Tech for inclusion in that framework. Output will be drawn primarily from their work in ENT 3320 "Technical Production," MTEC 4800 "Interdisciplinary Team Project," and ENT 4499 "Culmination Project."

### Double the Number of Courses Focused on Culmination Project Development

The culmination project is the most important portfolio element produced by students in Emerging Media Technology. Each student independently implements a project with limited guidance from one or more faculty technical advisors.

Students are currently required to take ENT 4430, "Project Management," as a prerequisite to ENT 4499 "Culmination Project." Among other topics, one assignment in ENT 4430 is devoted to envisioning a possible culmination project.

We have found that the single assignment is not sufficient preparation; students are not ready to begin implementation the following semester, and often lose precious time re-envisioning their projects. Our solution is to replace ENT 4430 in the MTEC curriculum with a prerequisite to ENT 4499 (soon to be ENT 4501 – see related Entertainment Technology curriculum proposal 22-01) with a new course, MTEC 3501 "Culmination Project Development." The new course will be focused completely on the design of the culmination project, and will involve some preliminary iterative prototyping so that students move into ENT 4501 ready to begin work on the final implementation of their culmination projects.



### Re-deploy Selected Required Courses as Electives

The following courses will be removed as requirements and will become electives:

#### ENT 1100 “Introduction to Entertainment Technology”

Rationale: this course presents redundant information to MTEC 1101 “Introduction to Emerging Media Technology” and other introductory MTEC courses. The advantage of ENT 1100 is that it presents an overview of *both* department B.Tech programs – Entertainment Technology and Emerging Media Technology. However, almost all students in ENT 1100 have already decided on a degree program based on advisement discussions and tend to remain in their chosen program thereafter. This credit could be better leveraged to provide more material directly relevant to MTEC students.

#### ENT 4430 “Project Management”

Rationale: this course will be replaced by MTEC 3501 “Culmination Project Development.” Refer the relevant [section](#) above for more details.

#### ENT 4498 “Career Seminar”

Rationale: this course will be replaced by MTEC 4501 “Career and Portfolio Seminar.” Refer the relevant [section](#) above for more details.

#### MTEC 4800 “Interdisciplinary Team Project”

Rationale: We added a prerequisite course to ENT 4499 (soon to be ENT 4501) “Culmination Project.” Refer the relevant [section](#) above for more details. If we take into account the proposed reduction in the number of times ENT 3320 “Technical Production” is to be taken (3 -> 2), we are left with 5 large-scale project courses including MTEC 4800. Most students end up taking these courses during their last two years. We don’t want students to take more than one project course per semester because the added workload negatively affects the quality of output. Furthermore, while MTEC 4800 is focused on a collaborative student-driven project, “Culmination Project” also presents an opportunity for students to undertake collaborative projects. For students who can handle the workload and want an extra portfolio item, MTEC 4800 would make an excellent Degree Elective choice.

#### ENT 4900 “Internship”

Rationale: Graduate school is often a necessary path for our students to gain access to relevant internships and entry-level positions. For students who want to enter the workforce immediately and who aren’t concerned with obtaining work that is more tangentially than directly related to their program of study, ENT 4900 would make excellent Degree Elective choice.

#### A note about the number of Concentration Electives relative to Degree Electives:

In the new program regime specified in this proposal (see [Phase One Overview](#)), we require a number of Degree Electives roughly equal in number to the electives required

for the declared concentration. Our program is divided into four concentration areas, but these serve as guideposts to focus potential specialization within what we hope is a degree that provides a gateway to a broad swath of professional possibilities. We want our students to develop some exposure to all these domains, but with the possibility of creating hybrid paths for themselves. For example, some of our students in the game design concentration are interested in software development, while others are interested in designing assets for games. Students in the former category can use Degree Electives to pursue additional courses from the Media Computation concentration area, while students in the latter can use Degree Electives to add extra courses in COMD and/or video offerings from the ENT side of the program. Similarly, students in Music Technology tend to bifurcate, with one group interested in developing new tools for music creation and the other interested in producing electronic music. Those in the former group can again take advantage of Media Computation courses, and those in the latter can pursue live sound courses in ENT or Game Design courses, depending on whether they want to focus on live or post-production audio. Our students receive guidance in choosing Degree Electives appropriate to their professional interests through consultation with faculty advisors.

### Phase Two Objectives

(focus: design/theory fundamentals, organization of subdomain skills and courses)

Mostly, the decomposition of our proposed changes into two phases has to do with the scope of the changes – too much to implement at once without a long delay in intra-department discussion. Instead, we chose to attempt to implement fixes for the most clear and pressing issues in phase one: improvements to quantitative skills preparedness and adjustments to professional development courses shared by both department programs.

Our phase two curriculum proposal, to be submitted in fall 2023, will:

- streamline courses containing design/theory components
- introduce a course in special topics to exploit faculty specialties and stay abreast of advances in the field
- re-purpose existing 2000-level courses into four courses covering physical computing, computer music, game development, and fabrication
- re-position MTEC 3140 Topics and Perspectives in Emerging Media Technology as a 1000-level course
- remove the requirement to declare a concentration and re-organize concentration material into content-area modules

## Phase One Overview

<b>MTEC PROGRAM CHANGE PHASE ONE</b>		
Green indicates courses carried over from the current curriculum.		
Orange indicates courses added to or modified from the current curriculum.		
<b>course category or code</b>	<b>course title</b>	<b>course credits</b>
<b>GENERAL EDUCATION REQUIRED AND FLEXIBLE COMMON CORE</b>		
English Composition	ENG 1101 "English Composition I"	3
English Composition	ENG 1121 "English Composition II"	3
Mathematical and Quantitative Reasoning	MAT 1375 "Pre-Calculus"	4
Life and Physical Sciences	PHYS 1433 "General Physics I: Algebra Based" (WI)	4
WCGI (World Cultures and Global Issues)	choose any	3
USED (US Experience in its Diversity)	choose any	3
IS (Individual and Society)	choose any	3
CE (Creative Expression)	choose any	3
SW (Scientific World)	MAT 2440 "Discrete Structures and Algorithms" (WI) – <b>not required as SW, required for the major; may do "double duty" as an SW course.</b>	3
Add. Flex Core	MAT 1275 "College Algebra and Trigonometry" <b>(if the student has not placed out)</b>	3 (or 4 if MAT 1275)
COM 1330	Public Speaking	3
ID (Interdisciplinary Course)	choose any	3
LibArt. WL	Liberal Arts Electives (2 courses) OR World Language Sequence (2 courses)	6

<b>TOTAL LIBERAL ARTS CREDITS:</b>		<b>44-45</b>
<b>MTEC MAJOR COURSES TAKEN BY ALL STUDENTS</b>		
MTEC 1001	Game Design and Interactive Media Skills Lab	1
MTEC 1005	Physical Computing Skills Lab	1
MTEC 1101	Emerging Media Foundation	3
MTEC 1102	Production Practices	3
MTEC 2210	Game Design and Interactive Media	3
MTEC 2120	Interactive Media Systems Design	3
MTEC 2250	Fabrication for Physical Computing	3
MTEC 2280	Ins and Outs	3
MTEC 1201 (NEW COURSE)	Computer Programming for Interactive Media I	3
MTEC 1202 (NEW COURSE)	Computer Programming for Interactive Media II	3
MTEC 3140	Topics and Perspectives in Emerging Media Technology	3
ENT 3106 (formerly ENT 3320; credit change from 2 to 3 necessitates new course number)	Technical Production	6
MTEC 4502 (NEW COURSE; replaces 1-credit ENT 4498 Career Seminar)	Career and Portfolio Seminar	3
MTEC 3501 (NEW COURSE)	Culmination Project Development (WI)	3
ENT 4501 (formerly ENT 4499; credit change from 2 to 3 necessitates new course number)	Culmination Project	3
<b>TOTAL CORE MAJOR COURSE CREDITS:</b>		<b>44 (47 if MAT 2440 not used as Scientific World)</b>

<b>MTEC CONCENTRATIONS - CHOOSE 5 COURSES FROM ONE CONCENTRATION</b>		
<b>Media Computation Concentration</b>		
CST 1204	Database System Fundamentals	3
CST 1215	Operating Systems Fundamentals	3
CST 2301	Multimedia and Mobile Device Programming	3
CST 2309	Web Programming I	3
CST 2403	Introduction to C++ Part I	3
MTEC 3125	Nonlinear Narrative	3
MTEC 3175	Mixed Reality for Immersive Worlds	3
MTEC 3240	Data Sonification and Visualization	3
MTEC 4030	Computational Creativity	3
MAT 1475	Calculus I	4
MECH 3550	Simulation and Visualization	3
MTEC 2101	Introduction to Game Design Concepts	3
<b>Music Technology Concentration</b>		
ENT 1270	Sound Technology I	3
ENT 2370	Sound Technology II	3
MTEC 2240	Music Technology	3
MTEC 2260	Music Synthesis and Sampling	3
ENT 4470	Sound Design	3
<b>Game Design and Interactive Media Concentration</b>		
MTEC 2101	Introduction to Game Design Concepts	3
COMD 3540	2-Dimensional Animation	3
COMD 3640	3-Dimensional Animation and Modeling I	3

COMD 3740	3-Dimensional Animation and Modeling II	3
COMD 4720	Multimedia Design I	3
ARCH 3550	Building Performance Workshop	3
ARCH 3551	Sustainability: History and Practice	3
ENT 1190 OR COMD 2320	Video Technology OR Introduction to Video	3
ENT 1250	Lighting Technology	3
ENT 1270	Sound Technology I	3
ENT 3390	Sound for Multimedia	3
IND 2313	Industrial Design I (Fall only)	2
MTEC 3125	Nonlinear Narrative	3
MTEC 3160	Performance Design	3
MTEC 3175	Experimental Game Design and Development	3
MTEC 3230	Mixed Reality for Immersive Worlds	3
MTEC 3240	Data Sonification and Visualization	3
<b>Physical Computing Concentration</b>		
MTEC 3280	Embedded Systems for Physical Computing	3
ENT 1108	Entertainment Drafting I	3
MECH 1222	Computer-Aided Engineering Graphics	2
MECH 1234	Statics and Strength of Materials	3
IND 2304	Advanced Solids Modeling	2
ETN 1102	Principles of Electricity and Electronics (for non-ET/TC majors)	4
ETN 1302	Principles of Electricity, Electronics and Computer Operation (for non-ET/TC majors)	4

EMT 1150	Electrical Circuits	5
EMT 1250	Fundamentals of Digital Systems	4
ENT 2280	Introduction to Show Networking	3
ENT 4480	Show Control	3
MAT 2580	Introduction to Linear Algebra	3
CST 2403	Introductory C++ Programming Language Part I	3
CET 3510	Microcomputer Systems Technology	4
CET 3640	Software for Computer Control	3
CET 4952	Robotics Technology	4
<b>TOTAL CONCENTRATION CREDITS:</b>		<b>~15</b>
<b>DEGREE ELECTIVE COURSES (take as needed to reach 120 credits)</b>		
Choose any ENT or MTEC course, or any extra-departmental course that appears in any of the above concentrations.		
<b>TOTAL ELECTIVE COURSE CREDITS:</b>		<b>~16 (~13 if MAT 2440 not used for Scientific World)</b>
<b>OVERALL PROGRAM TOTAL:</b>		<b>120</b>

### Phase One Degree Checklist

<b>MTEC PROGRAM DEGREE CHECKLIST, POST-PHASE-ONE CHANGES</b>				
<b>SEMESTER 1</b>		<b>Gen Ed</b>	<b>Degree</b>	<b>Total Credits</b>
ENG 1101	English Composition I	3		
Addtl. Flex - MAT 1275	College Algebra and Trig	4		
MTEC 1001	Game Design and Interactive Media Skills Lab		1	

MTEC 1101	Emerging Media Foundation		3	
MTEC 1201	Computer Programming for Interactive Media I		3	
	<b>Semester 1 Total Credits:</b>	<b>7</b>	<b>7</b>	<b>14</b>
<b>SEMESTER 2</b>		<b>Gen Ed</b>	<b>Degree</b>	<b>Total Credits</b>
MQR - MAT 1375	Precalculus	4		
ENG 1121	English Composition II	3		
MTEC 1005	Physical Computing Skills Lab		1	
MTEC 1102	Production Practices		3	
MTEC 1202	Computer Programming for Interactive Media II		3	
	<b>Semester 2 Total Credits:</b>	<b>7</b>	<b>7</b>	<b>14</b>
<b>SEMESTER 3</b>		<b>Gen Ed</b>	<b>Degree</b>	<b>Total Credits</b>
Concentration Elective 1 of 5			3	
LPS - PHYS 1433	General Physics I, Algebra Based, or higher (WI)	4		
MTEC 2210	Intro Computer Music (repurpose 2240)		3	
MTEC 2120	Interactive Media Systems Design		3	
SW - MAT 2440	Discrete Structures and Algorithms	3		
	<b>Semester 3 Total Credits:</b>	<b>7</b>	<b>9</b>	<b>16</b>
<b>SEMESTER 4</b>		<b>Gen Ed</b>	<b>Degree</b>	<b>Total Credits</b>
Concentration Elective 2 of 5			3	
CE	Creative Expressions Course	3		
MTEC 2250	Fabrication for Physical Computing		3	
MTEC 2280	Intro Physical Computing (repurpose 2280)		3	
IS	Individual and Society	3		
	<b>Semester 4 Total Credits:</b>	<b>6</b>	<b>9</b>	<b>15</b>
<b>SEMESTER 5</b>		<b>Gen Ed</b>	<b>Degree</b>	<b>Total Credits</b>
WCGI	World Cultures and Global Issues Course	3		



ID	Interdisciplinary Course	3		
ENT 3106	Technical Production (1 of 2)		3	
MTEC 3140	Topics and Perspectives in Emerging Media Technology		3	
Concentration Elective 3 of 5			3	
	<b>Semester 5 Total Credits:</b>	<b>6</b>	<b>9</b>	<b>15</b>
<b>SEMESTER 6</b>		<b>Gen Ed</b>	<b>Degree</b>	<b>Total Credits</b>
LibArt/WL 1 of 2	Liberal Arts Elective	3		
COM 1330	Speech / Oral Communication: Public Speaking	3		
Concentration Elective 4 of 5			3	
ENT 3106	Technical Production (2 of 2)		3	
Degree Elective			3	
	<b>Semester 6 Total Credits:</b>	<b>6</b>	<b>9</b>	<b>15</b>
<b>SEMESTER 7</b>		<b>Gen Ed</b>	<b>Degree</b>	<b>Total Credits</b>
Degree Elective			3	
USED	U.S Experiences in Its Diversity	3		
Concentration Elective 5 of 5			3	
Degree Elective 3 of 5			3	
MTEC 3501	Culmination Project Development		3	
	<b>Semester 7 Total Credits:</b>	<b>3</b>	<b>12</b>	<b>15</b>
<b>SEMESTER 8</b>		<b>Gen Ed</b>	<b>Degree</b>	<b>Total Credits</b>
ENT 4501	Culmination Project		3	
MTEC 4502	Career and Portfolio Seminar		3	
LibArt/WL 2 of 2	Liberal Arts Elective	3		
Degree Elective			4	
Degree Elective			3	
	<b>Semester 8 Total Credits:</b>	<b>3</b>	<b>13</b>	<b>16</b>

		<b>Final Gen Ed</b>	<b>Final Degree</b>	<b>Final Total</b>
		45	75	120

## Section AIII: Changes in MTEC Degree Program

### Changes to Concentrations: Music Technology, Game Design and Interactive Media

The following revisions are proposed for the B.Tech in Emerging Media Technology, Game Design and Interactive Media concentration and Music Technology concentration. The changes to these two concentrations are identical.

Effective Date: Fall 2023

FROM:	TO:
<del>GENERAL EDUCATION CORE (42 credits)</del>	<b>GENERAL EDUCATION CORE (44 credits)</b>
<del>Required Core (12 credits)<sup>1</sup></del>	<b>Required Core (14 credits)<sup>1</sup></b>
ENG 1101 English Composition I 3	ENG 1101 English Composition I 3
ENG 1121 English Composition II 3	ENG 1121 English Composition II 3
<del>MQR Mathematical and Quantitative Reasoning (Recommended MAT 1275) 3</del>	<b>MAT 1375 Precalculus, or higher 4<sup>2</sup></b>
<del>PHYS 1000 Principles of Science I or higher 3</del>	<b>PHYS 1433 General Physics I: Algebra Based, or higher (WI) 4</b>
<b>Flexible Core (6 courses, 18 credits)</b>	<b>Flexible Core (6 courses, 18 credits)</b>
World Cultures and Global Issues Any available course	World Cultures and Global Issues Any available course
US Experience in its Diversity Any available course	US Experience in its Diversity Any available course
Individual and Society Any available course	Individual and Society Any available course
Creative Expression Any available course	Creative Expression Any available course
Scientific World Any available course	Scientific World <b>Any available course<sup>6</sup></b>
Additional Flexible Common Core Course Any available course	Additional Flexible Common Core Course <b>Any available course<sup>4</sup></b>
<b>College Option (12 credits minimum)</b>	<b>College Option (12 credits minimum)</b>

One course in Speech/Oral Communication COM1330 Public Speaking or higher	3	One course in Speech/Oral Communication COM1330 Public Speaking or higher	3
One interdisciplinary Liberal Arts and Sciences course Any available course	3	One interdisciplinary Liberal Arts and Sciences course: Any available course	3
Two additional liberal arts courses to reach a minimum total of 42 credits in general education. In meeting their general education requirements overall, students must take at least one advanced liberal arts course or two sequential courses in a foreign language.	6	Two additional liberal arts courses to reach a minimum total of 42 credits in general education. In meeting their general education requirements overall, students must take at least one advanced liberal arts course or two sequential courses in a foreign language.	6
Writing Intensive Requirement Students at New York City College of Technology must complete two courses designated WI for the associate level, one from GenEd and one from the major; and two additional courses designated WI for the baccalaureate level, one from GenEd and one from the major.		Writing Intensive Requirement Students at New York City College of Technology must complete two courses designated WI for the associate level, one from GenEd and one from the major; and two additional courses designated WI for the baccalaureate level, one from GenEd and one from the major.	
<b>PROGRAM-SPECIFIC DEGREE REQUIREMENTS (78 credits)</b>		<b>PROGRAM-SPECIFIC DEGREE REQUIREMENTS (76 credits)</b>	
<b>Program-Specific Foundational Courses (33 credits)</b>		<b>Program-Specific Foundational Courses (29 credits)</b>	
<del>ENT 1100 Introduction to Entertainment Technology</del>	<del>3</del>		<del>0</del>
MTEC 1001 Game Design and Interactive Media Skills Lab	1	MTEC 1001 Game Design and Interactive Media Skills Lab	1
<del>MTEC 1003 Media Computation Skills Lab</del>	<del>1</del>		<del>0</del>
MTEC 1005 Physical Computing Skills Lab	1	MTEC 1005 Physical Computing Skills Lab	1
MTEC 1101 Emerging Media Foundation	3	MTEC 1101 Emerging Media Foundation	3
MTEC 1102 Production Practices	3	MTEC 1102 Production Practices	3
MTEC 2210 Game Design and Interactive Media	3	MTEC 2210 Game Design and Interactive Media	3
<del>MTEC 2230 Media Computation</del>	<del>3</del>		<del>0</del>
MTEC 2120 Interactive Media Systems Design	3	MTEC 2120 Interactive Media Systems Design	3
MTEC 2250 Fabrication for Physical Computing	3	MTEC 2250 Fabrication for Physical Computing	3
MTEC 2280 Ins and Outs	3	MTEC 2280 Ins and Outs	3
<del>CST 1101 Problem Solving with Computer Programming</del>	<del>3</del>	<del>MTEC 1201 Computer Programming for Interactive Media I</del>	<del>3<sup>2</sup></del>
<del>GST 1201 Programming Fundamentals</del>	<del>3</del>	<del>MTEC 1202 Computer Programming for Interactive Media II</del>	<del>3<sup>2,3</sup></del>
		<del>MAT 2440 Discrete Structures and Algorithms I (WI)</del>	<del>3<sup>3,6</sup></del>
<b>Program-Specific Advanced Courses (21 credits)</b>		<b>Program-Specific Advanced Courses (18cr)</b>	
MTEC 3140 Topics and Perspectives in Emerging Technologies (WI)	3	MTEC 3140 Topics and Perspectives in Emerging Technologies (WI)	3
<del>ENT 3320 Technical Production (2 credits, take 3 times)</del>	<del>6</del>	<del>ENT 3106 Technical Production (3 credits, take 2 times)</del>	<del>6</del>
<del>ENT 4430 Project Management (WI)</del>	<del>3</del>	<del>MTEC 3501 Culmination Project Development (WI)</del>	<del>3</del>

<del>ENT 4498</del>	<del>Career Seminar</del>	<del>1</del>	<del>MTEC 4502</del>	<del>Career and Portfolio Seminar</del>	<del>3</del>
<del>ENT 4499</del>	<del>Culmination Project</del>	<del>2</del>	<del>ENT 4501</del>	<del>Culmination Project</del>	<del>3</del>
<del>ENT 4900</del>	<del>Internship in Entertainment Technology</del>	<del>3<sup>5</sup></del>			<del>0<sup>5</sup></del>
<del>MTEC 4800</del>	<del>Interdisciplinary Team Project</del>	<del>3</del>			<del>0</del>
<b>Program-Specific Concentration Courses - Game Design and Interactive Media and Music Technology concentrations only (take 5 courses for ~15 credits)</b>			<b>Program-Specific Concentration Courses - Game Design and Interactive Media and Music Technology concentrations only (take 5 courses for ~15 credits)</b>		
<u>Music Technology Concentration</u>			<u>Music Technology Concentration</u>		
ENT 1270	Sound Technology I	3	ENT 1270	Sound Technology I	3
ENT 2370	Sound Technology II	3	ENT 2370	Sound Technology II	3
MTEC 2240	Music Technology	3	MTEC 2240	Music Technology	3
MTEC 2260	Music Synthesis and Sampling	3	MTEC 2260	Music Synthesis and Sampling	3
ENT 4470	Sound Design	3	ENT 4470	Sound Design	3
<u>Game Design and Interactive Media Concentration</u>			<u>Game Design and Interactive Media Concentration</u>		
MTEC 2101	Introduction to Game Design Concepts	3	MTEC 2101	Introduction to Game Design Concepts	3
COMD 3540	2-Dimensional Animation	2	COMD 3540	2-Dimensional Animation	2
COMD 3640	3-Dimensional Animation and Modeling I	3	COMD 3640	3-Dimensional Animation and Modeling I	3
COMD 3740	3-Dimensional Animation and Modeling II	3	COMD 3740	3-Dimensional Animation and Modeling II	3
COMD 4720	Multimedia Design I	3	COMD 4720	Multimedia Design I	3
ARCH 3550	Building Performance Workshop	3	ARCH 3550	Building Performance Workshop	3
ARCH 3551	Sustainability: History and Practice	3	ARCH 3551	Sustainability: History and Practice	3
-----			-----		
ENT 1190	Video Technology	3	ENT 1190	Video Technology	3
OR			OR		
COMD 2320	Introduction to Video	3	COMD 2320	Introduction to Video	3
-----			-----		
ENT 1250	Lighting Technology	3	ENT 1250	Lighting Technology	3
ENT 1270	Sound Technology I	3	ENT 1270	Sound Technology I	3
ENT 3390	Sound for Multimedia	3	ENT 3390	Sound for Multimedia	3
IND 2313	Industrial Design I (Fall only)	2	IND 2313	Industrial Design I (Fall only)	2
MTEC 3125	Nonlinear Narrative	3	MTEC 3125	Nonlinear Narrative	3
MTEC 3160	Performance Design	3	MTEC 3160	Performance Design	3
MTEC 3175	Experimental Game Design and Development	3	MTEC 3175	Experimental Game Design and Development	3
MTEC 3230	Mixed Reality for Immersive Worlds	3	MTEC 3230	Mixed Reality for Immersive Worlds	3
MTEC 3240	Data Sonification and Visualization	3	MTEC 3240	Data Sonification and Visualization	3
<b>Program Specific Elective Courses (take as needed to reach 120 credits)</b>			<b>Program Specific Elective Courses (take as needed to reach 120 credits)</b>		
Take any courses in MTEC or ENT or any concentration-specific course from another department that isn't a program requirement.			Take any courses in MTEC or ENT or any concentration-specific course from another department that isn't a program requirement.		

