**NEW YORK CITY COLLEGE OF TECHNOLOGY**

THE CITY UNIVERSITY OF NEW YORK

EMERGING MEDIA TECHNOLOGY BTech

**MAJOR CURRICULUM MODIFICATION PROPOSAL**

2017-04-28 – edited FINAL

**Kevin Patton, PhD**

**Director of Emerging Media Technologies**

Prepared by: Professors Patton, Scott, Wilson, Boisvert

**DEPARTMENT OF ENTERTAINMENT TECHNOLOGY**

**EMERGING MEDIA TECHNOLOGIES PROGRAM**

**Major Curriculum Modification Proposal**

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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](http://openlab.citytech.cuny.edu/collegecouncil/files/2014/08/2013-10-09-Proposal_Classification_Chart.pdf) for information about what types of modifications are major or minor. Completed proposals should be emailed to the Curriculum Committee chair.

|  |  |
| --- | --- |
| **Title of Proposal** | *Emerging Media Technology* |
| **Date** |  |
| **Major or Minor** | *Major* |
| **Proposer’s Name** | *Dr. Kevin Patton* |
| **Department** | *Entertainment Technology* |
| **Date of Departmental Meeting in which proposal was approved** | *January 28, 2017* |
| **Department Chair Name** | *Charles Scott* |
| **Department Chair Signature and Date** |  |
| **Academic Dean Name** | *Kevin Hom* |
| **Academic Dean Signature and Date** |  |
| **Brief Description of Proposal**  (Describe the modifications contained within this proposal in a succinct summary. More detailed content will be provided in the proposal body. | **TWO NEW COURSE PROPOSALS**   1. *MTEC 3280 Embedded Systems for Emerging Media* 2. *MTEC 4030 Computational Creativity*   **CHANCELLORS REPORT**  **SECTION AIII: CHANGES IN DEGREE PROGRAMS**   1. ***Changes to concentrations/career tracks****:*   *•*TRACK NAMES*: Media Design to Game Design and Interactive Media; Tangible Media to Physical Computing*  ***•***TRACK DESCRIPTIONS*: Game Design and Interactive Media; Physical Computing; Media Computation; Music Technology*  ***•*** ADD NEW TRACK*: Music Technology*   1. ***Create music technology required core requirements*** 2. ***Changes to creative media foundations****:*   *• ADD: MTEC 2210 Game Design and Interactive Media*  *•REMOVE****:*** *ENT 1103, ENT 1203*   1. ***Changes to advanced courses:*** *Remove 2 credits of Technical Production requirement****;*** *reflect credit changes for ENT 4499* 2. ***Changes to game design and interactive media required courses:*** *reflect course name changes* 3. ***Changes to physical computing concentration required courses:***   ***•*** *ADD****:*** *MTEC 3280 Embedded Systems for Physical Computing; ENT 1108, Entertainment Drafting I*  ***•*** *REMOVE: IND 1112 Engineering Drawing*   1. ***Changes to media computation concentration required courses:***   *• ADD: MTEC 4030 Computational Creativity*  *• Reflect name changes*   1. ***Create music technology concentration required courses***   ***SECTION AIV: NEW COURSES***   1. *ADD: MTEC 3280 Embedded Systems for Physical Computing* 2. *ADD: MTEC 4030 Computational Creativity*   **Changes to Existing Courses**   1. ***NAME CHANGE:*** *MTEC 1001 Media Design Skills Lab to MTEC 1001 Game Design and Interactive Media Skills Lab* 2. ***NAME CHANGE:*** *MTEC 4800 Interdisciplinary Team Project II to Interdisciplinary Team Project* 3. ***NUMBER CHANGE:****ENT 2240 Music Technology to MTEC 2240 Music Technology* 4. ***NUMBER CHANGE:****ENT 2260 Music Synthesis and Sampling to MTEC 2260 Music Synthesis and Sampling* 5. ***DESCRIPTION CHANGE:*** *MTEC 1102 to reflect the development and design workflow, production pipeline* 6. ***CHANGES TO MTEC 2250***   *•* NAME*: from Tangible Media to Fabrication for Physical Computing*  *•* PREREQUISITE*:**MTEC 2250: pre: MTEC 1005 and CST 1001*  *•*DESCRIPTION*: to reflect fabrication emphasis*   1. ***CHANGES TO MTEC 2210***   *•* NAME*: from Media Design to Game Design and Interactive Media*  *•*PREREQUISITE*:**MTEC 2210: pre: MTEC 1102 pre or co MTEC 2120*  *•*DESCRIPTION*:**to reflect Game Design and Interactive Media*   1. ***CHANGES TO MTEC 3175***   *•* NAME*: from Ecological Design to Experimental Game Design and Development*  *•* PREREQUISITE*:**MTEC 