Program-Specific Liberal Arts and Sciences Requirements			Program-Specific Liberal Arts and Sciences Requirements		
PHYS 1000	The Physical Universe or higher	Met as GenEd	MAT 1375	Precalculus, or higher	Met as GenEd
			PHYS 1433	General Physics I: Algebra Based, or higher	Met as GenEd
<b>Total program-specific required course credits</b>		<b>78</b>	<b>Total program-specific required course credits</b>		<b>76</b>
<b>Minimum required liberal arts and sciences credits</b>		<b>42</b>	<b>Minimum required liberal arts and sciences credits</b>		<b>44</b>
<b>TOTAL CREDITS REQUIRED FOR THE DEGREE</b>		<b>120</b>	<b>TOTAL CREDITS REQUIRED FOR THE DEGREE</b>		<b>120</b>

<sup>1</sup>Since the Emerging Media Technology bachelor's degree program is a B.Tech, we take advantage of our allowance to specify courses in Common Core categories (<https://www.cuny.edu/wp-content/uploads/sites/4/page-assets/about/administration/offices/undergraduate-studies/pathways/about/policies/Pathways-Guidelines-1.pdf>).

<sup>2</sup>MAT 1375, Precalculus, must be completed with a minimum grade of "C;" similarly, a student must have earned a "C" or higher in an applicable transfer course to receive credit. Students must complete both MTEC 1201, Computer Programming for Interactive Media I, and MTEC 1202, Computer Programming for Interactive Media II, with a minimum grade of "C."

<sup>3</sup>CST 1201, Programming Fundamentals, is a prerequisite (along with MAT 1375, Precalculus) for MAT 2440. Since we are replacing CST 1201 with MTEC 1202, Computer Programming for Interactive Media II, we have asked that the math department accept MTEC 1202 as an alternative prerequisite for MAT 2440 (see attached letter of support).

<sup>4</sup>Some students may need to take MAT 1275 or MAT 1275CO as a prerequisite to MAT 1375. MAT 1275 or MAT 1275CO could apply here as an Additional Flexible Common Core course or as one of two Additional Liberal Arts courses under the College Option.

<sup>5</sup>ENT 4900 Internship in Entertainment Technology will be offered regularly as a Program-Specific Elective Course.

<sup>6</sup>MAT 2440, which is required for the major, can do "double duty" as a Scientific World course.

## Changes to Concentrations: Media Computation

The following revisions are proposed for the B.Tech in Emerging Media Technology, Media Computation concentration.

### Effective Date: Fall 2023

FROM:			TO:		
<b>GENERAL EDUCATION CORE (44 credits)</b>			<b>GENERAL EDUCATION CORE (44 credits)</b>		
<b>Required Core<sup>1</sup> (14 credits)</b>			<b>Required Core<sup>1</sup> (14 credits)</b>		
ENG 1101	English Composition I	3	ENG 1101	English Composition I	3
ENG 1121	English Composition II	3	ENG 1121	English Composition II	3
MAT 1375	Precalculus, or higher	4	MAT 1375	Precalculus, or higher	4 <sup>2</sup>

----- PHYS 1433 General Physics I: Algebra Based 4 OR PHYS 1441 General Physics I: Calculus Based 4 -----	PHYS 1433 General Physics I: Algebra Based (WI), or higher 4
<b>Flexible Core (6 courses, 18 credits)</b>	<b>Flexible Core (6 courses, 18 credits)</b>
World Cultures and Global Issues Any available course	World Cultures and Global Issues Any available course
US Experience in its Diversity Any available course	US Experience in its Diversity Any available course
Individual and Society Any available course	Individual and Society Any available course
Creative Expression Any available course	Creative Expression Any available course
Scientific World Any available course	Scientific World Any available course <sup>8</sup>
Additional Flexible Common Core Course Any available course	Additional Flexible Common Core Course Any available course <sup>4</sup>
<b>College Option (12 credits minimum)</b>	<b>College Option (12 credits minimum)</b>
One course in Speech/Oral Communication COM1330 Public Speaking or higher 3	One course in Speech/Oral Communication COM1330 Public Speaking or higher 3
One interdisciplinary Liberal Arts and Sciences course Any available course 3	One interdisciplinary Liberal Arts and Sciences course: Any available course 3
Two additional liberal arts courses to reach a minimum total of 42 credits in general education. In meeting their general education requirements overall, students must take at least one advanced liberal arts course or two sequential courses in a foreign language. 6	Two additional liberal arts courses to reach a minimum total of 42 credits in general education. In meeting their general education requirements overall, students must take at least one advanced liberal arts course or two sequential courses in a foreign language. 6
Writing Intensive Requirement	Writing Intensive Requirement

Students at New York City College of Technology must complete two courses designated WI for the associate level, one from GenEd and one from the major; and two additional courses designated WI for the baccalaureate level, one from GenEd and one from the major.

**PROGRAM-SPECIFIC DEGREE REQUIREMENTS (78 credits)**

**Program-Specific Foundational Courses (33 credits)**

<del>ENT 1100</del>	<del>Introduction to Entertainment Technology</del>	<del>3</del>
MTEC 1001	Game Design and Interactive Media Skills Lab	1
<del>MTEC 1003</del>	<del>Media Computation Skills Lab</del>	<del>1</del>
MTEC 1005	Physical Computing Skills Lab	1
MTEC 1101	Emerging Media Foundation	3
MTEC 1102	Production Practices	3
MTEC 2210	Game Design and Interactive Media	3
<del>MTEC 2230</del>	<del>Media Computation</del>	<del>3</del>
MTEC 2120	Interactive Media Systems Design	3
MTEC 2250	Fabrication for Physical Computing	3
MTEC 2280	Ins and Outs	3
<del>CST 1101</del>	<del>Problem Solving with Computer Programming</del>	<del>3</del>
<del>CST 1201</del>	<del>Programming Fundamentals</del>	<del>3</del>
MAT 2440	Discrete Structures and Algorithms I (WI)	3

**Program-Specific Advanced Courses (21 credits)**

MTEC 3140	Topics and Perspectives in Emerging Technologies (WI)	3
<del>ENT 3320</del>	<del>Technical Production (2 credits, take 3 times)</del>	<del>6</del>
<del>ENT 4430</del>	<del>Project Management (WI)</del>	<del>3</del>
<del>ENT 4498</del>	<del>Career Seminar</del>	<del>1</del>
<del>ENT 4499</del>	<del>Culmination Project</del>	<del>2</del>
<del>ENT 4900</del>	<del>Internship in Entertainment Technology</del>	<del>3<sup>5</sup></del>
<del>MTEC 4800</del>	<del>Interdisciplinary Team Project</del>	<del>3</del>

**Program-Specific Concentration Courses – Media Computation concentration only (take 5 courses for ~15 credits)**

<u>Media Computation Concentration</u>		
CST 1204	Database System Fundamentals	3
CST 1215	Operating System Fundamentals	3
CST 2301	Multimedia and Mobile Device Programming	3
CST 2309	Web Programming I	3
CST 2403	C++ Programming Language Part I	3

Students at New York City College of Technology must complete two courses designated WI for the associate level, one from GenEd and one from the major; and two additional courses designated WI for the baccalaureate level, one from GenEd and one from the major.

**PROGRAM-SPECIFIC DEGREE REQUIREMENTS (76 credits)**

**Program-Specific Foundational Courses (29 credits)**

		<b>0</b>
MTEC 1001	Game Design and Interactive Media Skills Lab	1
		<b>0</b>
MTEC 1005	Physical Computing Skills Lab	1
MTEC 1101	Emerging Media Foundation	3
MTEC 1102	Production Practices	3
MTEC 2210	Game Design and Interactive Media	3
		<b>0</b>
MTEC 2120	Interactive Media Systems Design	3
MTEC 2250	Fabrication for Physical Computing	3
MTEC 2280	Ins and Outs	3
<b>MTEC 1201</b>	<b>Computer Programming for Interactive Media I</b>	<b>3<sup>2</sup></b>
<b>MTEC 1202</b>	<b>Computer Programming for Interactive Media II</b>	<b>3<sup>2,3</sup></b>
<b>MAT 2440</b>	<b>Discrete Structures and Algorithms I (WI)</b>	<b>3<sup>3,6</sup></b>

**Program-Specific Advanced Courses (18cr)**

MTEC 3140	Topics and Perspectives in Emerging Technologies (WI)	3
<b>ENT 3106</b>	<b>Technical Production (3 credits, take 2 times)</b>	<b>6</b>
<b>MTEC 3501</b>	<b>Culmination Project Development (WI)</b>	<b>3</b>
<b>MTEC 4502</b>	<b>Career and Portfolio Seminar</b>	<b>3</b>
<b>ENT 4501</b>	<b>Culmination Project</b>	<b>3</b>
		<b>0<sup>5</sup></b>
		<b>0</b>

**Program-Specific Concentration Courses – Media Computation concentration only (take 5 courses for ~15 credits)**

<u>Media Computation Concentration</u>		
CST 1204	Database System Fundamentals	3 <sup>6</sup>
CST 1215	Operating System Fundamentals	3 <sup>6</sup>
CST 2301	Multimedia and Mobile Device Programming	3 <sup>7</sup>
CST 2309	Web Programming I	3 <sup>7</sup>
CST 2403	C++ Programming Language Part I	3 <sup>6</sup>



MAT 1475	Calculus	4	MAT 1475	Calculus	4
MECH 3550	Simulation and Visualization	3	MECH 3550	Simulation and Visualization	3
MTEC 2101	Introduction to Game Design Concepts	3	MTEC 2101	Introduction to Game Design Concepts	3
MTEC 3125	Nonlinear Narrative	3	MTEC 3125	Nonlinear Narrative	3
MTEC 3175	Experimental Game Design and Development	3	MTEC 3175	Experimental Game Design and Development	3
MTEC 3230	Mixed Reality for Immersive Worlds	3	MTEC 3230	Mixed Reality for Immersive Worlds	3
MTEC 3240	Data Sonification and Visualization	3	MTEC 3240	Data Sonification and Visualization	3
MTEC 4030	Computational Creativity	3	MTEC 4030	Computational Creativity	3
<b>Program Specific Elective Courses (take as needed to reach 120 credits)</b>			<b>Program Specific Elective Courses (take as needed to reach 120 credits)</b>		
Take any courses in MTEC or ENT or any concentration-specific course from another department that isn't a program requirement.			Take any courses in MTEC or ENT or any concentration-specific course from another department that isn't a program requirement.		
<b>Program-Specific Liberal Arts and Sciences Requirements</b>			<b>Program-Specific Liberal Arts and Sciences Requirements</b>		
MAT 1375	Precalculus or higher	Met as GenEd	MAT 1375	Precalculus, or higher	Met as GenEd
----					
<del>PHYS 1433</del>	<del>General Physics I: Algebra Based</del>	<del>Met as GenEd</del>	PHYS 1433	General Physics I: Algebra Based, or higher	Met as GenEd
OR					
<del>PHYS 1433</del>	<del>General Physics I: Calculus Based</del>	<del>Met as GenEd</del>			
----					
<b>Total program-specific required course credits</b>		<b>76</b>	<b>Total program-specific required course credits</b>		<b>76</b>
<b>Minimum required liberal arts and sciences credits</b>		<b>44</b>	<b>Minimum required liberal arts and sciences credits</b>		<b>44</b>
<b>TOTAL CREDITS REQUIRED FOR THE DEGREE</b>		<b>120</b>	<b>TOTAL CREDITS REQUIRED FOR THE DEGREE</b>		<b>120</b>

<sup>1</sup>Since the Emerging Media Technology bachelor's degree program is a B.Tech, we take advantage of our allowance to specify courses in Common Core categories (<https://www.cuny.edu/wp-content/uploads/sites/4/page-assets/about/administration/offices/undergraduate-studies/pathways/about/policies/Pathways-Guidelines-1.pdf>).

<sup>2</sup>MAT 1375, Precalculus, must be completed with a minimum grade of "C;" similarly, a student must have earned a "C" or higher in an applicable transfer course to receive credit. Students must complete both MTEC 1201, Computer Programming for Interactive Media I, and MTEC 1202, Computer Programming for Interactive Media II, with a minimum grade of "C."

<sup>3</sup>CST 1201, Programming Fundamentals, is a prerequisite (along with MAT 1375, Precalculus) for MAT 2440. Since we are replacing CST 1201 with MTEC 1202, Computer Programming for Interactive Media II, we have asked that the math department accept MTEC 1202 as an alternative prerequisite for MAT 2440 (see attached letter of support).

<sup>4</sup>Some students may need to take MAT 1275 or MAT 1275CO as a prerequisite to MAT 1375. MAT 1275 or MAT 1275CO could apply here as an Additional Flexible Common Core course or as one of two Additional Liberal Arts courses under the College Option.

<sup>5</sup>ENT 4900 Internship in Entertainment Technology will be offered regularly as a Program-Specific Elective Course.

<sup>6</sup>MAT 2440, which is required for the major, can do "double duty" as a Scientific World course.

## Changes to Concentrations: Physical Computing

The following revisions are proposed for the B.Tech in Emerging Media Technology, Physical Computing concentration.

### Effective Date: Fall 2023

FROM:	TO:
<b>GENERAL EDUCATION CORE (46 credits)</b>	<b>GENERAL EDUCATION CORE (44 credits)</b>
<b>Required Core<sup>1</sup> (14 credits)</b>	<b>Required Core<sup>1</sup> (14 credits)</b>
ENG 1101 English Composition I 3	ENG 1101 English Composition I 3
ENG 1121 English Composition II 3	ENG 1121 English Composition II 3
<del>MAT 1575 Calculus II 4</del>	<b>MAT 1375 Precalculus, or higher 4<sup>2</sup></b>
<del>PHYS 1442 General Physics II: Calculus Based 4</del>	<b>PHYS 1433 General Physics I: Algebra Based (WI) 4</b>
<b>Flexible Core (6 courses, 20 credits)</b>	<b>Flexible Core (6 courses, 18 credits)</b>
World Cultures and Global Issues Any available course	World Cultures and Global Issues Any available course
US Experience in its Diversity Any available course	US Experience in its Diversity Any available course
Individual and Society Any available course	Individual and Society Any available course
Creative Expression Any available course	Creative Expression Any available course
Scientific World <del>Any available course or MAT 1475 if needed (4)</del>	Scientific World <b>Any available course<sup>8</sup></b>
Additional Flexible Common Core Course <del>Any available course or PHYS 1441 if needed (4)</del>	Additional Flexible Common Core Course <b>Any available course<sup>4</sup></b>
<b>College Option (12 credits minimum)</b>	<b>College Option (12 credits minimum)</b>
One course in Speech/Oral Communication COM1330 Public Speaking or higher 3	One course in Speech/Oral Communication COM1330 Public Speaking or higher 3
One interdisciplinary Liberal Arts and Sciences course	One interdisciplinary Liberal Arts and Sciences course:

Any available course	3	Any available course	3
Two additional liberal arts courses to reach a minimum total of 42 credits in general education. In meeting their general education requirements overall, students must take at least one advanced liberal arts course or two sequential courses in a foreign language.	6	Two additional liberal arts courses to reach a minimum total of 42 credits in general education. In meeting their general education requirements overall, students must take at least one advanced liberal arts course or two sequential courses in a foreign language.	6
Writing Intensive Requirement Students at New York City College of Technology must complete two courses designated WI for the associate level, one from GenEd and one from the major; and two additional courses designated WI for the baccalaureate level, one from GenEd and one from the major.		Writing Intensive Requirement Students at New York City College of Technology must complete two courses designated WI for the associate level, one from GenEd and one from the major; and two additional courses designated WI for the baccalaureate level, one from GenEd and one from the major.	
<b>PROGRAM-SPECIFIC DEGREE REQUIREMENTS (78 credits)</b>		<b>PROGRAM-SPECIFIC DEGREE REQUIREMENTS (76 credits)</b>	
<b>Program-Specific Foundational Courses (33 credits)</b>		<b>Program-Specific Foundational Courses (29 credits)</b>	
<del>ENT 1100 Introduction to Entertainment Technology</del>	<del>3</del>	<del>MTEC 1001 Game Design and Interactive Media Skills Lab</del>	<del>1</del>
<del>MTEC 1001 Game Design and Interactive Media Skills Lab</del>	<del>1</del>	<del>MTEC 1003 Media Computation Skills Lab</del>	<del>1</del>
<del>MTEC 1003 Media Computation Skills Lab</del>	<del>1</del>	<del>MTEC 1005 Physical Computing Skills Lab</del>	<del>1</del>
<del>MTEC 1005 Physical Computing Skills Lab</del>	<del>1</del>	<del>MTEC 1101 Emerging Media Foundation</del>	<del>3</del>
<del>MTEC 1101 Emerging Media Foundation</del>	<del>3</del>	<del>MTEC 1102 Production Practices</del>	<del>3</del>
<del>MTEC 1102 Production Practices</del>	<del>3</del>	<del>MTEC 2210 Game Design and Interactive Media</del>	<del>3</del>
<del>MTEC 2210 Game Design and Interactive Media</del>	<del>3</del>	<del>MTEC 2230 Media Computation</del>	<del>3</del>
<del>MTEC 2230 Media Computation</del>	<del>3</del>	<del>MTEC 2120 Interactive Media Systems Design</del>	<del>3</del>
<del>MTEC 2120 Interactive Media Systems Design</del>	<del>3</del>	<del>MTEC 2250 Fabrication for Physical Computing</del>	<del>3</del>
<del>MTEC 2250 Fabrication for Physical Computing</del>	<del>3</del>	<del>MTEC 2280 Ins and Outs</del>	<del>3</del>
<del>MTEC 2280 Ins and Outs</del>	<del>3</del>	<del>GST 1101 Problem Solving with Computer Programming</del>	<del>3</del>
<del>GST 1101 Problem Solving with Computer Programming</del>	<del>3</del>	<del>GST 1201 Programming Fundamentals</del>	<del>3</del>
<del>GST 1201 Programming Fundamentals</del>	<del>3</del>	<del>MTEC 2120 Interactive Media Systems Design</del>	<del>3</del>
<b>Program-Specific Advanced Courses (21 credits)</b>		<del>MTEC 2250 Fabrication for Physical Computing</del>	<del>3</del>
<del>MTEC 3140 Topics and Perspectives in Emerging Technologies (WI)</del>	<del>3</del>	<del>MTEC 2280 Ins and Outs</del>	<del>3</del>
<del>ENT 3320 Technical Production (2 credits, take 3 times)</del>	<del>6</del>	<del>MTEC 1201 Computer Programming for Interactive Media I</del>	<del>3<sup>2</sup></del>
<del>ENT 4430 Project Management (WI)</del>	<del>3</del>	<del>MTEC 1202 Computer Programming for Interactive Media II</del>	<del>3<sup>2,3</sup></del>
<del>ENT 4498 Career Seminar</del>	<del>1</del>	<del>MAT 2440 Discrete Structures and Algorithms I (WI)</del>	<del>3<sup>3,6</sup></del>
<del>ENT 4499 Culmination Project</del>	<del>2</del>	<b>Program-Specific Advanced Courses (18cr)</b>	
<del>ENT 4900 Internship in Entertainment Technology</del>	<del>3<sup>5</sup></del>	<del>MTEC 3140 Topics and Perspectives in Emerging Technologies (WI)</del>	<del>3</del>
<del>MTEC 4800 Interdisciplinary Team Project</del>	<del>3</del>	<del>ENT 3106 Technical Production (3 credits, take 2 times)</del>	<del>6</del>
		<del>MTEC 3501 Culmination Project Development (WI)</del>	<del>3</del>
		<del>MTEC 4502 Career and Portfolio Seminar</del>	<del>3</del>
		<del>ENT 4501 Culmination Project</del>	<del>3</del>
			<del>0<sup>5</sup></del>
			<del>0</del>

Program-Specific Concentration Courses – Media Computation concentration only (take 5 courses for ~15 credits)			Program-Specific Concentration Courses – Media Computation concentration only (take 5 courses for ~15 credits)		
<u>Physical Computing Concentration</u>			<u>Physical Computing Concentration</u>		
CST 2403	C++ Programming Language Part I	3	CST 2403	C++ Programming Language Part I	3 <sup>6</sup>
CET 3512	Microcomputer Systems Technology	4	CET 3512	Microcomputer Systems Technology	4
CET 3640	Software for Computer Control	3	CET 3640	Software for Computer Control	3
CET 4952	Robotics Technology	4	CET 4952	Robotics Technology	4
EMT 1150	Electrical Circuits	5	EMT 1150	Electrical Circuits	5
EMT 1250	Fundamentals of Digital Systems	4	EMT 1250	Fundamentals of Digital Systems	4
ENT 1108	Entertainment Drafting I	3	ENT 1108	Entertainment Drafting I	3
ENT 2280	Introduction to Show Networking	3	ENT 2280	Introduction to Show Networking	3
ENT 4480	Show Control	3	ENT 4480	Show Control	3
ETN 1102	Principles of Electricity and Electronics (for non-ET/TC majors)	4	ETN 1102	Principles of Electricity and Electronics (for non-ET/TC majors)	4
ETN 1302	Principles of Electricity, Electronics, and Computer Operation (for non-ET/TC majors)	4	ETN 1302	Principles of Electricity, Electronics, and Computer Operation (for non-ET/TC majors)	4
IND 2304	Advanced Solids Modeling	2	IND 2304	Advanced Solids Modeling	2
MAT 2580	Introduction to Linear Algebra	4	MAT 2580	Introduction to Linear Algebra	4
MECH 1222	Computer-Aided Engineering Graphics	2	MECH 1222	Computer-Aided Engineering Graphics	2
MECH 1234	Statics and Strength of Materials	3	MECH 1234	Statics and Strength of Materials	3
MTEC 3280	Embedded Systems for Physical Computing	3	MTEC 3280	Embedded Systems for Physical Computing	3
<b>Program Specific Elective Courses (take as needed to reach 120 credits)</b> Take any courses in MTEC or ENT or any concentration-specific course from another department that isn't a program requirement.			<b>Program Specific Elective Courses (take as needed to reach 120 credits)</b> Take any courses in MTEC or ENT or any concentration-specific course from another department that isn't a program requirement.		
<b>Program-Specific Liberal Arts and Sciences Requirements</b>			<b>Program-Specific Liberal Arts and Sciences Requirements</b>		
<del>MAT 1475</del>	<del>Calculus I</del>	<del>Met as GenEd</del>	<del>MAT 1375</del>	<del>Precalculus, or higher</del>	<del>Met as GenEd</del>
<del>MAT 1575</del>	<del>Calculus II</del>	<del>Met as GenEd</del>	<del>PHYS 1433</del>	<del>General Physics I: Algebra Based, or higher</del>	<del>Met as GenEd</del>
<del>PHYS 1441</del>	<del>General Physics I: Calculus Based</del>	<del>Met as GenEd</del>			
<del>PHYS 1442</del>	<del>General Physics II: Calculus Based</del>	<del>Met as GenEd</del>			
<b>Total program-specific required course credits</b>		<b>74</b>	<b>Total program-specific required course credits</b>		<b>76</b>
<b>Minimum required liberal arts and sciences credits</b>		<b>46</b>	<b>Minimum required liberal arts and sciences credits</b>		<b>44</b>
<b>TOTAL CREDITS REQUIRED FOR THE DEGREE</b>		<b>120</b>	<b>TOTAL CREDITS REQUIRED FOR THE DEGREE</b>		<b>120</b>

<sup>1</sup>Since the Emerging Media Technology bachelor's degree program is a B.Tech, we take advantage of our allowance to specify courses in Common Core categories (<https://www.cuny.edu/wp-content/uploads/sites/4/page-assets/about/administration/offices/undergraduate-studies/pathways/about/policies/Pathways-Guidelines-1.pdf>).

<sup>2</sup>MAT 1375, Precalculus, must be completed with a minimum grade of "C;" similarly, a student must have earned a "C" or higher in an applicable transfer course to receive credit. Students must complete both MTEC 1201, Computer Programming for Interactive Media I, and MTEC 1202, Computer Programming for Interactive Media II, with a minimum grade of "C."

<sup>3</sup>CST 1201, Programming Fundamentals, is a prerequisite (along with MAT 1375, Precalculus) for MAT 2440. Since we are replacing CST 1201 with MTEC 1202, Computer Programming for Interactive Media II, we have asked that the math department accept MTEC 1202 as an alternative prerequisite for MAT 2440 (see attached letter of support).

<sup>4</sup>Some students may need to take MAT 1275 or MAT 1275CO as a prerequisite to MAT 1375. MAT 1275 or MAT 1275CO could apply here as an Additional Flexible Common Core course or as one of two Additional Liberal Arts courses under the College Option.

<sup>5</sup>ENT 4900 Internship in Entertainment Technology will be offered regularly as a Program-Specific Elective Course.

<sup>6</sup>MAT 2440, which is required for the major, can do "double duty" as a Scientific World course.

## Rationale

Goals of the Emerging Media Technology program modification:

- Unify MAT and PHYS requirements across concentrations to control for disparity in quantitative preparedness for upper-division courses.
- Reduce the number of project classes so that students have no more than one each semester of their junior and senior years.
- Increase time and focus on project courses and portfolio development.
- Relegate courses to elective status that do not apply universally, across students and concentrations (ENT 1100, ENT 4900, MTEC 4800).
- Bring introductory programming courses in-department (see detailed rationale in attached new course proposals for MTEC 1201 and MTEC 1202)

## Section AIV: New Courses

### MTEC 1201 Computer Programming for Interactive Media I

<b>Department(s)</b>	Emerging Media Technology Program, Entertainment Technology department
<b>Academic Level</b>	<input checked="" type="checkbox"/> Regular <input type="checkbox"/> Compensatory <input type="checkbox"/> Developmental <input type="checkbox"/> Remedial
<b>Subject Area</b>	Emerging Media Technology
<b>Course Prefix</b>	MTEC
<b>Course Number</b>	1201
<b>Course Title</b>	Computer Programming for Interactive Media I
<b>Catalog Description</b>	This course introduces students to foundational programming concepts and techniques, with a focus on coding for creative applications. Students design, develop, and code interactive software experiences integrating computer graphics, image assets, text and fonts, and additional digital media. Programming for Interactive Media is the first in a sequence of coding courses for the Emerging Media Technology program, preparing students for advanced coursework in the program.
<b>Prerequisite</b>	

<b>Corequisite</b>	
<b>Pre- or corequisite</b>	MAT 1275 College Algebra and Trigonometry OR MAT 1275CO College Algebra and Trigonometry Corequisite OR higher
<b>Credits</b>	3
<b>Contact Hours</b>	2 classroom hours and 2 lab hours
<b>Liberal Arts</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Course Attribute (e.g. Writing Intensive, etc)</b>	
<b>Course Applicability</b>	<input checked="" type="checkbox"/> Major <input type="checkbox"/> Gen Ed Required <input type="checkbox"/> Gen Ed - Flexible <input type="checkbox"/> Gen Ed - College Option <input type="checkbox"/> English Composition <input type="checkbox"/> World Cultures <input type="checkbox"/> Speech <input type="checkbox"/> Mathematics <input type="checkbox"/> US Experience in its Diversity <input type="checkbox"/> Interdisciplinary <input type="checkbox"/> Science <input type="checkbox"/> Creative Expression <input type="checkbox"/> Advanced Liberal Arts <input type="checkbox"/> Individual and Society <input type="checkbox"/> Scientific World
<b>Effective Term</b>	Fall 2023

**Rationale:** This course, along with the proposed MTEC 1202, Computer Programming for Interactive Media II, consolidates Emerging Media Technology programming foundations currently spread across four courses, MTEC 1003, MTEC 2230, CST 1101, and CST 1201.

### [MTEC 1202 Computer Programming for Interactive Media II](#)

<b>Department(s)</b>	Emerging Media Technology Program, Entertainment Technology department
<b>Academic Level</b>	<input checked="" type="checkbox"/> Regular <input type="checkbox"/> Compensatory <input type="checkbox"/> Developmental <input type="checkbox"/> Remedial
<b>Subject Area</b>	Emerging Media Technology
<b>Course Prefix</b>	MTEC
<b>Course Number</b>	1202
<b>Course Title</b>	Computer Programming for Interactive Media II

<b>Catalog Description</b>	MTEC 1202 is designed to develop intermediate mastery of programming for interactive media environments, with a focus on coding for creative applications. In the process of incrementally designing, implementing, and testing their own media software applications within prescribed boundaries, students advance their knowledge of object-oriented programming, algorithms, and computing techniques relevant to categories of interactive media technology targeted in the Emerging Media Technology program.
<b>Prerequisite</b>	MTEC 1201 Computer Programming for Interactive I with a grade of 'C' or higher
<b>Corequisite</b>	
<b>Pre- or corequisite</b>	MAT 1375 Precalculus or higher with a grade of 'C' or higher
<b>Credits</b>	3
<b>Contact Hours</b>	2 classroom hours and 2 lab hours
<b>Liberal Arts</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Course Attribute (e.g. Writing Intensive, etc)</b>	
<b>Course Applicability</b>	<input checked="" type="checkbox"/> Major <input type="checkbox"/> Gen Ed Required <input type="checkbox"/> Gen Ed - Flexible <input type="checkbox"/> Gen Ed - College Option <input type="checkbox"/> English Composition <input type="checkbox"/> World Cultures <input type="checkbox"/> Speech <input type="checkbox"/> Mathematics <input type="checkbox"/> US Experience in its Diversity <input type="checkbox"/> Interdisciplinary <input type="checkbox"/> Science <input type="checkbox"/> Creative Expression <input type="checkbox"/> Advanced Liberal Arts <input type="checkbox"/> Individual and Society <input type="checkbox"/> Scientific World
<b>Effective Term</b>	Fall 2023

**Rationale:** This course, along with the proposed MTEC 1201, Computer Programming for Interactive Media I, consolidates Emerging Media Technology programming foundations currently spread across four courses, MTEC 1003, MTEC 2230, CST 1101, and CST 1201.

### MTEC 3501 Culmination Project Development

<b>Department(s)</b>	Emerging Media Technology Program, Entertainment Technology department
<b>Academic Level</b>	<input checked="" type="checkbox"/> Regular <input type="checkbox"/> Compensatory <input type="checkbox"/> Developmental <input type="checkbox"/> Remedial

<b>Subject Area</b>	Emerging Media Technology
<b>Course Prefix</b>	MTEC
<b>Course Number</b>	3501
<b>Course Title</b>	Culmination Project Development
<b>Catalog Description</b>	Students begin the process of producing a capstone project, suitable for use as a portfolio item in applications for graduate school or professional employment. Projects may be undertaken individually or in small groups. Students develop their ideas, research prior art, break down proposed work into a sequence of executable components with estimated times-to-completion, iterate through prototypes, and document their work. This course is a prerequisite for ENT 4501, "Culmination Project," in which students finalize and present the work begun in Culmination Project Development. Ideally, students will take the two courses consecutively.
<b>Prerequisite</b>	Two completed sections of ENT 3106, "Technical Production"
<b>Corequisite</b>	
<b>Pre- or corequisite</b>	
<b>Credits</b>	3
<b>Contact Hours</b>	3 classroom hours/week, 6 independent study hours/week
<b>Liberal Arts</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Course Attribute (e.g. Writing Intensive, etc)</b>	Writing Intensive
<b>Course Applicability</b>	<input checked="" type="checkbox"/> Major <input type="checkbox"/> Gen Ed Required <input type="checkbox"/> Gen Ed - Flexible <input type="checkbox"/> Gen Ed - College Option <input type="checkbox"/> English Composition <input type="checkbox"/> World Cultures <input type="checkbox"/> Speech <input type="checkbox"/> Mathematics <input type="checkbox"/> US Experience in its Diversity <input type="checkbox"/> Interdisciplinary <input type="checkbox"/> Science <input type="checkbox"/> Creative Expression <input type="checkbox"/> Advanced Liberal Arts <input type="checkbox"/> Individual and Society <input type="checkbox"/> Scientific World
<b>Effective Term</b>	Fall 2023

**Rationale:** We've observed over the last ten years that students could benefit from more than one semester devoted to planning and implementing their capstone projects.



### MTEC 4502 Career and Portfolio Seminar

<b>Department(s)</b>	Emerging Media Technology Program, Entertainment Technology department		
<b>Academic Level</b>	<input checked="" type="checkbox"/> Regular <input type="checkbox"/> Compensatory <input type="checkbox"/> Developmental <input type="checkbox"/> Remedial		
<b>Subject Area</b>	Emerging Media Technology		
<b>Course Prefix</b>	MTEC		
<b>Course Number</b>	4502		
<b>Course Title</b>	Career and Portfolio Seminar		
<b>Catalog Description</b>	Prepares students for the transition from academic life to the professional world. Topics covered include selection and presentation of portfolio items, resumé preparation, interviewing skills, budgeting and financial concerns, and how to navigate a first job.		
<b>Prerequisite</b>			
<b>Corequisite</b>			
<b>Pre- or corequisite</b>	ENT 4501, Culmination Project		
<b>Credits</b>	3		
<b>Contact Hours</b>	3 classroom hours		
<b>Liberal Arts</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
<b>Course Attribute (e.g. Writing Intensive, etc)</b>			
<b>Course Applicability</b>	<input checked="" type="checkbox"/> Major <input type="checkbox"/> Gen Ed Required <input type="checkbox"/> Gen Ed - Flexible <input type="checkbox"/> Gen Ed - College Option <input type="checkbox"/> English Composition <input type="checkbox"/> World Cultures <input type="checkbox"/> Speech <input type="checkbox"/> Mathematics <input type="checkbox"/> US Experience in its Diversity <input type="checkbox"/> Interdisciplinary <input type="checkbox"/> Science <input type="checkbox"/> Creative Expression <input type="checkbox"/> Advanced Liberal Arts <input type="checkbox"/> Individual and Society <input type="checkbox"/> Scientific World		

Effective Term	Fall 2023
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Rationale: MTEC 4502 replaces ENT 4498 Career Seminar as a requirement for Emerging Media Technology B.Tech students. MTEC 4502 adds a focus on portfolio development and includes two extra class hours devoted largely to iterative prototyping and review of student portfolios.

## Section AV: Changes to Existing Courses

### MTEC 1102 Production Practices

CUNYFirst Course ID			
Course Number and Title	MTEC 1102 Production practices		
FROM:		TO:	
Department(s)		Department(s)	
Course Number		Course Number	
Course Title		Course Title	
Prerequisite	MTEC 1101	Prerequisite	<u>MTEC 1101</u>
Corequisite		Corequisite	
Pre- or corequisite	<u>MTEC 1003</u>	Pre- or corequisite	<u>MTEC 1201</u>
Hours		Hours	
Credits		Credits	
Description		Description	
Requirement Designation		Requirement Designation	
Liberal Arts	[ ] Yes [X] No	Liberal Arts	[ ] Yes [X] No
Course Attribute (e.g. Writing Intensive, Honors, etc)		Course Attribute (e.g. Writing Intensive, Honors, etc)	

<b>Course Applicability</b>	<input checked="" type="checkbox"/> Major <input type="checkbox"/> Gen Ed Required <input type="checkbox"/> English Composition <input type="checkbox"/> Mathematics <input type="checkbox"/> Science <input type="checkbox"/> Gen Ed - Flexible <input type="checkbox"/> World Cultures <input type="checkbox"/> US Experience in its Diversity <input type="checkbox"/> Creative Expression <input type="checkbox"/> Individual and Society <input type="checkbox"/> Scientific World <input type="checkbox"/> Gen Ed - College Option <input type="checkbox"/> Speech <input type="checkbox"/> Interdisciplinary <input type="checkbox"/> Advanced Liberal Arts	<b>Course Applicability</b>	<input checked="" type="checkbox"/> Major <input type="checkbox"/> Gen Ed Required <input type="checkbox"/> English Composition <input type="checkbox"/> Mathematics <input type="checkbox"/> Science <input type="checkbox"/> Gen Ed - Flexible <input type="checkbox"/> World Cultures <input type="checkbox"/> US Experience in its Diversity <input type="checkbox"/> Creative Expression <input type="checkbox"/> Individual and Society <input type="checkbox"/> Scientific World <input type="checkbox"/> Gen Ed - College Option <input type="checkbox"/> Speech <input type="checkbox"/> Interdisciplinary <input type="checkbox"/> Advanced Liberal Arts
<b>Effective Term</b>	Fall 2023		

**Rationale: MTEC 1003 is being retired; the closest equivalent is MTEC 1201, Computer Programming for Interactive Media I.**

### MTEC 2120 Interactive Media Systems Design

<b>CUNYFirst Course ID</b>			
<b>Course Number and Title</b>	MTEC 2120 Interactive Media Systems Design		
<b>FROM:</b>		<b>TO:</b>	
<b>Department(s)</b>		<b>Department(s)</b>	
<b>Course Number</b>		<b>Course Number</b>	
<b>Course Title</b>		<b>Course Title</b>	
<b>Prerequisite</b>	MTEC 1101	<b>Prerequisite</b>	<u>MTEC 1101</u>

<b>Corequisite</b>		<b>Corequisite</b>	
<b>Pre- or corequisite</b>	MTEC 1102, CST 1101	<b>Pre- or corequisite</b>	MTEC 1102, MTEC 1201
<b>Hours</b>		<b>Hours</b>	
<b>Credits</b>		<b>Credits</b>	
<b>Description</b>		<b>Description</b>	
<b>Requirement Designation</b>		<b>Requirement Designation</b>	
<b>Liberal Arts</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Liberal Arts</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Course Attribute (e.g. Writing Intensive, Honors, etc)</b>		<b>Course Attribute (e.g. Writing Intensive, Honors, etc)</b>	
<b>Course Applicability</b>	<input checked="" type="checkbox"/> Major <input type="checkbox"/> Gen Ed Required <input type="checkbox"/> English Composition <input type="checkbox"/> Mathematics <input type="checkbox"/> Science <input type="checkbox"/> Gen Ed - Flexible <input type="checkbox"/> World Cultures <input type="checkbox"/> US Experience in its Diversity <input type="checkbox"/> Creative Expression <input type="checkbox"/> Individual and Society <input type="checkbox"/> Scientific World <input type="checkbox"/> Gen Ed - College Option <input type="checkbox"/> Speech <input type="checkbox"/> Interdisciplinary <input type="checkbox"/> Advanced Liberal Arts	<b>Course Applicability</b>	<input checked="" type="checkbox"/> Major <input type="checkbox"/> Gen Ed Required <input type="checkbox"/> English Composition <input type="checkbox"/> Mathematics <input type="checkbox"/> Science <input type="checkbox"/> Gen Ed - Flexible <input type="checkbox"/> World Cultures <input type="checkbox"/> US Experience in its Diversity <input type="checkbox"/> Creative Expression <input type="checkbox"/> Individual and Society <input type="checkbox"/> Scientific World <input type="checkbox"/> Gen Ed - College Option <input type="checkbox"/> Speech <input type="checkbox"/> Interdisciplinary <input type="checkbox"/> Advanced Liberal Arts
<b>Effective Term</b>	Fall 2023		

**Rationale: CST 1101 is being replaced as a requirement by MTEC 1201 Computer Programming for Interactive Media I.**

### MTEC 2250 Fabrication for Physical Computing

<b>CUNYFirst Course ID</b>			
<b>Course Number and Title</b>	MTEC 2250 Fabrication for Physical Computing		
<b>FROM:</b>		<b>TO:</b>	
<b>Department(s)</b>		<b>Department(s)</b>	
<b>Course Number</b>		<b>Course Number</b>	
<b>Course Title</b>		<b>Course Title</b>	
<b>Prerequisite</b>	MTEC 1005, MTEC 1102	<b>Prerequisite</b>	<u>MTEC 1005, MTEC 1102</u>
<b>Corequisite</b>		<b>Corequisite</b>	
<b>Pre- or corequisite</b>	<u>CST 1104</u>	<b>Pre- or corequisite</b>	<u>MTEC 1201</u>
<b>Hours</b>		<b>Hours</b>	
<b>Credits</b>		<b>Credits</b>	
<b>Description</b>		<b>Description</b>	
<b>Requirement Designation</b>		<b>Requirement Designation</b>	
<b>Liberal Arts</b>	[ ] Yes [ X ] No	<b>Liberal Arts</b>	[ ] Yes [ X ] No
<b>Course Attribute (e.g. Writing Intensive, Honors, etc)</b>		<b>Course Attribute (e.g. Writing Intensive, Honors, etc)</b>	

<p><b>Course Applicability</b></p>	<p><input checked="" type="checkbox"/> Major  <input type="checkbox"/> Gen Ed Required  <input type="checkbox"/> English Composition  <input type="checkbox"/> Mathematics  <input type="checkbox"/> Science  <input type="checkbox"/> Gen Ed - Flexible  <input type="checkbox"/> World Cultures  <input type="checkbox"/> US Experience in its Diversity  <input type="checkbox"/> Creative Expression  <input type="checkbox"/> Individual and Society  <input type="checkbox"/> Scientific World  <input type="checkbox"/> Gen Ed - College Option  <input type="checkbox"/> Speech  <input type="checkbox"/> Interdisciplinary  <input type="checkbox"/> Advanced Liberal Arts</p>	<p><b>Course Applicability</b></p>	<p><input checked="" type="checkbox"/> Major  <input type="checkbox"/> Gen Ed Required  <input type="checkbox"/> English Composition  <input type="checkbox"/> Mathematics  <input type="checkbox"/> Science  <input type="checkbox"/> Gen Ed - Flexible  <input type="checkbox"/> World Cultures  <input type="checkbox"/> US Experience in its Diversity  <input type="checkbox"/> Creative Expression  <input type="checkbox"/> Individual and Society  <input type="checkbox"/> Scientific World  <input type="checkbox"/> Gen Ed - College Option  <input type="checkbox"/> Speech  <input type="checkbox"/> Interdisciplinary  <input type="checkbox"/> Advanced Liberal Arts</p>
<p><b>Effective Term</b></p>	<p>Fall 2023</p>		

**Rationale: CST 1101 is being replaced as a requirement by MTEC 1201 Computer Programming for Interactive Media I.**

**MTEC 2280 Ins and Outs**

<p><b>CUNYFirst Course ID</b></p>	<p></p>		
<p><b>Course Number and Title</b></p>	<p>MTEC 2280 Ins and Outs</p>		
<p><b>FROM:</b></p>	<p></p>	<p><b>TO:</b></p>	<p></p>
<p><b>Department(s)</b></p>	<p></p>		<p><b>Department(s)</b></p>
<p><b>Course Number</b></p>	<p></p>		<p><b>Course Number</b></p>
<p><b>Course Title</b></p>	<p></p>		<p><b>Course Title</b></p>
<p><b>Prerequisite</b></p>	<p>CST 1101, ENT 1203, or MTEC 1005</p>		<p><b>Prerequisite</b></p> <p>MTEC 1201, MTEC 1005</p>
<p><b>Corequisite</b></p>	<p></p>		<p><b>Corequisite</b></p>

Pre- or corequisite	ENT 1250 or ENT 1260 or ENT 1270 or CST 1201	Pre- or corequisite	ENT 1250 or ENT 1260 or ENT 1270 or MTEC 1202
Hours		Hours	
Credits		Credits	
Description		Description	
Requirement Designation		Requirement Designation	
Liberal Arts	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Liberal Arts	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Course Attribute (e.g. Writing Intensive, Honors, etc)		Course Attribute (e.g. Writing Intensive, Honors, etc)	
Course Applicability	<input checked="" type="checkbox"/> Major <input type="checkbox"/> Gen Ed Required <input type="checkbox"/> English Composition <input type="checkbox"/> Mathematics <input type="checkbox"/> Science <input type="checkbox"/> Gen Ed - Flexible <input type="checkbox"/> World Cultures <input type="checkbox"/> US Experience in its Diversity <input type="checkbox"/> Creative Expression <input type="checkbox"/> Individual and Society <input type="checkbox"/> Scientific World <input type="checkbox"/> Gen Ed - College Option <input type="checkbox"/> Speech <input type="checkbox"/> Interdisciplinary <input type="checkbox"/> Advanced Liberal Arts	Course Applicability	<input checked="" type="checkbox"/> Major <input type="checkbox"/> Gen Ed Required <input type="checkbox"/> English Composition <input type="checkbox"/> Mathematics <input type="checkbox"/> Science <input type="checkbox"/> Gen Ed - Flexible <input type="checkbox"/> World Cultures <input type="checkbox"/> US Experience in its Diversity <input type="checkbox"/> Creative Expression <input type="checkbox"/> Individual and Society <input type="checkbox"/> Scientific World <input type="checkbox"/> Gen Ed - College Option <input type="checkbox"/> Speech <input type="checkbox"/> Interdisciplinary <input type="checkbox"/> Advanced Liberal Arts
Effective Term	Fall 2023		

Rationale: CST 1201 is being replaced as a requirement by MTEC 1202 Computer Programming for Interactive Media II.

## MTEC 3140 Topics and Perspectives

<b>CUNY First Course ID</b>			
<b>Course Number and Title</b>	MTEC 3125 Nonlinear Narrative		
<b>FROM:</b>		<b>TO:</b>	
<b>Department(s)</b>		<b>Department(s)</b>	
<b>Course Number</b>		<b>Course Number</b>	
<b>Course Title</b>		<b>Course Title</b>	
<b>Prerequisite</b>	MTEC 2210 and MTEC 2230; for non MTEC majors: ENG 1773 Weird Science or ENG 2420 Science Fiction	<b>Prerequisite</b>	MTEC 2210 and MTEC 1202; for non MTEC majors: ENG 1773 Weird Science or ENG 2420 Science Fiction
<b>Corequisite</b>		<b>Corequisite</b>	
<b>Pre- or corequisite</b>		<b>Pre- or corequisite</b>	
<b>Hours</b>		<b>Hours</b>	
<b>Credits</b>		<b>Credits</b>	
<b>Description</b>		<b>Description</b>	
<b>Requirement Designation</b>		<b>Requirement Designation</b>	
<b>Liberal Arts</b>	[ X ] Yes [ ] No	<b>Liberal Arts</b>	[ X ] Yes [ ] No
<b>Course Attribute (e.g. Writing Intensive, Honors, etc)</b>		<b>Course Attribute (e.g. Writing Intensive, Honors, etc)</b>	



<b>Course Applicability</b>	<input checked="" type="checkbox"/> Major <input type="checkbox"/> Gen Ed Required <input type="checkbox"/> English Composition <input type="checkbox"/> Mathematics <input type="checkbox"/> Science <input type="checkbox"/> Gen Ed - Flexible <input type="checkbox"/> World Cultures <input type="checkbox"/> US Experience in its Diversity <input type="checkbox"/> Creative Expression <input type="checkbox"/> Individual and Society <input type="checkbox"/> Scientific World <input type="checkbox"/> Gen Ed - College Option <input type="checkbox"/> Speech <input type="checkbox"/> Interdisciplinary <input checked="" type="checkbox"/> Advanced Liberal Arts	<b>Course Applicability</b>	<input checked="" type="checkbox"/> Major <input type="checkbox"/> Gen Ed Required <input type="checkbox"/> English Composition <input type="checkbox"/> Mathematics <input type="checkbox"/> Science <input type="checkbox"/> Gen Ed - Flexible <input type="checkbox"/> World Cultures <input type="checkbox"/> US Experience in its Diversity <input type="checkbox"/> Creative Expression <input type="checkbox"/> Individual and Society <input type="checkbox"/> Scientific World <input type="checkbox"/> Gen Ed - College Option <input type="checkbox"/> Speech <input type="checkbox"/> Interdisciplinary <input checked="" type="checkbox"/> Advanced Liberal Arts
<b>Effective Term</b>	Fall 2023		

**Rationale: MTEC 2230 is being retired; the closest equivalent is MTEC 1202, Computer Programming for Interactive Media II.**

### MTEC 3175 Experimental Game Design and Development

<b>CUNYFirst Course ID</b>			
<b>Course Number and Title</b>	MTEC 3175 Experimental Game Design and Development		
<b>FROM:</b>		<b>TO:</b>	
<b>Department(s)</b>		<b>Department(s)</b>	
<b>Course Number</b>		<b>Course Number</b>	
<b>Course Title</b>		<b>Course Title</b>	
<b>Prerequisite</b>	MTEC 2210	<b>Prerequisite</b>	MTEC 2210

Corequisite		Corequisite	
<b>Pre- or corequisite</b>	<b>MTEC 2230</b>	<b>Pre- or corequisite</b>	<b>MTEC 1202</b>
Hours		Hours	
Credits		Credits	
Description		Description	
Requirement Designation		Requirement Designation	
Liberal Arts	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Liberal Arts	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Course Attribute (e.g. Writing Intensive, Honors, etc)		Course Attribute (e.g. Writing Intensive, Honors, etc)	
<b>Course Applicability</b>	<input checked="" type="checkbox"/> Major <input type="checkbox"/> Gen Ed Required <input type="checkbox"/> English Composition <input type="checkbox"/> Mathematics <input type="checkbox"/> Science <input type="checkbox"/> Gen Ed - Flexible <input type="checkbox"/> World Cultures <input type="checkbox"/> US Experience in its Diversity <input type="checkbox"/> Creative Expression <input type="checkbox"/> Individual and Society <input type="checkbox"/> Scientific World <input type="checkbox"/> Gen Ed - College Option <input type="checkbox"/> Speech <input type="checkbox"/> Interdisciplinary <input type="checkbox"/> Advanced Liberal Arts	<b>Course Applicability</b>	<input checked="" type="checkbox"/> Major <input type="checkbox"/> Gen Ed Required <input type="checkbox"/> English Composition <input type="checkbox"/> Mathematics <input type="checkbox"/> Science <input type="checkbox"/> Gen Ed - Flexible <input type="checkbox"/> World Cultures <input type="checkbox"/> US Experience in its Diversity <input type="checkbox"/> Creative Expression <input type="checkbox"/> Individual and Society <input type="checkbox"/> Scientific World <input type="checkbox"/> Gen Ed - College Option <input type="checkbox"/> Speech <input type="checkbox"/> Interdisciplinary <input type="checkbox"/> Advanced Liberal Arts
Effective Term	Fall 2023		

Rationale: MTEC 2230 is being retired; the closest equivalent is MTEC 1202, Computer Programming for Interactive Media II.

### MTEC 3230 Mixed Reality for Immersive Worlds

<b>CUNYFirst Course ID</b>			
<b>Course Number and Title</b>	MTEC 3230 Mixed Reality for Immersive Worlds		
<b>FROM:</b>		<b>TO:</b>	
<b>Department(s)</b>		<b>Department(s)</b>	
<b>Course Number</b>		<b>Course Number</b>	
<b>Course Title</b>		<b>Course Title</b>	
<b>Prerequisite</b>	MTEC 2210	<b>Prerequisite</b>	MTEC 2210
<b>Corequisite</b>		<b>Corequisite</b>	
<b>Pre- or corequisite</b>	<u>MTEC 2230</u>	<b>Pre- or corequisite</b>	<u>MTEC 1202</u>
<b>Hours</b>		<b>Hours</b>	
<b>Credits</b>		<b>Credits</b>	
<b>Description</b>		<b>Description</b>	
<b>Requirement Designation</b>		<b>Requirement Designation</b>	
<b>Liberal Arts</b>	[ ] Yes [ X ] No	<b>Liberal Arts</b>	[ ] Yes [ X ] No
<b>Course Attribute (e.g. Writing Intensive, Honors, etc)</b>		<b>Course Attribute (e.g. Writing Intensive, Honors, etc)</b>	

<p><b>Course Applicability</b></p>	<p><input checked="" type="checkbox"/> Major  <input type="checkbox"/> Gen Ed Required  <input type="checkbox"/> English Composition  <input type="checkbox"/> Mathematics  <input type="checkbox"/> Science  <input type="checkbox"/> Gen Ed - Flexible  <input type="checkbox"/> World Cultures  <input type="checkbox"/> US Experience in its Diversity  <input type="checkbox"/> Creative Expression  <input type="checkbox"/> Individual and Society  <input type="checkbox"/> Scientific World  <input type="checkbox"/> Gen Ed - College Option  <input type="checkbox"/> Speech  <input type="checkbox"/> Interdisciplinary  <input type="checkbox"/> Advanced Liberal Arts</p>	<p><b>Course Applicability</b></p>	<p><input checked="" type="checkbox"/> Major  <input type="checkbox"/> Gen Ed Required  <input type="checkbox"/> English Composition  <input type="checkbox"/> Mathematics  <input type="checkbox"/> Science  <input type="checkbox"/> Gen Ed - Flexible  <input type="checkbox"/> World Cultures  <input type="checkbox"/> US Experience in its Diversity  <input type="checkbox"/> Creative Expression  <input type="checkbox"/> Individual and Society  <input type="checkbox"/> Scientific World  <input type="checkbox"/> Gen Ed - College Option  <input type="checkbox"/> Speech  <input type="checkbox"/> Interdisciplinary  <input type="checkbox"/> Advanced Liberal Arts</p>
<p><b>Effective Term</b></p>	<p>Fall 2023</p>		

**Rationale: MTEC 2230 is being retired; the closest equivalent is MTEC 1202, Computer Programming for Interactive Media II.**

**MTEC 3240 Data Sonification and Visualization**

<p><b>CUNYFirst Course ID</b></p>			
<p><b>Course Number and Title</b></p>	<p>MTEC 3240 Data Sonification and Visualization</p>		
<p><b>FROM:</b></p>		<p><b>TO:</b></p>	
<p><b>Department(s)</b></p>		<p><b>Department(s)</b></p>	
<p><b>Course Number</b></p>		<p><b>Course Number</b></p>	
<p><b>Course Title</b></p>		<p><b>Course Title</b></p>	
<p><b>Prerequisite</b></p>	<p><u>ENT 1270, MTEC 2230</u></p>	<p><b>Prerequisite</b></p>	<p><u>ENT 1270, MTEC 1202</u></p>

<b>Corequisite</b>		<b>Corequisite</b>	
<b>Pre- or corequisite</b>		<b>Pre- or corequisite</b>	
<b>Hours</b>		<b>Hours</b>	
<b>Credits</b>		<b>Credits</b>	
<b>Description</b>		<b>Description</b>	
<b>Requirement Designation</b>		<b>Requirement Designation</b>	
<b>Liberal Arts</b>	[ ] Yes [ X ] No	<b>Liberal Arts</b>	[ ] Yes [ X ] No
<b>Course Attribute (e.g. Writing Intensive, Honors, etc)</b>		<b>Course Attribute (e.g. Writing Intensive, Honors, etc)</b>	
<b>Course Applicability</b>	<input checked="" type="checkbox"/> Major <input type="checkbox"/> Gen Ed Required <input type="checkbox"/> English Composition <input type="checkbox"/> Mathematics <input type="checkbox"/> Science <input type="checkbox"/> Gen Ed - Flexible <input type="checkbox"/> World Cultures <input type="checkbox"/> US Experience in its Diversity <input type="checkbox"/> Creative Expression <input type="checkbox"/> Individual and Society <input type="checkbox"/> Scientific World <input type="checkbox"/> Gen Ed - College Option <input type="checkbox"/> Speech <input type="checkbox"/> Interdisciplinary <input type="checkbox"/> Advanced Liberal Arts	<b>Course Applicability</b>	<input checked="" type="checkbox"/> Major <input type="checkbox"/> Gen Ed Required <input type="checkbox"/> English Composition <input type="checkbox"/> Mathematics <input type="checkbox"/> Science <input type="checkbox"/> Gen Ed - Flexible <input type="checkbox"/> World Cultures <input type="checkbox"/> US Experience in its Diversity <input type="checkbox"/> Creative Expression <input type="checkbox"/> Individual and Society <input type="checkbox"/> Scientific World <input type="checkbox"/> Gen Ed - College Option <input type="checkbox"/> Speech <input type="checkbox"/> Interdisciplinary <input type="checkbox"/> Advanced Liberal Arts
<b>Effective Term</b>	Fall 2023		

**Rationale: MTEC 2230 is being retired; the closest equivalent is MTEC 1202, Computer Programming for Interactive Media II.**

### MTEC 3280 Embedded Systems for Physical Computing

<b>CUNYFirst Course ID</b>			
<b>Course Number and Title</b>	MTEC 3280 Embedded Systems for Physical Computing		
<b>FROM:</b>		<b>TO:</b>	
<b>Department(s)</b>		<b>Department(s)</b>	
<b>Course Number</b>		<b>Course Number</b>	
<b>Course Title</b>		<b>Course Title</b>	
<b>Prerequisite</b>	MTEC 2230, MTEC 2280	<b>Prerequisite</b>	MTEC 1202, MTEC 2280
<b>Corequisite</b>		<b>Corequisite</b>	
<b>Pre- or corequisite</b>		<b>Pre- or corequisite</b>	
<b>Hours</b>		<b>Hours</b>	
<b>Credits</b>		<b>Credits</b>	
<b>Description</b>		<b>Description</b>	
<b>Requirement Designation</b>		<b>Requirement Designation</b>	
<b>Liberal Arts</b>	[ ] Yes [ X ] No	<b>Liberal Arts</b>	[ ] Yes [ X ] No
<b>Course Attribute (e.g. Writing Intensive, Honors, etc)</b>		<b>Course Attribute (e.g. Writing Intensive, Honors, etc)</b>	

<p><b>Course Applicability</b></p>	<p><input checked="" type="checkbox"/> Major  <input type="checkbox"/> Gen Ed Required  <input type="checkbox"/> English Composition  <input type="checkbox"/> Mathematics  <input type="checkbox"/> Science  <input type="checkbox"/> Gen Ed - Flexible  <input type="checkbox"/> World Cultures  <input type="checkbox"/> US Experience in its Diversity  <input type="checkbox"/> Creative Expression  <input type="checkbox"/> Individual and Society  <input type="checkbox"/> Scientific World  <input type="checkbox"/> Gen Ed - College Option  <input type="checkbox"/> Speech  <input type="checkbox"/> Interdisciplinary  <input type="checkbox"/> Advanced Liberal Arts</p>	<p><b>Course Applicability</b></p>	<p><input checked="" type="checkbox"/> Major  <input type="checkbox"/> Gen Ed Required  <input type="checkbox"/> English Composition  <input type="checkbox"/> Mathematics  <input type="checkbox"/> Science  <input type="checkbox"/> Gen Ed - Flexible  <input type="checkbox"/> World Cultures  <input type="checkbox"/> US Experience in its Diversity  <input type="checkbox"/> Creative Expression  <input type="checkbox"/> Individual and Society  <input type="checkbox"/> Scientific World  <input type="checkbox"/> Gen Ed - College Option  <input type="checkbox"/> Speech  <input type="checkbox"/> Interdisciplinary  <input type="checkbox"/> Advanced Liberal Arts</p>
<p><b>Effective Term</b></p>	<p>Fall 2023</p>		

**Rationale: MTEC 2230 is being retired; the closest equivalent is MTEC 1202, Computer Programming for Interactive Media II.**

**MTEC 4030 Computational Creativity**

<p><b>CUNYFirst Course ID</b></p>			
<p><b>Course Number and Title</b></p>	<p>MTEC 4030 Computational Creativity</p>		
<p><b>FROM:</b></p>		<p><b>TO:</b></p>	
<p><b>Department(s)</b></p>		<p><b>Department(s)</b></p>	
<p><b>Course Number</b></p>		<p><b>Course Number</b></p>	
<p><b>Course Title</b></p>		<p><b>Course Title</b></p>	
<p><b>Prerequisite</b></p>	<p><b>ENT 2230, MAT 2440</b></p>	<p><b>Prerequisite</b></p>	<p><b>MTEC 1202, MAT 2440</b></p>

<b>Corequisite</b>		<b>Corequisite</b>	
<b>Pre- or corequisite</b>		<b>Pre- or corequisite</b>	
<b>Hours</b>		<b>Hours</b>	
<b>Credits</b>		<b>Credits</b>	
<b>Description</b>		<b>Description</b>	
<b>Requirement Designation</b>		<b>Requirement Designation</b>	
<b>Liberal Arts</b>	[ ] Yes [ X ] No	<b>Liberal Arts</b>	[ ] Yes [ X ] No
<b>Course Attribute (e.g. Writing Intensive, Honors, etc)</b>		<b>Course Attribute (e.g. Writing Intensive, Honors, etc)</b>	
<b>Course Applicability</b>	<input checked="" type="checkbox"/> Major <input type="checkbox"/> Gen Ed Required <input type="checkbox"/> English Composition <input type="checkbox"/> Mathematics <input type="checkbox"/> Science <input type="checkbox"/> Gen Ed - Flexible <input type="checkbox"/> World Cultures <input type="checkbox"/> US Experience in its Diversity <input type="checkbox"/> Creative Expression <input type="checkbox"/> Individual and Society <input type="checkbox"/> Scientific World <input type="checkbox"/> Gen Ed - College Option <input type="checkbox"/> Speech <input type="checkbox"/> Interdisciplinary <input type="checkbox"/> Advanced Liberal Arts	<b>Course Applicability</b>	<input checked="" type="checkbox"/> Major <input type="checkbox"/> Gen Ed Required <input type="checkbox"/> English Composition <input type="checkbox"/> Mathematics <input type="checkbox"/> Science <input type="checkbox"/> Gen Ed - Flexible <input type="checkbox"/> World Cultures <input type="checkbox"/> US Experience in its Diversity <input type="checkbox"/> Creative Expression <input type="checkbox"/> Individual and Society <input type="checkbox"/> Scientific World <input type="checkbox"/> Gen Ed - College Option <input type="checkbox"/> Speech <input type="checkbox"/> Interdisciplinary <input type="checkbox"/> Advanced Liberal Arts
<b>Effective Term</b>	Fall 2023		

**Rationale: MTEC 2230 is being retired; the closest equivalent is MTEC 1202, Computer Programming for Interactive Media II.**



## Section AVI: Courses Withdrawn

### Emerging Media Technology program, Entertainment Technology department

MTEC 1003 Media Computation Skills Lab  
MTEC 2230 Media Computation

**Rationale: These courses are supplanted by MTEC 1201, Computer Programming for Interactive Media I, and MTEC 1202, Computer Programming for Interactive Media II.**

New York City College of Technology, CUNY

## NEW COURSE PROPOSAL FORM, MTEC 1201 Computer Programming for Interactive Media I

This form is used for all new course proposals. Attach this to the [Curriculum Modification Proposal Form](#) and submit as one package as per instructions. Use one New Course Proposal Form for each new course.

<b>Course Title</b>	Computer Programming for Interactive Media I
<b>Proposal Date</b>	6/8/2022 (ENT dept. approval date)
<b>Proposer's Name</b>	Allison Berkoy
<b>Course Number</b>	MTEC 1201
<b>Course Credits, Hours</b>	3 credits, 2 class hours and 2 lab hours
<b>Course Pre / Co-Requisites</b>	Pre- or Corequisite: MAT 1275 or MAT 1275CO or higher
<b>Catalog Course Description</b>	This course introduces students to foundational programming concepts and techniques, with a focus on coding for creative applications. Students design, develop, and code interactive software experiences integrating computer graphics, image assets, text and fonts, and additional digital media. Programming for Interactive Media is the first in a sequence of coding courses for the Emerging Media Technology program, preparing students for advanced coursework in the program.
<b>Brief Rationale</b> Provide a concise summary of why this course is important to the department, school or college.	MTEC 1201 replaces CST 1101 in our curriculum. MTEC 1201 is part of a two-course computation fundamentals sequence, including the MTEC 1202, "Computer Programming for Interactive Media II." This sequence consolidates the four programming fundamentals courses currently required for MTEC students in all concentrations. See "Detailed Rationale" section.
<b>CUNY – Course Equivalencies</b> Provide information about equivalent courses within CUNY, if any.	While CST 1101, "Problem Solving with Computer Programming" is not equivalent to MTEC 1201, we are seeking approval from the CST department to allow MTEC 1201 to apply as a substitute prerequisite for MTEC students who wish to take courses in the CST department that require CST 1101.
<b>Intent to Submit as Common Core</b> If this course is intended to fulfill one of the requirements in the common core, then indicate which area.	N/A
<b>For Interdisciplinary Courses:</b>	N/A

- Date submitted to ID Committee for review - Date ID recommendation received  - Will all sections be offered as ID? Y/N	
<b>Intent to Submit as a Writing Intensive Course</b>	N/A

**NEW COURSE PROPOSAL CHECK LIST**

Use this checklist to ensure that all required documentation has been included. You may wish to use this checklist as a table of contents within the new course proposal.

<b>Completed NEW COURSE PROPOSAL FORM</b>	
• Title, Number, Credits, Hours, Catalog course description	X
• Brief Rationale	X
• CUNY – Course Equivalencies	X
Completed <a href="#">Library Resources and Information Literacy Form</a>	X
<b>Course Outline</b> Include within the outline the following.	X
Hours and Credits for Lecture and Labs If hours exceed mandated Carnegie Hours, then rationale for this	X
Prerequisites/Co- requisites	X
Detailed Course Description	X
Course Specific Learning Outcome and Assessment Tables <ul style="list-style-type: none"> <li>• Discipline Specific</li> <li>• General Education Specific Learning Outcome and Assessment Tables</li> </ul>	X
Example Weekly Course outline	X
Grade Policy and Procedure	X
Recommended Instructional Materials (Textbooks, lab supplies, etc)	X
Library resources and bibliography	X
<b>Course Need Assessment.</b> Describe the need for this course. Include in your statement the following information.	
Target Students who will take this course. Which programs or departments, and how many anticipated?  Documentation of student views (if applicable, e.g. non-required elective).	X
Projected headcounts (fall/spring and day/evening) for each new or modified course.	X

If additional physical resources are required (new space, modifications, equipment), description of these requirements. If applicable, Memo or email from the VP for Finance and Administration with written comments regarding additional and/or new facilities, renovations or construction.	N/A
Where does this course overlap with other courses, both within and outside of the department?	X
Does the Department currently have full time faculty qualified to teach this course? If not, then what plans are there to cover this?	X
If needs assessment states that this course is required by an accrediting body, then provide documentation indicating that need.	N/A
<b>Course Design</b> Describe how this course is designed.	
Course Context (e.g. required, elective, capstone)	X
Course Structure: how the course will be offered (e.g. lecture, seminar, tutorial, fieldtrip)?	X
Anticipated pedagogical strategies and instructional design (e.g. Group Work, Case Study, Team Project, Lecture)	X
How does this course support Programmatic Learning Outcomes?	X
Is this course designed to be partially or fully online? If so, describe how this benefits students and/or program.	X
<b>Additional Forms for Specific Course Categories</b>	
<a href="#">Interdisciplinary Form</a> (if applicable)	N/A
Interdisciplinary Committee Recommendation (if applicable and if received)* *Recommendation must be received before consideration by full Curriculum Committee	N/A
<a href="#">Common Core (Liberal Arts) Intent to Submit</a> (if applicable)	N/A
Writing Intensive Form if course is intended to be a WIC (under development)	N/A
If course originated as an experimental course, then results of evaluation plan as developed with director of assessment.	N/A
<b>(Additional materials for Curricular Experiments)</b>	
Plan and process for evaluation developed in consultation with the director of assessment. (Contact Director of Assessment for more information).	N/A
Established Timeline for Curricular Experiment	N/A

**COURSE NEED ASSESSMENT**

## Detailed Rationale

MTEC 1201 is included in phase one of a two-phase program modification that came out of discussions around our recently completed 10-year self-study. The sequence of two departmental programming courses, MTEC 1201, “Computer Programming for Interactive Media I,” and MTEC 1202, “Computer Programming for Interactive Media II,” will streamline and consolidate material across four foundational computer programming courses currently required of students in the MTEC program:

1. MTEC 1003, “Media Computation Skills Lab” (1cr)  
Description: A workshop-based lab that offers supportive training in current tools used in emerging media computation and version control. Topics covered include but are not limited to command line interfaces, shell scripting, distributed version control systems, and remote server administration. The faculty supported, workshop environment encourages self-learning, which will help students stay relevant in the face of rapid technological change.
2. MTEC 2230, “Media Computation” (3cr)  
Description: Introduces a selection of programming languages, software tools, algorithms, and data analysis techniques for engaging with new media as a software developer. Students are exposed to a diverse set of specific technologies, potentially including but not limited to: JavaScript, Bash, MySQL, C, Matlab/Octave, Ruby/Rails, Max/PureData and Amazon Web Services.
3. CST 1101, “Problem Solving with Computer Programming” (3cr)  
Description: Introduces concepts of problem-solving using constructs of logic inherent in computer programming languages. Augmented by high level computer tools, enabling solutions to common algorithmic problems. Use of flowcharts to diagram problem solutions. Object oriented packages, flowcharting tools and viewing generated software code.
4. CST 1201, “Programming Fundamentals” (3cr)  
Description: Introduction to computer programming using the Java language. Fundamentals of Java programming language including control structures and user-defined methods. Concepts of object-oriented programming. Create simple Graphic User Interfaces and web applications. Some Java libraries will be introduced in developing application projects.

MTEC 1003 and MTEC 2230 will be retired from the program, while CST 1101 and CST 1201 will be removed as requirements.

One rationale for the change is to control the explosion of languages and concepts that has built up around our in-department foundational computing courses. MTEC 1201 and MTEC 1202 will deal with programming principles and conceptual foundations across MTEC concentrations using a single programming language: JavaScript. MTEC 2230, by contrast, explores multiple languages and applications relevant to all four areas of concentration: physical computing, music technology, game design and interactive

media, and media computation. Most concentration-specific content in MTEC 2230, including languages and integrated development environments, will be redistributed to relevant courses in the applicable concentration areas. Finally, the new two-course programming sequence will incorporate programming environment basics (code versioning, code editors, etc.) formerly covered in the 1-credit lab, MTEC 1003.

CST 1101 and CST 1201 requirements further contribute to the issue of language explosion. While learning multiple languages is a necessity in our industry, our students already need proficiency in C#, C/C++, Max/MSP, JavaScript, and a variety of specific integrated development environments (these are covered in 2000-level and higher MTEC courses). CST 1101 and CST 1201 courses involve Python and Java, respectively. Python has some utility in our program, but Java is not used in any of our program's upper-division courses. Furthermore, as mentioned earlier, we would like to deliver our sequence of introductory programming courses in one language. CST 1101 and 1201 have been valuable from the perspective of teaching our students the basics of programming syntax and algorithmic thinking, and our students have been successful in these courses. However, retaining department control of the languages, applications, and environments targeted by required programming courses will save time and energy re-teaching material in many related courses within the department.

Finally, our two programming fundamentals courses are distinguished from CST 1101 and CST 1201 in that we teach programming concepts specific to building interactive media projects, with a focus on code-driven graphics, audio, video, game mechanics, etc. These are project-driven courses, where students immediately learn to apply programming fundamentals in the context of iterative project development.

### **Target Students**

MTEC 1201 will be required for all students pursuing the B.Tech in Emerging Media Technology. It will replace CST 1101 as a prerequisite for MTEC 2230 ("Media Computation"), MTEC 2120 ("Interactive Media Systems Design"), and MTEC 2250 ("Fabrication for Physical Computing"). It will also replace CST 1101 as the required programming course for ENT students.

We hope to receive approval from the Computer Systems Technology Department to make MTEC 1201 a prerequisite alternative to CST 1204 ("Database System Fundamentals"), CST 1215 ("Operating System Fundamentals"), and CST 2403 ("Intro to C++ Programming I"), which are listed as elective courses in our "Media Computation" concentration. The CST department supports the creation of MTEC 1201 and MTEC 1202; see the attached letter from CST department chairperson Professor Ashwin Satyanarayana.

### **Projected Headcounts**

Course capacity will be capped at 16, which is standard for the ENT department based on the capacity of our computer labs, and we expect to offer the course between twice and four times a year depending on enrollment conditions. We use MTEC 1003 as a model, which has in the past been run twice a semester. Under present enrollment conditions, only one section is open. All students declaring an MTEC major on or after the catalog year in which this course is introduced will be required to take the course as part of the Creative Media Foundations degree requirement, ideally in the first semester of the program.

### **Physical Resources**

One computer lab accommodating 16 students will be sufficient to run the course. The Entertainment Technology department already maintains multiple suitable computer labs in the Voorhees building. Online and hybrid implementations of the course are also possible without modification, other than guidance on installing the required free and open-source software. For students who may have difficulty complying with this requirement, the department maintains a number of floating laptops which can be checked out on campus.

### **Overlap with Other Courses**

While CST 1101, “Problem Solving with Computer Programming” is not equivalent to MTEC 1201, we are seeking approval from the CST department to allow MTEC 1201 to apply as a substitute prerequisite for MTEC students who wish to take courses in the CST department that require CST 1101.

See “Target Students” section above for list of CST courses that require CST 1201 as a prerequisite and exist as Media Computation concentration electives.

### **Qualified Full-Time Faculty**

We have two qualified full-time faculty members available to teach this course, and one adjunct faculty member who has been with us for many consecutive semesters.

## **COURSE DESIGN**

### **Course Context**

As mentioned in the “Detailed Rationale” section, MTEC 1201 and MTEC 1202 will serve as a foundational computer programming skills sequence designed to prepare MTEC students for more advanced work in the various program concentrations.

### **Course Structure**

MTEC 1201 will be a combination lecture and practicum, divided equally into two hours of class and two hours of lab. Class time will be used to present tools and concepts, and lab will provide time for students to implement pieces of a project with guidance from the instructor and listed course resources. Lab work will spill over into homework when necessary.

### **Anticipated Pedagogical Strategies and Instructional Design**

Students will undertake short assignments to demonstrate code-reading proficiency and understanding of concepts introduced in lecture. They will also have an opportunity to experiment further with these concepts by producing larger, independently conceived projects.

### **Support for Programmatic Learning Outcomes**

This course directly supports one of the five major Emerging Media Technology program learning outcomes:

1. Attain proficiency in multiple computational, design, and media technologies.

The course also provides groundwork for approaching the other four, which include:

2. Attain mastery of one of the following four areas of concentration of the major: Game Design and Interactive Media, Media Computation, Music Technology, or Physical Computing.
3. Complete a technical production portfolio in their concentration area.
4. Attain proficiency in cooperative design and collaborative production.
5. Attain proficiency in production management.

### **Course Modality and Associated Benefits**

MTEC 1201 has the flexibility to be taught as in-person, online, or hybrid course with little-to-no modification. We anticipate that the online or hybrid modality will be preferable, since (1) space is at a premium and we'd like to have more of ours devoted to 3000- and 4000-level collaborative project space, and (2) there has been some demand from our students for more online course offerings.



(draft prepared by Prof. Allison Berkoy)

### **New York City College of Technology**

Entertainment Technology Department  
186 Jay Street, Room V-203 Brooklyn, NY 11201  
(718) 260-5588 <http://www.entertainmenttechnology.org>

#### **MTEC 1201 Computer Programming for Interactive Media I**

2 classroom hours, 2 lab hours, 3 credits  
Pre- or Corequisite: MAT 1275 or MAT 1275CO or higher

#### **Description**

This course introduces students to foundational programming concepts and techniques, with a focus on coding for creative applications. Students design, develop, and code interactive software experience integrating computer graphics, image assets, text and fonts, and additional digital media. Programming for Interactive Media is the first in a sequence of coding courses for the Emerging Media Technology program, preparing students for advanced coursework in the program.

#### **Learning Outcomes**

<b>For the successful completion of this course, a student should be able to:</b>	<b>Evaluation methods and criteria:</b>
Develop literacy for reading and writing in a coding language.	In technical exercises and short study assignments, students write original code and “comment” pre-existing code into plain language.
Recognize and articulate computational strategies used in contemporary interactive media projects.	In class discussions, students evaluate computational strategies used in wide ranging creative projects. Students articulate interactive models used in their own projects.
Demonstrate learning and problem-solving methodologies, including use of coding reference, documentation materials, and flow charting.	Technical exercises and assignments require use of support materials not already covered in class for successful completion. Students complete flow-charting assignments to demonstrate comprehension.

Implement foundational coding concepts and techniques to realize interactive software experiences, including use of: variables; logical, comparison, and arithmetic operators; conditionals; functions; loops; arrays; and an Introduction to Object Oriented Programming.	Weekly short study assignments and projects require implementation of these concepts and techniques.
Design, develop, debug, and iterate an interactive software experience from ideation through final project presentation.	Students complete project deliverables demonstrating each project phase.

### Gen Ed Learning Outcomes

For the successful completion of this course, a student should be able to:	Evaluation methods and criteria:
Employ scientific reasoning and logical thinking.	Students complete technical exercises, flow-charts, short study assignments, and projects employing logic-based computation.
Use creativity to solve problems.	Students use creative thinking in order to apply technical concepts to build code-driven interactive media projects.
Gather, interpret, evaluate, and apply information discerningly from a variety of sources.	Students complete assignments and projects based on synthesis from multiple sources: in-class lectures and demos, readings and technical exercises, reference materials, and targeted independent research.

### COURSE STRUCTURE

The course combines lectures and presentations, critiques, discussions, and studio/lab time. Typically, students work on technical exercises each week, along with creative short study projects integrating these newly learned techniques. There will be two larger interactive software projects during the semester- a midterm and final project- largely independently driven, with iterative project development.

### PROJECTS AND ASSIGNMENTS

- Weekly readings and technical exercises, for developing programming foundations and building conceptual framework.
- Weekly creative short study assignments, demonstrating programming proficiency and creative concept development. Students implement required technical parameters for each week, while engaging with a chosen creative theme.
- Midterm project – a largely self-directed work exploring the topics covered in the first half of the semester, while expanding upon one or more short study assignments. These are multi-week, scaffolded projects with work-in-progress deadlines, peer playtesting, and final critiques.
- Final project – a largely self-directed work, supported by independent research and iterative project development. Students present proposals for the instructor to green-light, which includes a calendar of tasks and deliverables. These are multi-week, scaffolded projects with work-in-progress deadlines, peer playtesting, and final critiques.

#### REQUIRED MATERIALS

- Make: Getting Started with p5.js, by Lauren McCarthy, Casey Reas, & Ben Fry; Maker Media, 2015. (Available in print, digital, rentable formats.)
- Generative Design: Visualize, Program and Create with Javascript in p5.js, by Benedikt Gross, Hartmut Bohnacker, Julia Laub and Claudius Lazzeroni; Princeton Architectural Press, 2018. (Available in low-cost digital format.)
- Aesthetic Programming: a Handbook of Software Studies, by Winnie Soon, Geoff Cox, Open Humanities Press, 2020. (Available as free digital download.)
- Code! Programming with p5.js, online tutorials by Dan Shiffman (free)
- External storage device, or cloud-based storage, for backing up your work
- A sketchbook, or paper to sketch with (does not need to be exclusive to this class)

#### COURSE GRADING

- Participation: 20%
- Weekly "Short Study" Assignments: 35%
- Midterm Project: 20%
- Final Project: 25%

Participation will be graded out of 3 points:

3 = full participation: fully present, on task, and supportive of classmates throughout the class session.

2 = partial participation: late arrival or early departure, on task for some of the time.

1 = minimal participation: absent from lab for more than 30 minutes, minimally on task.

0 = no participation.

Weekly "Short Study" Assignments will be graded out of 10 points, based on completion of requirements. Midterm and Final projects will be graded on a standard A-F scale, according to criteria detailed in the final project assignment.

*All work must be submitted on time. Any late assignment will drop one letter grade per class session that it is late. Please contact your instructor if there are extenuating circumstances, in which case lateness may be excused on a case-by-case basis.*

#### **ACADEMIC INTEGRITY POLICY**

Students and all others who work with information, ideas, texts, images, music, inventions, and other intellectual property owe their audience and sources accuracy and honesty in using, crediting, and citing sources. As a community of intellectual and professional workers, the College recognizes its responsibility for providing instruction in information literacy and academic integrity, offering models of good practice, and responding vigilantly and appropriately to infractions of academic integrity. Accordingly, academic dishonesty is prohibited in The City University of New York and at New York City College of Technology and is punishable by penalties, including failing grades, suspension, and expulsion. The complete text of the College policy on Academic Integrity may be found in the catalogue.

*Instructor's note:* all borrowed text, code, or media used for this course must be attributed to the original creator, whether human or AI. Any direct text quotes from another source must be specified with quotes and appropriately cited. Code borrowed from another source at more than four lines in length must be attributed as a //comment within the code itself. If you are unsure of whether or not your work may constitute plagiarism, please check with your instructor before submitting. Any instance of plagiarism will be reported to the MTEC Program Director, the Chair of ENT, and City Tech's Academic Integrity Officer.

#### **COURSE ACCOMODATIONS FOR STUDENTS WITH DISABILITIES**

In order to receive disability-related academic accommodations students must first be registered with the [Center for Student Accessibility](#). Students who have a documented disability or suspect they may have a disability are invited to set up an appointment with the Center (phone: 718-260-5143). If you have already registered with the Center, please provide your professor with the course accommodation form and discuss your specific accommodation with him/her.

#### **A NOTE ON CITY TECH'S COUNSELING CENTER**

The [Counseling Services Center](#) supports the educational, emotional and career development of City Tech students by providing opportunities for skill development, counseling and referrals that address obstacles to success. The Center is currently available to students remotely and in-person. For questions and appointments, contact the Center at [counseling@citytech.cuny.edu](mailto:counseling@citytech.cuny.edu) or 718-260-5030.

#### **ENTERTAINMENT TECHNOLOGY DEPARTMENT COMMITMENT TO STUDENT DIVERSITY**

This course welcomes students from all backgrounds, experiences, and perspectives. In accordance with the City Tech and CUNY missions, this course intends to provide an atmosphere of inclusion, respect, and the mutual appreciation of differences so that together we can create an environment in which all students can flourish.

### **MTEC STATEMENT ON INCLUSIVITY**

**Part I. Name + Pronoun Usage** This course consists of individual work and group discussion. We must therefore strive to create an atmosphere of inclusion and mutual respect: all students will have their chosen gender pronoun(s) and chosen name recognized. If the class roster does not align with your name, gender, and/or pronouns, please inform the instructor.

**Part II. Inclusivity Statement** It is my intent that students from all diverse backgrounds and perspectives be well-served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that the students bring to this class be viewed as an asset, resource, strength, and benefit, rather than a checklist item or worse, a hindrance. It is my intent to present materials and activities that are respectful of diversity: gender identity, sexuality, disability, age, socioeconomic status, ethnicity, race, nationality, religion, and culture. Your suggestions are encouraged and appreciated. Please let me know ways to improve the effectiveness of the course for you personally, or for other students or student groups. Feel free to reach out to me via email or Slack at any time about any issues concerning you or with any such ideas.

### **Topics**

#### **WEEK 1**

##### TOPIC

- Introductions
- Course Overview
- What is Computational Art and Design?
- What are the Expressive "Affordances" of Code?

#### **WEEK 2**

##### TOPIC

- Drawing with Algorithms: Instructions-Based Art and Design

##### TECHNIQUE

- Introduction to programming environment and related tools
- Introduction to programming structure, comments, syntax

- Drawing: coordinates, points, lines, primitives, colors

### WEEK 3

#### TOPIC

- Interactive Images and User Input
- Starting to define our terms: interactive, reactive/responsive, participatory, dynamic, generative

#### TECHNIQUE

- Program Flow: setup and draw, code blocks
- Variables- data types, declaration, initialization
- Variable scope (global, block, function)
- Operators: arithmetic (including modulus), boolean, comparison
- Basic user input using mouse and keyboard

### WEEK 4

#### TOPIC

- The "If": Conditions for Interactivity
- Creating Uncertainty

#### TECHNIQUE

- Conditional statements
- Random function
- Event functions
- Flow charting and designing for interactivity

### WEEK 5

#### TOPIC

- Time-Based Media, Strategies for Animation
- Introduction to Midterm Projects

#### TECHNIQUE

- Loading external media assets: images and fonts

- Working with motion: speed, direction, translation, easing and interpolation
- Variable incrementation and de-incrementation
- System clock, millis(), one-time + repeating timed events

**WEEK 6**

## TOPIC

- Functions and Modularity
- Programming State Changes Part 1
- Interface review - graphical buttons, overlay triggers, etc

## TECHNIQUE

- Creating user-defined functions
- Function arguments and parameters
- Return statement
- Coding state changes

**WEEK 7**

## TOPIC

- Special Topics Related to Midterm (By Request) / Review
- Playtesting Midterm WIP

## TECHNIQUE

- Review and special topics

**WEEK 8**

## TOPIC

- Midterm Project Presentations
- Special Topics (Instructor Choice)

## TECHNIQUE

- Critiques of Midterm Projects

**WEEK 9**

## TOPIC

- Introduction to Final Projects
- Control Structures for Interactivity- sequential, conditional, repetitive
- Interactive Models (Hyperlink, phrasal templates, branching structures and CYOA, more...)

## TECHNIQUE

- Flow charting, revisited
- Coding State Changes Part 2

**WEEK 10**

## TOPIC

- Iteration + Patterns

## TECHNIQUE

- While and for loops

**WEEK 11**

## TOPIC

- Storing Data in Arrays

## TECHNIQUE

- Working with Arrays

**WEEK 12**

## TOPIC

- Introduction to Object Oriented Programming

## TECHNIQUE

- Objects and classes



- Constructor and methods

**WEEK 13**

TOPIC

- OOP Continued - Arrays of objects
- Special Topic: Detecting Image Intersection and "Collision Detection" for games

TECHNIQUE

- Implementing OOP

**WEEK 14**

TOPIC

- Playtesting and work-in-progress critiques for Final Projects
- Special Topics (instructor choice) / Review

**WEEK 15**

TOPIC

- Final Project Critiques

**LIBRARY RESOURCES & INFORMATION LITERACY: MAJOR CURRICULUM MODIFICATION**

Please complete for **all** major curriculum modifications. This information will assist the library in planning for new courses/programs.

Consult with your library faculty subject specialist (<http://cityte.ch/dir>) **3 weeks before the proposal deadline.**

**Course proposer:** please complete boxes 1-4. **Library faculty subject specialist:** please complete box 5.

<p><b>1 Title of proposal</b>  <a href="#">new course: MTEC 1201, "Computer Programming for Interactive Media I," part of a larger proposal titled Emerging Media Technology Program Modification, Phase One</a></p>	<p><b>Department/Program</b>  <a href="#">Entertainment Technology department, Emerging Media Technology B.Tech program</a></p>
<p><b>Proposed by</b> (include email &amp; phone)  <a href="#">Allison Berkoy</a>  <a href="mailto:aberkoy@citytech.cuny.edu">aberkoy@citytech.cuny.edu</a></p>	<p><b>Expected date course(s) will be offered</b></p> <p><b># of students : 16</b></p>

**2 The library cannot purchase reserve textbooks for every course at the college, nor copies for all students. Consult our website (<http://cityte.ch/curriculum>) for articles and ebooks for your courses, or our open educational resources (OER) guide (<http://cityte.ch/oer>). Have you considered using a freely-available OER or an open textbook in this course?**  
[MTEC 1201 mostly requires open source and free materials.](#)

**3 Beyond the required course materials, are City Tech library resources sufficient for course assignments? If additional resources are needed, please provide format details (e.g. ebook, journal, DVD, etc.), full citation (author, title, publisher, edition, date), price, and product link.**  
[It might be valuable to have some reserve copies of the following:](#)  
["CODE! PROGRAMMING WITH P5.JS." The Coding Train online video series, Dan Shiffman, https://thecodingtrain.com/beginners/p5js/](#)

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[Code as Creative Medium. Tega Brain and Golan Levin. Published by MIT Press, February 2021.](#)

[Getting Started with p5.js. Lauren McCarthy, Casey Reas, and Ben Fry. Published October 2015, Maker Media. 246 pages. Paperback.](#)

[Generative Design. Benedikt Gross, Hartmut Bohnacker, Julia Laub and Claudius Lazzaroni. Published October 30, 2018, Princeton Architectural Press; Reprint edition. 255 pages. Paperback.](#)

[Learn JavaScript with p5.js. Engin Arslan. Published 2018, Apress. 217 pages. Paperback.](#)

[Aesthetic Programming: A Handbook of Software Studies. Winnie Soon, Geoff Cox. Published 2020, Open Humanities Press. 298 pages. Hardcover.](#)

- 4 **Library faculty focus on strengthening students' information literacy skills in finding, critically evaluating, and ethically using information. We collaborate on developing assignments and customized instruction and research guides. When this course is offered, how do you plan to consult with the library faculty subject specialist for your area? Please elaborate.**

[This is mostly a practicum in programming. One area that might be helpful is a consultation on plagiarism. While it is usually very easy to identify plagiarism of code between students, it is harder to identify when students can potentially draw from online communities using the same platforms, libraries, and languages. Perhaps there are some resources the library staff could help us identify to combat plagiarism given the target languages and libraries emphasized in this course.](#)

- 5 **Library Faculty Subject Specialist \_\_\_\_\_**

**Junior Tidal**

**Comments and Recommendations**

**After surveying the collection, I believe that the library can adequately support this course. The library has access to several electronic books pertaining to p5.js. However, I would suggest that the library add print copies of the materials that Prof. Berkoy recommends to the library collection, pending course approval. I would also recommend that the library acquires materials that address inclusive and accessible coding.**

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I also believe that the library collection could utilize more books and materials that address plagiarism in programming.

**Date** 08.17.22

New York City College of Technology, CUNY

## NEW COURSE PROPOSAL FORM, MTEC 1202 Computer Programming for Interactive Media II

This form is used for all new course proposals. Attach this to the [Curriculum Modification Proposal Form](#) and submit as one package as per instructions. Use one New Course Proposal Form for each new course.

<b>Course Title</b>	Computer Programming for Interactive Media II
<b>Proposal Date</b>	6/8/2022 (ENT dept. approval date)
<b>Proposer's Name</b>	Adam Wilson
<b>Course Number</b>	MTEC 1202
<b>Course Credits, Hours</b>	3 credits, 2 class hours and 2 lab hours
<b>Course Pre / Co-Requisites</b>	<ul style="list-style-type: none"> <li>• MAT 1375 "Precalculus," or higher (Pre- or Corequisite)</li> <li>• MTEC 1201, "Computer Programming for Interactive Media I" (Prerequisite) [note that MTEC 1201 is introduced in the same program modification proposal as MTEC 1202; see attached course proposal package]</li> </ul>
<b>Catalog Course Description</b>	MTEC 1202 is designed to develop intermediate mastery of programming for interactive media environments, with a focus on coding for creative applications. In the process of incrementally designing, implementing, and testing their own media software applications within prescribed boundaries, students advance their knowledge of object-oriented programming, algorithms, and computing techniques relevant to categories of interactive media technology targeted in the Emerging Media Technology program.
<b>Brief Rationale</b> Provide a concise summary of why this course is important to the department, school or college.	MTEC 1202 replaces CST 1201 in our curriculum. MTEC 1202 is part of a two-course computation fundamentals sequence, including the MTEC 1201, "Computer Programming for Interactive Media I." This sequence consolidates the four programming fundamentals courses currently required for MTEC students in all concentrations. See "Detailed Rationale" section.
<b>CUNY – Course Equivalencies</b> Provide information about equivalent courses within CUNY, if any.	While CST 1201, "Programming Fundamentals" is not equivalent to MTEC 1202, we are seeking approval from the CST department to allow MTEC 1201 to apply as a substitute prerequisite for MTEC students who wish to take courses in the CST department that require CST 1201.
<b>Intent to Submit as Common Core</b> If this course is intended to fulfill one of the requirements in the	N/A

common core, then indicate which area.	
<b>For Interdisciplinary Courses:</b>	N/A
- Date submitted to ID Committee for review	
- Date ID recommendation received	
- Will all sections be offered as ID? Y/N	
<b>Intent to Submit as a Writing Intensive Course</b>	N/A

Please include all appropriate documentation as indicated in the NEW COURSE PROPOSAL Combine all information into a single document that is included in the Curriculum Modification Form.

**NEW COURSE PROPOSAL CHECK LIST**

Use this checklist to ensure that all required documentation has been included. You may wish to use this checklist as a table of contents within the new course proposal.

<b>Completed NEW COURSE PROPOSAL FORM</b>	
• Title, Number, Credits, Hours, Catalog course description	X
• Brief Rationale	X
• CUNY – Course Equivalencies	X
Completed <a href="#">Library Resources and Information Literacy Form</a>	X
<b>Course Outline</b>	X
Include within the outline the following.	
Hours and Credits for Lecture and Labs	X
If hours exceed mandated Carnegie Hours, then rationale for this	
Prerequisites/Co- requisites	X
Detailed Course Description	X
Course Specific Learning Outcome and Assessment Tables	
• Discipline Specific	X
• General Education Specific Learning Outcome and Assessment Tables	
Example Weekly Course outline	X
Grade Policy and Procedure	X
Recommended Instructional Materials (Textbooks, lab supplies, etc)	X
Library resources and bibliography	X
<b>Course Need Assessment.</b>	
Describe the need for this course. Include in your statement the following information.	
Target Students who will take this course. Which programs or departments, and how many anticipated?	X
Documentation of student views (if applicable, e.g. non-required elective).	
Projected headcounts (fall/spring and day/evening) for each new or modified course.	X
If additional physical resources are required (new space, modifications, equipment), description of these requirements. If applicable, Memo or email from the VP for Finance and Administration with written comments regarding additional and/or new facilities, renovations or construction.	N/A
Where does this course overlap with other courses, both within and outside of the department?	X

Does the Department currently have full time faculty qualified to teach this course? If not, then what plans are there to cover this?	X
If needs assessment states that this course is required by an accrediting body, then provide documentation indicating that need.	N/A
<b>Course Design</b>	
Describe how this course is designed.	
Course Context (e.g. required, elective, capstone)	X
Course Structure: how the course will be offered (e.g. lecture, seminar, tutorial, fieldtrip)?	X
Anticipated pedagogical strategies and instructional design (e.g. Group Work, Case Study, Team Project, Lecture)	X
How does this course support Programmatic Learning Outcomes?	X
Is this course designed to be partially or fully online? If so, describe how this benefits students and/or program.	X
<b>Additional Forms for Specific Course Categories</b>	
<a href="#">Interdisciplinary Form</a> (if applicable)	N/A
Interdisciplinary Committee Recommendation (if applicable and if received)* *Recommendation must be received before consideration by full Curriculum Committee	N/A
<a href="#">Common Core (Liberal Arts) Intent to Submit</a> (if applicable)	N/A
Writing Intensive Form if course is intended to be a WIC (under development)	N/A
If course originated as an experimental course, then results of evaluation plan as developed with director of assessment.	N/A
<b>(Additional materials for Curricular Experiments)</b>	
Plan and process for evaluation developed in consultation with the director of assessment. (Contact Director of Assessment for more information).	N/A
Established Timeline for Curricular Experiment	N/A

## COURSE NEED ASSESSMENT

### Detailed Rationale

MTEC 1202 is included in phase one of a two-phase program modification that came out of discussions around our recently completed 10-year self-study. The sequence of two departmental programming courses, MTEC 1201, "Computer Programming for Interactive Media I," and MTEC 1202, "Computer Programming for Interactive Media II,"



streamlines and consolidates material across four foundational computer programming courses currently required of students in the MTEC program:

1. MTEC 1003, "Media Computation Skills Lab" (1cr)  
Description: A workshop-based lab that offers supportive training in current tools used in emerging media computation and version control. Topics covered include but are not limited to command line interfaces, shell scripting, distributed version control systems, and remote server administration. The faculty supported, workshop environment encourages self-learning, which will help students stay relevant in the face of rapid technological change.
2. MTEC 2230, "Media Computation" (3cr)  
Description: Introduces a selection of programming languages, software tools, algorithms, and data analysis techniques for engaging with new media as a software developer. Students are exposed to a diverse set of specific technologies, potentially including but not limited to: JavaScript, Bash, MySQL, C, Matlab/Octave, Ruby/Rails, Max/PureData and Amazon Web Services.
3. CST 1101, "Problem Solving with Computer Programming" (3cr)  
Description: Introduces concepts of problem-solving using constructs of logic inherent in computer programming languages. Augmented by high level computer tools, enabling solutions to common algorithmic problems. Use of flowcharts to diagram problem solutions. Object oriented packages, flowcharting tools and viewing generated software code.
4. CST 1201, "Programming Fundamentals" (3cr)  
Description: Introduction to computer programming using the Java language. Fundamentals of Java programming language including control structures and user-defined methods. Concepts of object-oriented programming. Create simple Graphic User Interfaces and web applications. Some Java libraries will be introduced in developing application projects.

MTEC 1003 and MTEC 2230 will be retired from the program, while CST 1101 and CST 1201 will be removed as requirements.

One rationale for the change is to control the explosion of languages and concepts that has built up around our in-department foundational computing courses. MTEC 1201 and MTEC 1202 will deal with programming principles and conceptual foundations across MTEC concentrations using a single programming language: JavaScript. MTEC 2230, by contrast, explores multiple languages and applications relevant to all four areas of concentration: physical computing, music technology, game design and interactive media, and media computation. Most concentration-specific content in MTEC 2230, including languages and integrated development environments, will be redistributed to relevant courses in the applicable concentration areas. Finally, the new two-course programming sequence will incorporate programming environment basics (code versioning, code editors, etc.) formerly covered in the 1-credit lab, MTEC 1003.

CST 1101 and CST 1201 requirements further contribute to the issue of language explosion. While learning multiple languages is a necessity in our industry, our students already need proficiency in C#, C/C++, Max/MSP, JavaScript, and a variety of specific integrated development environments (these are covered in 2000-level and higher MTEC courses). CST 1101 and CST 1201 courses involve Python and Java, respectively. Python has some utility in our program, but Java is not used in any of our program's upper-division courses. Furthermore, as mentioned earlier, we would like to deliver our sequence of introductory programming courses in one language. CST 1101 and 1201 have been valuable from the perspective of teaching our students the basics of programming syntax and algorithmic thinking, and our students have been successful in these courses. However, retaining department control of the languages, applications, and environments targeted by required programming courses will save time and energy re-teaching material in many related courses within the department.

Finally, our two programming fundamentals courses are distinguished from CST 1101 and CST 1201 in that we teach programming concepts specific to building interactive media projects, with a focus on code-driven graphics, audio, video, game mechanics, etc. These are project-driven courses, where students immediately learn to apply programming fundamentals in the context of iterative project development.

### **Target Students**

MTEC 1202 will be required for all students pursuing the B.Tech in Emerging Media Technology. It will take the place of CST 1201 as a prerequisite for our foundation physical computing course, MTEC 2280 ("Ins and Outs").

We hope to receive approval from the Computer Systems Technology Department to make MTEC 1202 a prerequisite alternative to CST 1201, "Programming Fundamentals," for CST 2301, "Multimedia and Mobile Device Programming," and CST 2309, "Web Programming I," which are listed as elective courses in our "Media Computation" concentration. The CST department supports the creation of MTEC 1201 and MTEC 1202; see the attached letter from CST department chairperson Professor Ashwin Satyanarayana.

We have received approval from the Math Department to make MTEC 1201 a prerequisite alternative to CST 1201, "Programming Fundamentals," for MAT 2440, "Discrete Structures and Algorithms I." The larger proposal to which this course proposal is attached makes MAT 2440 a requirement for all MTEC students, whereas currently it is only required for MTEC students pursuing the "Media Computation" concentration. Please see the attached letter of support from Math Department chairperson Professor Jonathan Natov.

### **Projected Headcounts**

Course capacity will be capped at 16, which is standard for the ENT department, and we expect to offer the course twice a year – the same frequency with which we offer MTEC 2230, “Media Computation” (as noted earlier, MTEC 1201 will substitute for MTEC 2230 for students who entered the program prior to this proposed change). All students declaring an MTEC major on or after the catalog year in which this course is introduced will be required to take the course as part of the Creative Media Foundations degree requirement, ideally in the second semester of the program.

### **Physical Resources**

One computer lab accommodating 16 students will be sufficient to run the course. The Entertainment Technology department already maintains multiple suitable computer labs in the Voorhees building. Online and hybrid implementations of the course are also possible without modification, other than guidance on installing the required free and open-source software. For students who may have difficulty complying with this requirement, the department maintains a number of floating laptops which can be checked out on campus.

### **Overlap with Other Courses**

While CST 1201, “Programming Fundamentals” is not equivalent to MTEC 1202, we are seeking approval from the CST department to allow MTEC 1201 to apply as a substitute prerequisite for MTEC students who wish to take courses in the CST department that require CST 1201.

See “Target Students” section above for list of CST courses that require CST 1201 as a prerequisite and exist as Media Computation concentration electives.

### **Qualified Full-Time Faculty**

We have more than one full-time faculty member available to teach this course, and one adjunct faculty member who has been with us for many consecutive semesters.

## **COURSE DESIGN**

### **Course Context**

As mentioned in the “Detailed Rationale” section, MTEC 1201 and MTEC 1202 will serve as a foundational computer programming skills sequence designed to prepare MTEC students for more advanced work in the various program concentrations.

### **Course Structure**

MTEC 1202 will be a combination lecture and practicum, divided equally into two hours of class and two hours of lab. Class time will be used to present tools and concepts, and

lab will provide time for students to implement pieces of a final project with guidance from the instructor and listed course resources. Lab work will spill over into homework when necessary.

### **Anticipated Pedagogical Strategies and Instructional Design**

Students will each work independently on a large project that allows them to explore and demonstrate understanding of concepts, techniques, and tools introduced in lecture. Students will commit their work to a central repository, and a brief time at the beginning of each class session will be devoted to critiquing each student's update in the shared repo. While each assignment will specify required elements (e.g., use a conditional statement or iterate over an array), the application within which these elements reside is definable by each student. Critique will therefore not only be technical but will also examine the efficacy of strategies employed by each student to produce a desired creative outcome.

### **Support for Programmatic Learning Outcomes**

This course directly supports one of the five major Emerging Media Technology program learning outcomes:

1. Attain proficiency in multiple computational, design, and media technologies.

The course also provides groundwork for approaching the other four, which include:

2. Attain mastery of one of the following four areas of concentration of the major: Game Design and Interactive Media, Media Computation, Music Technology, or Physical Computing.
3. Complete a technical production portfolio in their concentration area.
4. Attain proficiency in cooperative design and collaborative production.
5. Attain proficiency in production management.

### **Course Modality and Associated Benefits**

MTEC 1202 has the flexibility to be taught as in-person, online, or hybrid course with little-to-no modification. We anticipate that the online or hybrid modality will be preferable, since (1) space is at a premium and we'd like to have more of ours devoted to 3000- and 4000-level collaborative project space, and (2) there has been some demand from our students for more online course offerings.

(draft prepared by Prof. Adam Wilson)

### New York City College of Technology

Entertainment Technology Department  
186 Jay Street, Room V-203 Brooklyn, NY 11201  
(718) 260-5588 <http://www.entertainmenttechnology.org>

#### MTEC 1202 Computer Programming for Interactive Media II

2 cl hrs, 2 lab hrs, 3 credits

Prerequisites: MTEC 1201 "Computer Programming for Interactive Media I"

Pre- or Corequisite: MAT 1375 "Precalculus" or higher

#### Course Description

MTEC 1202 is designed to develop intermediate mastery of programming for interactive media environments, with a focus on coding for creative applications. In the process of incrementally designing, implementing, and testing their own media software applications within prescribed boundaries, students advance their knowledge of object-oriented programming, algorithms, and computing techniques relevant to categories of interactive media technology targeted in the Emerging Media Technology program.

#### Grades

Your grade will be determined as follows:

Phased project assignments	80%
Quizzes	20%

#### Learning Outcomes

For the successful completion of this course, a student should be able to:	Evaluation methods and criteria:
Demonstrate comprehension of programming vocabulary, such as "functional," "object-oriented," "stack," "shell," "process," etc.	Incremental project assignments will be given verbally and in written form as word problems using vocabulary from lectures. Students will demonstrate comprehension by successfully completing each project phase. Quizzes will also cover coding vocabulary.
Design, develop, debug, and iterate an interactive software experience from ideation through final project presentation.	Graded project phases correspond to each element of the creative process.

Use modular programming techniques to develop scalable software.	Code from each project phase will be leveraged in subsequent phases.
Demonstrate understanding of object-oriented programming principles, including inheritance, access modifiers, etc.	The course project parameters will present scenarios in which each of these features must be understood and exercised.
Demonstrate an understanding of algorithmic complexity.	Students will be asked to program and evaluate linear and binary searches.
Develop good testing habits.	Students will be required to develop formal test procedures to validate their code.

### General Education Learning Outcomes

<b>For the successful completion of this course, a student should be able to:</b>	<b>Evaluation methods and criteria:</b>
Resolve difficult issues creatively by employing multiple systems and tools.	The overarching class project will allow for creative choices, within boundaries, the implementation of which will require integrating a range of concepts, tools, and technologies. Students who get these pieces interoperating by the end of the semester will have demonstrated success in this area.
Employ scientific reasoning and logical thinking.	Project assignments will pose general problems that involve solutions such as implementing an efficient search.

### Resources (subject to change)

#### Mac and PC:

- free Github account: <https://github.com>
- free slack account: class server is <add here>
- Visual Studio Code editor: <https://code.visualstudio.com/>
- Chrome browser: <https://www.google.com/chrome/>

#### PC:

- git Bash: <https://gitforwindows.org/>

**Supplemental Instructional Materials (selections from the following will accompany professor-generated lecture notes and example code templates):**

- <http://git-scm.com/documentation>
- <http://linuxcommand.org/index.php>
- <http://www.dspguide.com/pdfbook.htm>
- <http://eloquentjavascript.net>
- <https://developer.mozilla.org/en-US/docs/Web/JavaScript>
- <https://threejs.org/docs/>
- [https://developer.mozilla.org/en-US/docs/Web/API/Web\\_Audio\\_API](https://developer.mozilla.org/en-US/docs/Web/API/Web_Audio_API)

### Weekly Topics

Week 1: Review of basic concepts from Computer Programming for Interactive Media (1), including variables, data types, arithmetic/logical/comparison operators, conditionals, data structures (objects, arrays), iteration, functions. Introduction to the programming environment and workflow (git, ECMAScript 6, browser, IDE/code editor). Some algorithmic puzzles to get warmed up.

Week 2: Introduction to object-oriented programming. Students make a generic class, a 2D object with behavior, rendered on HTML5 Canvas) and learn how to instantiate the class, make modifications, and produce related classes via inheritance.

Week 3: Demonstrate how to handle large numbers of instances of a class by iterating over structures. Show how to handle random variations in behavior in such a context. Show linear and binary search algorithms. Students augment their project code to handle large numbers of class instances accordingly.

Week 4: Coding vocabulary quiz 1. Discussion of control structure and interactivity. Review of 2D collision detection. Students plan interactions between elements and user interface schemas.

Week 5: Discussion of UI elements in HTML/CSS/JavaScript. Students add interface elements to their applications.

Week 6: Mid-semester project demonstrations and critiques.

Week 7: Introduction to JavaScript libraries (three.js) and basics of 3D graphics. Demonstrate collision detection procedures in 3D. Students re-implement their basic classes in 3D.

Week 8: Introduce quaternions and quaternion interpolation. Class will implement rotation and interpolation of a series of rotations for one 3D object, and optionally include such a rotation in their games.

Week 9: Coding vocabulary quiz 2. Introduction to Web Audio API and review trig required to understand basic digital audio concepts, such as Nyquist Theorem. Build a simple synthesizer and demonstrate how to load and trigger samples.

Week 10: Students plan audio features.

Week 11: Audio features are integrated with control structures and class objects.

Week 12: Coding vocabulary quiz 3. Development of acceptance tests.

Week 13: Debugging and fixes, individual meetings with instructor.

Week 14: Final project demonstrations and critiques.

Week 15: Lecture on other languages to be encountered in MTEC 2000-level courses; syntactical differences and similarities highlighted, discussion of compiled vs. interpreted languages and their applications, introduction to other programming environments/pipelines.

### **Grade Policy and Procedure**

#### Email

Students are required to use official City Tech email for correspondence and account sign-ups. **Messages from private email addresses will be ignored.**

#### Attendance

Attendance is expected at every class meeting – it is necessary to absorb the information required to complete course assignments.

#### Academic Integrity

Students and all others who work with information, ideas, texts, images, music, inventions, and other intellectual property owe their audience and sources accuracy and honesty in using, crediting, and citing sources. As a community of intellectual and professional workers, the College recognizes its responsibility for providing instruction in information literacy and academic integrity, offering models of good practice, and responding vigilantly and appropriately to infractions of academic integrity. Accordingly, academic dishonesty is prohibited in The City University of New York and at New York City College of Technology and is punishable by penalties, including failing grades, suspension, and expulsion. The complete text of the College policy on Academic Integrity may be found in the catalog.

#### Assignments/Grading/Deadlines

Students work on assignments during lab hours. At the end of each lab, students commit their work to the class Github repository. Note the following:

- **Late work is not accepted.** Work that is not committed to the repository by the due date (and/or does not have an open pull request) receives zero (0) credit. Due dates will be given in class.



- **Any assignment that fails to run at all due to an error, or any assignment that appears to have not been attempted, will receive an “F.”** The number of points awarded (up to 59) will be based on the amount and quality of incomplete work attempted. Running code will receive a 60% or above (up to 100%), depending on the extent to which the code fulfills the assignment objectives and the extent to which directions regarding Github submissions have been followed.
- There are 10 project assignments, including the final demonstration, and 3 coding vocabulary quizzes. Each project assignment, described in the weekly activities above, builds on the previous toward completion of an overarching application. Project assignments will receive comments on Github.

Entertainment Technology Department Commitment to Student Diversity

This course welcomes students from all backgrounds, experiences, and perspectives. In accordance with the City Tech and CUNY missions, this course intends to provide an atmosphere of inclusion, respect, and the mutual appreciation of differences so that together we can create an environment in which all students can flourish.

**LIBRARY RESOURCES & INFORMATION LITERACY: MAJOR CURRICULUM MODIFICATION**

Please complete for **all** major curriculum modifications. This information will assist the library in planning for new courses/programs.

Consult with your library faculty subject specialist (<http://cityte.ch/dir>) **3 weeks before the proposal deadline**.

**Course proposer:** please complete boxes 1-4. **Library faculty subject specialist:** please complete box 5.

1	<b>Title of proposal</b> <a href="#">new course: MTEC 1202, "Computer Programming for Interactive Media II;" part of a larger proposal titled Emerging Media Technology Program Modification, Phase One</a>	<b>Department/Program</b> <a href="#">Entertainment Technology department, Emerging Media Technology B.Tech program</a>
	<b>Proposed by</b> (include email & phone) <a href="#">Adam Wilson</a> <a href="mailto:awilson@citytech.cuny.edu">awilson@citytech.cuny.edu</a>	<b>Expected date course(s) will be offered</b>  <b># of students : 16</b>

2 **The library cannot purchase reserve textbooks for every course at the college, nor copies for all students. Consult our website (<http://cityte.ch/curriculum>) for articles and ebooks for your courses, or our open educational resources (OER) guide (<http://cityte.ch/oer>). Have you considered using a freely-available OER or an open textbook in this course?**  
[MTEC 1202 only requires open source and free materials.](#)

3 **Beyond the required course materials, are City Tech library resources sufficient for course assignments? If additional resources are needed, please provide format details (e.g. ebook, journal, DVD, etc.), full citation (author, title, publisher, edition, date), price, and product link.**  
[Of the free online resources specified in the syllabus, Eloquent Javascript \(by Marijn Haverbeke\), comes in paper publication as well. This could be placed on reserve in the library for those who prefer to read offline.](#)  
[Online version: https://eloquentjavascript.net/](https://eloquentjavascript.net/)  
[Paper version: https://nostarch.com/ejs3](https://nostarch.com/ejs3)  
Citation:

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[Haverbeke, Marijn. Eloquent Javascript, 3rd edition. \[Place of publication not identified\]: No Starch Press, 2018](#)

- 4 **Library faculty focus on strengthening students' information literacy skills in finding, critically evaluating, and ethically using information. We collaborate on developing assignments and customized instruction and research guides. When this course is offered, how do you plan to consult with the library faculty subject specialist for your area? Please elaborate.**

[This is mostly a practicum in programming. One area that might be helpful is a consultation on plagiarism. While it is usually very easy to identify plagiarism of code between students, it is harder to identify when students can potentially draw from online communities using the same platforms, libraries, and languages. Perhaps there are some resources the library staff could help us identify to combat plagiarism given the target languages and libraries emphasized in this course.](#)

- 5 **Library Faculty Subject Specialist**

[Junior Tidal](#)

**Comments and Recommendations**

[After surveying the collection, I believe that the library may need additional monographs to fully support this course. This includes print and electronic texts related to Github, user interface design, multimedia interfaces, three.js, open source audio, and other related topics, in addition to the texts that Prof. Wilson suggests.](#)

**Date** [08.17.22](#)

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New York City College of Technology, CUNY

## NEW COURSE PROPOSAL FORM, MTEC 3501 Culmination Project Development

This form is used for all new course proposals. Attach this to the [Curriculum Modification Proposal Form](#) and submit as one package as per instructions. Use one New Course Proposal Form for each new course.

<b>Course Title</b>	Culmination Project Development
<b>Proposal Date</b>	8/30/2022 (ENT dept. approval date)
<b>Proposer's Name</b>	Adam Wilson
<b>Course Number</b>	MTEC 3501
<b>Course Credits, Hours</b>	3 classroom hours/week, 6 independent study hours/week
<b>Course Pre / Co-Requisites</b>	Prerequisites: two completed sections of ENT 3320, "Technical Production"
<b>Catalog Course Description</b>	Students begin the process of producing a capstone project, suitable for use as a portfolio item in applications for graduate school or professional employment. Projects may be undertaken individually or in small groups. Students develop their ideas, research prior art, break down proposed work into a sequence of executable components with estimated times-to-completion, iterate through prototypes, and document their work. This course is a prerequisite for ENT 4501, "Culmination Project," in which students finalize and present the work begun in Culmination Project Development. Ideally, students will take the two courses consecutively.
<b>Brief Rationale</b> Provide a concise summary of why this course is important to the department, school or college.	For Emerging Media Technology B.Tech students, MTEC 3501 will take the place of ENT 4430, "Project Management," as a prerequisite for ENT 4501 (currently ENT 4499), "Culmination Project." ENT 4430 contains a proposal writing assignment that dovetails with ENT 4501. MTEC 3501 would expand that assignment to make preparation for Culmination Project, including prototyping of the proposed project, the focus of the entire course. We've observed over the last ten years that students could benefit from more than one semester of devoted to planning and implementing their projects.
<b>CUNY – Course Equivalencies</b> Provide information about equivalent courses within CUNY, if any.	See above.

<b>Intent to Submit as Common Core</b> If this course is intended to fulfill one of the requirements in the common core, then indicate which area.	N/A
<b>For Interdisciplinary Courses:</b> - Date submitted to ID Committee for review - Date ID recommendation received  - Will all sections be offered as ID? Y/N	N/A
<b>Intent to Submit as a Writing Intensive Course</b>	X

Please include all appropriate documentation as indicated in the NEW COURSE PROPOSAL Combine all information into a single document that is included in the Curriculum Modification Form.

**NEW COURSE PROPOSAL CHECK LIST**

Use this checklist to ensure that all required documentation has been included. You may wish to use this checklist as a table of contents within the new course proposal.

<b>Completed NEW COURSE PROPOSAL FORM</b>	
• Title, Number, Credits, Hours, Catalog course description	X
• Brief Rationale	X
• CUNY – Course Equivalencies	X
Completed <a href="#">Library Resources and Information Literacy Form</a>	X
<b>Course Outline</b>	X
Include within the outline the following.	
Hours and Credits for Lecture and Labs If hours exceed mandated Carnegie Hours, then rationale for this	X
Prerequisites/Co- requisites	X
Detailed Course Description	X
Course Specific Learning Outcome and Assessment Tables	
• Discipline Specific	X
• General Education Specific Learning Outcome and Assessment Tables	
Example Weekly Course outline	X
Grade Policy and Procedure	X
Recommended Instructional Materials (Textbooks, lab supplies, etc)	X
Library resources and bibliography	X
<b>Course Need Assessment.</b>	
Describe the need for this course. Include in your statement the following information.	
Target Students who will take this course. Which programs or departments, and how many anticipated? Documentation of student views (if applicable, e.g. non-required elective).	X
Projected headcounts (fall/spring and day/evening) for each new or modified course.	X
If additional physical resources are required (new space, modifications, equipment), description of these requirements. If applicable, Memo or email from the VP for Finance and Administration with written comments regarding additional and/or new facilities, renovations or construction.	N/A
Where does this course overlap with other courses, both within and outside of the department?	X

Does the Department currently have full time faculty qualified to teach this course? If not, then what plans are there to cover this?	X
If needs assessment states that this course is required by an accrediting body, then provide documentation indicating that need.	N/A
<b>Course Design</b>	
Describe how this course is designed.	
Course Context (e.g. required, elective, capstone)	X
Course Structure: how the course will be offered (e.g. lecture, seminar, tutorial, fieldtrip)?	X
Anticipated pedagogical strategies and instructional design (e.g. Group Work, Case Study, Team Project, Lecture)	X
How does this course support Programmatic Learning Outcomes?	X
Is this course designed to be partially or fully online? If so, describe how this benefits students and/or program.	X
<b>Additional Forms for Specific Course Categories</b>	
<a href="#">Interdisciplinary Form</a> (if applicable)	N/A
Interdisciplinary Committee Recommendation (if applicable and if received)* *Recommendation must be received before consideration by full Curriculum Committee	N/A
<a href="#">Common Core (Liberal Arts) Intent to Submit</a> (if applicable)	N/A
Writing Intensive Form if course is intended to be a WIC (under development)	X
If course originated as an experimental course, then results of evaluation plan as developed with director of assessment.	N/A
<b>(Additional materials for Curricular Experiments)</b>	
Plan and process for evaluation developed in consultation with the director of assessment. (Contact Director of Assessment for more information).	N/A
Established Timeline for Curricular Experiment	N/A

## COURSE NEED ASSESSMENT

### Target Students

MTEC 3501 will be required for all students pursuing the B.Tech in Emerging Media Technology.

### Projected Headcounts

Course capacity will be capped at 16, which is standard for the ENT department, and we expect to initially offer the course once a year, in the fall. Ideally, students will take MTEC 3501 in the fall semester of the senior year and ENT 4501 in the spring semester of the senior year.

### **Physical Resources**

One computer lab accommodating 16 students will be sufficient to run the course. The department can also leverage Voorhees Hall for demonstration purposes. The Entertainment Technology department already maintains multiple suitable computer labs in the Voorhees building. Hybrid implementations of the course are also possible without major modification. Some In-person classes will be essential here for demonstration involving peripherals and devices that would be difficult to share virtually.

### **Overlap with Other Courses**

As mentioned in the Brief Rationale section: for Emerging Media Technology B.Tech students, MTEC 3501 will take the place of ENT 4430, "Project Management," as a prerequisite for ENT 4501 (currently ENT 4499), "Culmination Project." ENT 4430 contains a proposal writing assignment that dovetails with ENT 4501. MTEC 3501 would expand that assignment to make preparation for Culmination Project, including prototyping of the proposed project, the focus of the entire course. We've observed over the last ten years that students could benefit from more than one semester of devoted to planning and implementing their projects.

### **Qualified Full-Time Faculty**

We have several qualified full-time faculty members available to teach this course.

## **COURSE DESIGN**

### **Course Context**

As mentioned in the Brief Rationale section, we've observed over the last ten years that students could benefit from having more than one semester devoted to planning and implementing their capstone projects, currently finalized in ENT 4499, "Culmination Project." This course will form a two-semester sequence with ENT 4501 (currently ENT 4499) to address this deficiency.

### **Course Structure**

MTEC 3501 will be a seminar format in which students do a significant amount writing, discussion, and prototyping.



**Anticipated Pedagogical Strategies and Instructional Design**

Students will spend a good deal of time at the beginning of the course researching and preparing a project proposal before diving into a cycle of prototyping, group analysis/written critique, and project modification. This is intended as a writing intensive course, in which students will work on several large writing projects: a formal, researched proposal document, prototype design documents, regular informal writing assignments critiquing one another's designs, and a reflection paper to be authored after completing the sequence of design prototypes. Supplemental readings will be assigned, addressing the iterative design process and strategies for effective criticism.

**Support for Programmatic Learning Outcomes**

This course directly supports all five major Emerging Media Technology program learning outcomes:

1. Attain mastery of one of the following four areas of concentration of the major: Game Design and Interactive Media, Media Computation, Music Technology, or Physical Computing.
2. Complete a technical production portfolio in a concentration area.
3. Attain proficiency in multiple computational, design, and media technologies
4. Attain proficiency in cooperative design and collaborative production.
5. Attain proficiency in production management.

**Course Modality**

MTEC 3501 has the flexibility to be taught as in-person or hybrid course with little modification.

(draft prepared by Prof. Adam Wilson)

### **New York City College of Technology**

Entertainment Technology Department  
186 Jay Street, Room V-203 Brooklyn, NY 11201  
(718) 635-2192 <http://www.entertainmenttechnology.org>

#### **MTEC 3501 Culmination Project Development**

3 classroom hours/week, 6 independent study hours/week

Prerequisites: two completed sections of ENT 3106, "Technical Production," department permission (students must identify project area and engage one or more faculty technical advisors with relevant expertise)

#### **Course Description**

Students begin the process of producing a capstone project, suitable for use as a portfolio item in applications for graduate school or professional employment. Projects may be undertaken individually or in small groups. Students develop their ideas, research prior art, break down proposed work into a sequence of executable components with estimated times-to-completion, iterate through prototypes, and document their work. This course is a prerequisite for ENT 3320, "Culmination Project," in which students finalize and present the work begun in Culmination Project Development. Ideally, students will take the two courses contiguously.

#### **Learning Outcomes**

<b>For the successful completion of this course, a student should be able to:</b>	<b>Evaluation methods:</b>
Employ industry standard brainstorming and ideation techniques, both alone and in groups.	Students will practice iterative design and organizational methodologies such as Agile; each project iteration will be subjected to guided, constructive group critique.
Form good habits around design documentation.	Students will regularly present design documents related to the implementation process of their projects as well as documentation created for demonstration purposes.
Give and receive feedback on creative project ideas.	Students will participate in regular group critique, both verbal and written.
Execute precedent research	Students will investigate and cite prior art in their project proposals.

#### **General Education Learning Outcomes**

<b>For the successful completion of this course, a student should be able to:</b>	<b>Evaluation methods:</b>
Use creativity to solve problems	Creative problem solving is baked into the iterative design and critique cycle. Students will regularly present solutions to problems that arise naturally in the attempt to realize a creative vision, and will also tackle problems that arise in response to group critique.
Communicate using written, oral, and visual means	Students will deliver a written project proposal, give multiple demonstrations of their project prototypes, and deliver verbal and written group critiques.

### Graded Assignments

Project proposal, including detailed description, required resources (equipment, personal, technical research materials, etc.), process methodology, timeline, and deliverables/deliverable distribution targets	16%
Project prototype	20%
Prototype demonstrations	16%
Project design documentation	16%
Written critiques of colleagues' prototypes	16%
Project reflection paper	16%

### Selected Instructional Materials

Lee, N. (2014). Getting on the Billboard Charts: Music Production as Agile Software Development. In: Lee, N. (eds) Digital Da Vinci. Springer, New York, NY.  
[https://doi.org/10.1007/978-1-4939-0536-2\\_2](https://doi.org/10.1007/978-1-4939-0536-2_2)

Mariani, Ilaria and Ackermann, Judith. "Fun By Design: The Game Design Activity and Its Iterative Process as (Playful) Learning Practices" *Conjunctions*, vol.3, no.1, 2016, pp.1-20. <https://doi.org/10.7146/tjcp.v3i1.23643>

Sawyer, R. Keith. 'The iterative and improvisational nature of the creative process.' *Journal of Creativity* 31 (2021): 100002. Web.

Wynn, David, and Claudia Eckert. 'Perspectives on iteration in design and development.' *Research in Engineering Design* 28 (04 2017): n. pag. Web.

Sharp, John, Colleen Macklin, Steven Davis, Yu J. Chen, Tuba Ozkan, and Carla M. Pitarch. *Iterate: Ten Lessons in Design and Failure*. 2019. Internet resource.

Lerman, Liz, and John Borstel. Liz Lerman's Critical Response Process: A Method for Getting Useful Feedback on Anything You Make, from Dance to Dessert. 2003. Print.  
OR

Hauptle, Carroll. "Liberating Dialogue in Peer Review: Applying Liz Lerman's Critical Response Process to the Writing Classroom." Issues in Writing, 2006, Vol.16 (2), p.162.

### **Weekly Topics**

#### Week 1

Class topics:

- Students verbally present general project ideas and directions.
- Lecture on precedent research; strategies for researching prior art. What has been done that is similar to your proposed project? How will your work be distinguishable from or improve upon related work?
- Lecture: Project proposal outline, including examples of effective proposals from targeting program concentration areas.

Assignments:

- Complete precedent research in the context of your project; write the first draft of the detailed description and resources sections of the project proposal. Include citations of related work.
- Obtain feedback on your draft from at least two faculty with relevant expertise.
- Selected reading on iterative design.

#### Week 2

Class topics:

- Class critique of description and resource section drafts. Students present their proposals and feedback from technical advisors.
- Lecture: Introduction to iterative design. Examples of the iterative design process applied to projects in program concentration areas.
- Begin to identify and outline an iterative design process around your project deliverables.

Assignments:

- Finalize the detailed description and resource sections of the project proposal.
- Draft the methodology section of the proposal, detailing the iterative process you'll employ to quickly build and re-build progressively more detailed versions of your project.
- Obtain feedback on your methodology section from at least two faculty with relevant expertise.
- Selected reading on Agile methodology.

#### Week 3

Class topics:

- Class critique of proposal methodology drafts. Students present their methodology and associated feedback from technical advisors.

- Lecture on continuous documentation and versioning; how to document each iteration (photos, videos, code, etc.) and organize/maintain versioned documents for the purposes of (a) refining and templating your process for future projects and (b) retaining useful snippets for portfolio teasers and demonstration purposes.
- Lecture on organizing the work for individual vs. group projects. Introduce at the “Agile” methodology.

Assignments:

- Finalize the methodology section of the proposal.
- Attempt first prototype iteration and capture associated documentation.
- Selected reading on delivering effective feedback/critique

Week 4

Class topics:

- Students demonstrate and verbally critique prototypes and documentation.
- Lecture: delivering productive criticism.

Assignments:

- Write up formal critiques of project prototypes assigned by the professor (ideally, each student will write a critique of each project by the end of iteration/demonstration cycles).

Week 5

Class topics:

- Guest lecture: problems and methods related to iterative software development (relevant for students working on projects associated with the Media Computation)
- Students share formal written critiques and discuss potential responses.

Assignments:

- Execute the next prototype iteration, taking into account suggestions for improvement, and capture associated documentation.

Week 6

Class topics:

- Students demonstrate and verbally critique prototypes and documentation.

Assignments:

- Write up formal critiques of project prototypes assigned by the professor.

Week 7

Class topics:

- Guest lecture: problems and methods related to iterative game development (relevant for students working on projects associated with the Game Design and Interactive Media concentration)
- Students share formal written critiques and discuss potential responses.

Assignments:

- Execute the next prototype iteration, taking into account suggestions for improvement, and capture associated documentation.

#### Week 8

##### Class topics:

- Students demonstrate and verbally critique prototypes and documentation.

##### Assignments:

- Write up formal critiques of project prototypes assigned by the professor.

#### Week 9

##### Class topics:

- Guest lecture: problems and methods related to iterative production of electronic music and interactive electronic music software (relevant for students working on projects associated with the concentration Music Technology concentration, potentially overlapping with Media Computation)
- Students share formal written critiques and discuss potential responses.

##### Assignments:

- Execute the next prototype iteration, taking into account suggestions for improvement, and capture associated documentation.

#### Week 10

##### Class topics:

- Students demonstrate and verbally critique prototypes and documentation.

##### Assignments:

- Write up formal critiques of project prototypes assigned by the professor.

#### Week 11

##### Class topics:

- Guest lecture: problems and methods related to iterative production of interactive installations (relevant for students working on projects associated with the concentration Physical Computing concentration, potentially overlapping with the other three concentrations)
- Students share formal written critiques and discuss potential responses.

##### Assignments:

- Execute the next prototype iteration, taking into account suggestions for improvement, and capture associated documentation.

#### Week 12

##### Class topics:

- Students demonstrate and verbally critique prototypes and documentation.

##### Assignments:

- Write up formal critiques of project prototypes assigned by the professor.

#### Week 13

##### Class topics:

- Discussion of self-evaluation and reflection assignment. What have you learned in terms process, scoping, technical skills, collaboration, etc.? What problems did you encounter and how did you solve them? What has to be done/improved in terms of both process and product?
- Establishing milestones for the subsequent Culmination Project course based on current state of completion.

#### Assignments:

- Reflection paper.
- Add calendar of projected milestones to proposal.
- Complete the final prototype iteration for the semester.

#### Week 14

##### Class topics:

- Students present final project iterations to the class and a panel of at least three faculty technical advisors. Extended discussion and critique around each project and the related proposal, focused on directions for refinement and deployment during the following Culmination Project course.

#### Week 15

##### Class topics:

- Continuation of final project presentations.

#### **Grade Policy and Procedure**

##### Email

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##### Attendance

Attendance is expected at every class meeting. Much of the course involves participation in group critique, which cannot be undertaken individually outside of class.

##### Academic Integrity

Students and all others who work with information, ideas, texts, images, music, inventions, and other intellectual property owe their audience and sources accuracy and honesty in using, crediting, and citing sources. As a community of intellectual and professional workers, the College recognizes its responsibility for providing instruction in information literacy and academic integrity, offering models of good practice, and responding vigilantly and appropriately to infractions of academic integrity. Accordingly, academic dishonesty is prohibited in The City University of New York and at New York City College of Technology and is punishable by penalties, including failing grades, suspension, and expulsion. The complete text of the College policy on Academic Integrity may be found in the catalog.

##### Grading/Deadlines

Students will receive qualitative written and verbal feedback from the professor and other students in the class on all aspects of the project and related

documents/activities. The extent to which each post-critique iteration of the proposal, prototype, and related documents shows thoughtful consideration and incorporation of agreed-upon changes will determine the amount of credit received.

Deadlines and attendance must be observed, as there may not be room to repeat a missed presentation; missing a presentation day or deadline can result in a loss of credit for the affected assignment.

Entertainment Technology Department Commitment to Student Diversity

This course welcomes students from all backgrounds, experiences, and perspectives. In accordance with the City Tech and CUNY missions, this course intends to provide an atmosphere of inclusion, respect, and the mutual appreciation of differences so that together we can create an environment in which all students can flourish.



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**Course proposer:** please complete boxes 1-4. **Library faculty subject specialist:** please complete box 5.

<b>1 Title of proposal</b> <a href="#">new course: MTEC 3501, "Culmination Project Development;" part of a larger proposal titled Emerging Media Technology Program Modification, Phase One</a>	<b>Department/Program</b> <a href="#">Entertainment Technology department, Emerging Media Technology B.Tech program</a>
<b>Proposed by</b> (include email & phone) <a href="#">Adam Wilson</a> <a href="mailto:awilson@citytech.cuny.edu">awilson@citytech.cuny.edu</a>	<b>Expected date course(s) will be offered</b>  <b># of students : 16</b>

**2 The library cannot purchase reserve textbooks for every course at the college, nor copies for all students. Consult our website (<http://cityte.ch/curriculum>) for articles and ebooks for your courses, or our open educational resources (OER) guide (<http://cityte.ch/oer>). Have you considered using a freely-available OER or an open textbook in this course?**

[The following articles are accessible through journals the library has subscribed to:](#)

[Mariani, Ilaria and Ackermann, Judith. "Fun By Design: The Game Design Activity and Its Iterative Process as \(Playful\) Learning Practices" Conjunctions, vol.3, no.1, 2016, pp.1-20. <https://doi.org/10.7146/tjcp.v3i1.23643>](#)

[Sawyer, R. Keith. 'The iterative and improvisational nature of the creative process.' Journal of Creativity 31 \(2021\): 100002. Web.](#)

[Wynn, David, and Claudia Eckert. 'Perspectives on iteration in design and development.' Research in Engineering Design 28 \(04 2017\): n. pag. Web.](#)

[Hauptle, Carroll. "Liberating Dialogue in Peer Review: Applying Liz Lerman's Critical Response Process to the Writing Classroom." Issues in Writing, 2006, Vol.16 \(2\), p.162.](#)

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- 3 Beyond the required course materials, are City Tech library resources sufficient for course assignments? If additional resources are needed, please provide format details (e.g. ebook, journal, DVD, etc.), full citation (author, title, publisher, edition, date), price, and product link.**

The following books/chapters would be nice to have on reserve, but we can pivot to similar texts if these are not available:

Lee, N. (2014). Getting on the Billboard Charts: Music Production as Agile Software Development. In: Lee, N. (eds) Digital Da Vinci. Springer, New York, NY. [https://doi.org/10.1007/978-1-4939-0536-2\\_2](https://doi.org/10.1007/978-1-4939-0536-2_2)

Sharp, John, Colleen Macklin, Steven Davis, Yu J. Chen, Tuba Ozkan, and Carla M. Pitarch. Iterate: Ten Lessons in Design and Failure. 2019. Internet resource.

Lerman, Liz, and John Borstel. Liz Lerman's Critical Response Process: A Method for Getting Useful Feedback on Anything You Make, from Dance to Dessert. 2003. Print.

- 4 Library faculty focus on strengthening students' information literacy skills in finding, critically evaluating, and ethically using information. We collaborate on developing assignments and customized instruction and research guides. When this course is offered, how do you plan to consult with the library faculty subject specialist for your area? Please elaborate.**

While many of the above texts provide insight into iterative design applied to software and game development, it would be good to identify more articles that address iterative design in our other program concentration areas (music technology and physical computing/interactive installation).

- 5 Library Faculty Subject Specialist Junior**

Tidal \_\_\_\_\_ Junior Tidal

**Comments and Recommendations**

After surveying the collection, I believe that the library can adequately support this course. Upon course approval, I would encourage that the library acquire books on creative group projects, project management, iterative development, and other related monographs on the topic.

After surveying the collection, I believe that the library can adequately support this course. The library has access to several electronic books pertaining to

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p5.js. However, I would suggest that the library add print copies of the materials that Prof. Berkey recommends to the library collection, pending course approval. I would also recommend that the library acquires materials that address inclusive and accessible coding.

I also believe that the library collection could utilize more books and materials that address plagiarism in programming.

**Date** 08.23.2022-08.17.22

New York City College of Technology, CUNY

## NEW COURSE PROPOSAL FORM – MTEC 4502 Career and Portfolio Seminar

This form is used for all new course proposals. Attach this to the [Curriculum Modification Proposal Form](#) and submit as one package as per instructions. Use one New Course Proposal Form for each new course.

<b>Course Title</b>	Career and Portfolio Seminar
<b>Proposal Date</b>	8/30/2022 (ENT dept. approval date)
<b>Proposer's Name</b>	Adam Wilson
<b>Course Number</b>	MTEC 4502
<b>Course Credits, Hours</b>	3 credits, 3 class hours
<b>Course Pre / Co-Requisites</b>	Pre- or Corequisite: ENT 4501, "Culmination Project"
<b>Catalog Course Description</b>	Prepares students for the transition from academic life to the professional world. Topics covered include selection and presentation of portfolio items, resumé preparation, interviewing skills, budgeting and financial concerns, and how to navigate a first job.
<b>Brief Rationale</b> Provide a concise summary of why this course is important to the department, school or college.	MTEC 4502 is similar to ENT 4498, "Career Seminar," which students in both the MTEC and ENT programs are currently required to take. MTEC 4502 will take the place of ENT 4498 for MTEC students. While ENT 4498 is 1 credit, MTEC 4502 will be 3 credits. This expansion is due to the addition of a significant portfolio development component. For MTEC students, the portfolio serves as a prerequisite for entrance into related professional work and graduate study programs.
<b>CUNY – Course Equivalencies</b> Provide information about equivalent courses within CUNY, if any.	See above.
<b>Intent to Submit as Common Core</b> If this course is intended to fulfill one of the requirements in the common core, then indicate which area.	N/A
<b>For Interdisciplinary Courses:</b> - Date submitted to ID Committee for review - Date ID recommendation received	N/A

- Will all sections be offered as ID? Y/N	
<b>Intent to Submit as a Writing Intensive Course</b>	N/A

Please include all appropriate documentation as indicated in the NEW COURSE PROPOSAL Combine all information into a single document that is included in the Curriculum Modification Form.

**NEW COURSE PROPOSAL CHECK LIST**

Use this checklist to ensure that all required documentation has been included. You may wish to use this checklist as a table of contents within the new course proposal.

<b>Completed NEW COURSE PROPOSAL FORM</b>	
• Title, Number, Credits, Hours, Catalog course description	X
• Brief Rationale	X
• CUNY – Course Equivalencies	X
Completed <a href="#">Library Resources and Information Literacy Form</a>	X
<b>Course Outline</b>	X
Include within the outline the following.	
Hours and Credits for Lecture and Labs	X
If hours exceed mandated Carnegie Hours, then rationale for this	
Prerequisites/Co- requisites	X
Detailed Course Description	X
Course Specific Learning Outcome and Assessment Tables	
• Discipline Specific	X
• General Education Specific Learning Outcome and Assessment Tables	
Example Weekly Course outline	X
Grade Policy and Procedure	X
Recommended Instructional Materials (Textbooks, lab supplies, etc)	X
Library resources and bibliography	X
<b>Course Need Assessment.</b>	
Describe the need for this course. Include in your statement the following information.	
Target Students who will take this course. Which programs or departments, and how many anticipated?	X
Documentation of student views (if applicable, e.g. non-required elective).	
Projected headcounts (fall/spring and day/evening) for each new or modified course.	X
If additional physical resources are required (new space, modifications, equipment), description of these requirements. If applicable, Memo or email from the VP for Finance and Administration with written comments regarding additional and/or new facilities, renovations or construction.	N/A
Where does this course overlap with other courses, both within and outside of the department?	X

Does the Department currently have full time faculty qualified to teach this course? If not, then what plans are there to cover this?	X
If needs assessment states that this course is required by an accrediting body, then provide documentation indicating that need.	N/A
<b>Course Design</b>	
Describe how this course is designed.	
Course Context (e.g. required, elective, capstone)	X
Course Structure: how the course will be offered (e.g. lecture, seminar, tutorial, fieldtrip)?	X
Anticipated pedagogical strategies and instructional design (e.g. Group Work, Case Study, Team Project, Lecture)	X
How does this course support Programmatic Learning Outcomes?	X
Is this course designed to be partially or fully online? If so, describe how this benefits students and/or program.	X
<b>Additional Forms for Specific Course Categories</b>	
<a href="#">Interdisciplinary Form</a> (if applicable)	N/A
Interdisciplinary Committee Recommendation (if applicable and if received)* *Recommendation must be received before consideration by full Curriculum Committee	N/A
<a href="#">Common Core (Liberal Arts) Intent to Submit</a> (if applicable)	N/A
Writing Intensive Form if course is intended to be a WIC (under development)	N/A
If course originated as an experimental course, then results of evaluation plan as developed with director of assessment.	N/A
<b>(Additional materials for Curricular Experiments)</b>	
Plan and process for evaluation developed in consultation with the director of assessment. (Contact Director of Assessment for more information).	N/A
Established Timeline for Curricular Experiment	N/A

## COURSE NEED ASSESSMENT

### Target Students

MTEC 4502 will be required for all students pursuing the B.Tech in Emerging Media Technology.

### Projected Headcounts

Course capacity will be capped at 16, which is standard for the ENT department, and we expect to offer the course twice a year – the same frequency with which we offer ENT 4498, “Career Seminar.”

### **Physical Resources**

One computer lab accommodating 16 students will be sufficient to run the course. The Entertainment Technology department already maintains multiple suitable computer labs in the Voorhees building. Online and hybrid implementations of the course are also possible without modification. For students who may have difficulty complying with this requirement, the department maintains a number of floating laptops which can be checked out on campus.

### **Overlap with Other Courses**

As mentioned in the rationale, MTEC 4502 is similar to ENT 4498, “Career Seminar,” which students in both the MTEC and ENT programs are currently required to take. MTEC 4502 will take the place of ENT 4498 for MTEC students. While ENT 4498 is 1 credit, MTEC 4502 will be 3 credits. This expansion is due to the addition of a significant portfolio development component. For MTEC students, the portfolio serves as a prerequisite for entrance into related professional work and graduate study programs.

### **Qualified Full-Time Faculty**

We have several qualified full-time faculty members available to teach this course.

## **COURSE DESIGN**

### **Course Context**

This is a senior-level course. It should ideally be undertaken by students have completed or are currently completing Culmination Project (ENT 4499). Students at this stage of progress through the degree have also typically taken some or all of the required iterations of our collaborative project course, ENT 3320, “Technical Production.” Output from “Culmination Project,” combined with contributions to “ Technical Production” projects, should provide each student with sufficient material to develop an entry-level portfolio of work.

### **Course Structure**

MTEC 4502 will be a seminar focused on discussion and critique of portfolio and related work and graduate study application materials.

### **Anticipated Pedagogical Strategies and Instructional Design**



Students will develop a portfolio from existing work. They will also go through the process of producing application materials (letter, CV, etc.) for a job in a desired field. For each iteration of each element in their applications, students will present their work and receive constructive criticism to apply in subsequent iterations. Discussions will be interspersed with short lectures on best practices, supplemented with readings.

**Support for Programmatic Learning Outcomes**

This course directly supports one of the five major Emerging Media Technology program learning outcomes:

Complete a technical production portfolio in their concentration area.

**Course Modality**

MTEC 4502 has the flexibility to be taught as in-person, online, or hybrid course with little-to-no modification.

(draft prepared by Prof. Adam Wilson)

### **New York City College of Technology**

Entertainment Technology Department  
186 Jay Street, Room V-203 Brooklyn, NY 11201  
(718) 635-2192 <http://www.entertainmenttechnology.org>

### **MTEC 4502 Career and Portfolio Seminar**

3 classroom hours/week

Pre- or Corequisite: ENT 4501, "Culmination Project"

#### **Course Description**

Prepares students for the transition from academic life to the professional world. Topics covered include selection and presentation of portfolio items, resumé preparation, interviewing skills, budgeting and financial concerns, and how to navigate a first job.

#### **Learning Outcomes**

<b>For the successful completion of this course, a student should be able to:</b>	<b>Evaluation methods:</b>
Establish personal goals	Students will write an essay reflecting on their professional goals. This document will be updated as students do research and interview professionals in the field.
Prepare a portfolio	Students will select portfolio items and design a portfolio web presence aggregating their work across suitable platforms. Appropriateness of portfolio items and effectiveness of presentation will be subjects of critique.
Prepare a resume and cover letter	Each student will write and receive critique on a resumé and a cover letter both tailored to a current job offer in the field.

#### **General Education Learning Outcomes**

<b>For the successful completion of this course, a student should be able to:</b>	<b>Evaluation methods:</b>
Communicate in diverse settings and groups	Discussion/critique of assigned materials: personal essay, portfolio, CV, cover letter, budget
Acquire tools for lifelong learning	Students match skills to desired jobs, discover deficiencies to overcome, and develop materials to further professional aspirations.

**Graded Assignments**

Personal essay	10%
Curriculum vitae	10%
Cover letter	10%
Personal budget	10%
Online portfolio	60%

**Selected Reading**

Lerman, Liz, and John Borstel. Liz Lerman's Critical Response Process: A Method for Getting Useful Feedback on Anything You Make, from Dance to Dessert. 2003. Print.  
OR

Hauptle, Carroll. "Liberating Dialogue in Peer Review: Applying Liz Lerman's Critical Response Process to the Writing Classroom." *Issues in Writing*, 2006, Vol.16 (2), p.162.

Scolere L. Brand yourself, design your future: Portfolio-building in the social media age. *New Media & Society*. 2019;21(9):1891-1909. doi:[10.1177/1461444819833066](https://doi.org/10.1177/1461444819833066)

Risavy, Stephen. "The Resume Research Literature: Where Have We Been and Where Should We Go Next?" *Journal of Educational and Developmental Psychology* 7 (02 2017): 169. Web.

Paredes, Arielle. "How Job Applicants Try to Hack Resumé-Reading Software." *Wired*, 16 February 2022, <https://www.wired.com/story/job-applicants-hack-resume-reading-software/>.

**Weekly Topics**Week 1

Class topics:

- Charting a career path

Assignments:

- Personal essay draft: where are you headed, what tools and knowledge do you think you'll need, and which of those do you believe have you acquired at a sufficient level of expertise?

Week 2

Class topics:

- We don't know what we don't know: researching and identifying required skills and milestones necessary to reach your career goals
- Essay presentation and discussion

Assignments:

- Interview someone who has taken a career path that overlaps with your proposed path; share your personal essay with your interviewee to discover what gaps, if any, exists between your expectations and reality

- Amend your personal essay, taking into consideration the outcome of your interview

### Week 3

#### Class topics:

- Presentation and discussion of amended essays
- Methodologies for seeking jobs or entrance to advanced degree programs: matching skills and desires with opportunities

#### Assignments:

- Identify five jobs and/or graduate programs to apply to. What requirements do I meet, partially or in full, and where do I need to expand my skillset?

### Week 4

#### Class topics:

- Developing a concise and effective resumé

#### Assignments:

- First draft of your resumé, tailored to address the requirements of one of the five jobs or programs you've identified

### Week 5

#### Class topics:

- Resumé presentations and critiques
- Identification of appropriate portfolio items – quality and presentation format – and associated platforms for sharing various media in a professional context

#### Assignments:

- Update your resumé
- Gather items for your portfolio (in-progress and complete) that you have produced inside and outside of class (Technical Production projects, Culmination project, independent development, contributions to projects of a job or internship, etc.)

### Week 6

#### Class topics:

- Discussion: evaluating the fitness of gathered portfolio items
- Examples of well-done online portfolios in a variety of relevant fields
- Presentation and discussion of updated resumé

#### Assignments:

- Find five portfolios online for people at your career level in your field

### Week 7

#### Class topics:

- Implementation details: building your online portfolio and professional presence
- Overview and discussion of collected online portfolios

#### Assignments:

- Deploy your portfolio items online and develop a draft website

### Week 8

#### Class topics:

- Portfolio critiques

#### Assignments:

- Online portfolio updates based on in-class critique

### Week 9

#### Class topics:

- Portfolio critiques continued

#### Assignments:

- Online portfolio updates based on in-class critique

### Week 10

#### Class topics:

- Final portfolio presentations
- How to write an effective cover letter

#### Assignments:

- Draft of cover letter tailored to address the requirements of one of the five jobs or programs you've identified

### Week 11

#### Class topics:

- Present and discuss cover letter drafts
- Workplace expectations, advancement and promotion, professional ethics

#### Assignments:

- Update your cover letter

### Week 12

#### Class topics:

- Presentation of updated cover letters
- Personal budget; taking advantage of salary and job benefits to help meet retirement income and other life goals

#### Assignments:

- Draft a budget, taking into account necessities as well as personal preferences such as where you intend to reside

### Week 13

#### Class topics:

- Discussion and critique of proposed budgets
- Interview topics and practice interview questions

#### Assignments:

- Update your budget based on in-class critique

### Week 14

#### Class topics:

- Presentation of updated budgets
- Mock interviews; questions will reference the requirements described in the job posting you used as a target for your resumé and cover letter

### Week 15

#### Class topics:

- Continue mock interviews.

### **Grade Policy and Procedure**

#### Email

Students are required to use official City Tech email for correspondence.

#### Attendance

Attendance is expected at every class meeting. Much of the course involves participation in group critique, which cannot be undertaken individually outside of class.

#### Academic Integrity

Students and all others who work with information, ideas, texts, images, music, inventions, and other intellectual property owe their audience and sources accuracy and honesty in using, crediting, and citing sources. As a community of intellectual and professional workers, the College recognizes its responsibility for providing instruction in information literacy and academic integrity, offering models of good practice, and responding vigilantly and appropriately to infractions of academic integrity. Accordingly, academic dishonesty is prohibited in The City University of New York and at New York City College of Technology and is punishable by penalties, including failing grades, suspension, and expulsion. The complete text of the College policy on Academic Integrity may be found in the catalog.

#### Grading/Deadlines

Students will receive qualitative written and verbal feedback from the professor and other students in the class on the personal essay, portfolio, resumé, cover letter and budget. The extent to which each post-critique amendment of documents shows thoughtful consideration and incorporation of agreed-upon changes will determine the amount of credit received.

Deadlines and attendance must be observed, as there may not be room to repeat a missed presentation; missing a presentation day or deadline can result in a loss of credit for the affected assignment.

#### Entertainment Technology Department Commitment to Student Diversity

This course welcomes students from all backgrounds, experiences, and perspectives. In accordance with the City Tech and CUNY missions, this course intends to provide an

atmosphere of inclusion, respect, and the mutual appreciation of differences so that together we can create an environment in which all students can flourish.

**LIBRARY RESOURCES & INFORMATION LITERACY: MAJOR CURRICULUM MODIFICATION**

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Please complete for **all** major curriculum modifications. This information will assist the library in planning for new courses/programs.

Consult with your library faculty subject specialist (<http://cityte.ch/dir>) **3 weeks before the proposal deadline.**

**Course proposer:** please complete boxes 1-4. **Library faculty subject specialist:** please complete box 5.

<b>1 Title of proposal</b> <a href="#">new course: MTEC 4502, "Career and Portfolio Seminar;" part of a larger proposal titled Emerging Media Technology Program Modification, Phase One</a>	<b>Department/Program</b> <a href="#">Entertainment Technology department, Emerging Media Technology B.Tech program</a>
<b>Proposed by</b> (include email & phone) <a href="#">Adam Wilson</a> <a href="mailto:awilson@citytech.cuny.edu">awilson@citytech.cuny.edu</a>	<b>Expected date course(s) will be offered</b>  <b># of students : 16</b>

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<b>2 The library cannot purchase reserve textbooks for every course at the college, nor copies for all students. Consult our website (<a href="http://cityte.ch/curriculum">http://cityte.ch/curriculum</a>) for articles and ebooks for your courses, or our open educational resources (OER) guide (<a href="http://cityte.ch/oer">http://cityte.ch/oer</a>). Have you considered using a freely-available OER or an open textbook in this course?</b> <b>The following articles appear to be accessible freely or through the library:</b>  <a href="#">Risavy, Stephen. "The Resume Research Literature: Where Have We Been and Where Should We Go Next?" <i>Journal of Educational and Developmental Psychology</i> 7 (02 2017): 169. Web.</a>  <a href="#">Paredes, Arielle. "How Job Applicants Try to Hack Resumé-Reading Software." <i>Wired</i>, 16 February 2022, <a href="https://www.wired.com/story/job-applicants-hack-resume-reading-software/">https://www.wired.com/story/job-applicants-hack-resume-reading-software/</a>.</a>  <a href="#">Hauptle, Carroll. "Liberating Dialogue in Peer Review: Applying Liz Lerman's Critical Response Process to the Writing Classroom." <i>Issues in Writing</i>, 2006, Vol.16 (2), p.162.</a>
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- 3 **Beyond the required course materials, are City Tech library resources sufficient for course assignments? If additional resources are needed, please provide format details (e.g. ebook, journal, DVD, etc.), full citation (author, title, publisher, edition, date), price, and product link.**

[We might need some assistance obtaining online copies of the following, if possible, or similar alternative resources:](#)

[Lerman, Liz, and John Borstel. Liz Lerman's Critical Response Process: A Method for Getting Useful Feedback on Anything You Make, from Dance to Dessert. 2003. Print.](#)

[Scolere L. Brand yourself, design your future: Portfolio-building in the social media age. \*New Media & Society\*. 2019;21\(9\):1891-1909. doi:10.1177/1461444819833066](#)

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- 4 **Library faculty focus on strengthening students' information literacy skills in finding, critically evaluating, and ethically using information. We collaborate on developing assignments and customized instruction and research guides. When this course is offered, how do you plan to consult with the library faculty subject specialist for your area? Please elaborate.**

[Help identifying further student resumé-writing resources \(workshops, etc.\), through the library or other College or CUNY institutions, would be useful.](#)

- 5 **Library Faculty Subject Specialist Junior**

Tidal Junior Tidal

**Comments and Recommendations**

After surveying the library's collection, I feel that the library can adequately support this course. Pending course approval, I would request the library acquire monographs related to online portfolio building, resume writing, and handbooks related to the media professions. It may also be helpful to students to have access to online resources, such as websites and electronic books in relation to the course.

~~After surveying the collection, I believe that the library can adequately support this course. The library has access to several electronic books pertaining to p5.js. However, I would suggest that the library add print copies of the materials that Prof. Berkoy recommends to the library collection, pending~~

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~~course approval. I would also recommend that the library acquires materials that address inclusive and accessible coding.~~

~~I also believe that the library collection could utilize more books and materials that address plagiarism in programming.~~

~~Date 08.23.22-08.17.22~~

Consultation with Affected Departments

Correspondence with MAT Department

## Re: requesting MAT support for MTEC curriculum change

Jonathan Natov

Mon 8/15/2022 3:30 PM

To: Adam J Wilson <AWilson@citytech.cuny.edu>;

Cc: John McCullough <JMcCullough@citytech.cuny.edu>;

Dear Professor Wilson,

This is to express my support for adding MTECH 1202 as an alternative prerequisite to MAT 2440.

Wishing you success in getting MTECH 1202 approved,

Jonathan

Professor Jonathan Natov  
Mathematics Department Chair, N711  
New York City College of Technology  
[300 Jay Street, Brooklyn NY 11201](https://www.citytech.cuny.edu/300-Jay-Street-Brooklyn-NY-11201)

---

**From:** Adam J Wilson  
**Sent:** Sunday, July 31, 2022 6:17:35 PM  
**To:** Jonathan Natov  
**Cc:** John McCullough  
**Subject:** requesting MAT support for MTEC curriculum change

Hi Jonathan,

I'm writing to you about an Emerging Media Technology program curriculum proposal we plan to submit in fall 2022.

One of our concentrations, Media Computation, requires students to take MAT 2440, "Discrete Structures and Algorithms."

We've found this course to be very useful, and, as part of an initiative to give students in all of our concentrations better programming foundations, our proposal would make MAT 2440 a requirement for everyone enrolled in the Emerging Media Technology bachelor's degree.

Normally our students take CST 1201, "Programming Fundamentals," as the computer science prerequisite for MAT 2440, but we are planning to replace that course with an internal programming course: MTEC 1202, "Computer Programming for Interactive Media (2)."

We are hoping you'll support adding our new course as a prerequisite alternative to CST 1201/CST 2403/MAT 1630 for MAT 2440.

---

Thursday, October 27, 2022 at 13:45:13 Eastern Daylight Time

**Subject:** Re: requesting CST support for MTEC curriculum change  
**Date:** Thursday, October 27, 2022 at 1:19:17 PM Eastern Daylight Time  
**From:** Ashwin Satyanarayana  
**To:** Adam J Wilson  
**CC:** John McCullough

Hello Adam,

After reviewing the proposal and meeting with Adam (over Zoom), the CST department fully supports the establishment of the two new courses MTEC 1201 and MTEC 1202. The two new courses are geared towards helping MTEC students better prepare themselves for JavaScript. The CST 1101 and CST 1201 are more focused on Python and Java. With this rationale in mind, the CST department has no objections to this proposal.

Best Regards,

Ashwin

Ashwin Satyanarayana, Ph.D.  
Associate Professor / Department Chair  
Department of Computer Systems Technology,  
New York City College of Technology  
300 Jay Street - Namm 913, Brooklyn, NY 11201  
Ph: (718) 260-5161

## Department Minutes Indicating Approval of Curriculum Changes



**NEW YORK CITY COLLEGE OF TECHNOLOGY**

The City University of New York  
 300 Jay Street □ Brooklyn, NY 11201-2983  
 Entertainment Technology Department V203  
 (718) 260-5588 • Fax: (718) 260-5591

**MEETING MEMORANDUM (draft)**

Issue Date: August 30, 2022  
 To: All Attendees  
 Department: Entertainment Technology  
 Meeting Date: August 30, 2022@ 10:00 AM  
 Location: Virtual

**Attendee Name**

John McCullough, (Chair), Allison Berkoy, Rudy Guerrero, John Robinson, John Huntington, Dr. David Smith, Sue Brandt, Adam Wilson, Hosni Auji.  
 Absent: Ryoya Terao

**Department Representing** Entertainment Technology  
**Prepared by:** Margarette Medina

	Item Description	Status	Opened	Due	Responsible
1	<b>Enrollment</b> ENT- Mtec Department Meeting JM discussed enrollment status. All 3 ENT intro section are full We only got on section of Mtec1003 running Overall college is doing pretty good in enrollment Tasha Road is handling enrollment management now.	Open	8/30/22		John McCullough Faculty
2	<b>Connect Day</b> Allison discussed Connect Day due on Thursday September 1, 2022 Everyone who plan to attend should send email stating what they will be doing on the event	Open	8/30/22	9/01/22	Allison Berkoy
	<b>Curriculum Proposals</b> <u>ENT Proposal</u> McCullough discussed the revised ENT curriculum proposal. Course number changes – There are some pre-req changes to video, lighting and sound CST1101 is required for Mtec1201? Maybe will be elective. JR think that ENT2350 Lighting Controls should be a prerequisite for ENT3350 Lighting Production Techniques. All agreed with ENT proposal  <u>Mtec proposal</u> Adam discussed the revised Mtec proposal Mtec 1201/1202 – Computer Programming for Emerging Media Adam got all number changing update <b>ENT3106</b> – Technical Production (3cr) <b>Mtec3501</b> – Culmination Project Development <b>Mtec4502</b> – Career and Portfolio Seminar ( <b>ENT4501</b> – Culmination Project David suggests that to shorten the course description Adam accepted all suggested changes. Will modify language for laptop proposal All ENT members accepted Mtec proposal	Open	8/30/22	May 2023	John Robinson  Adam Wilson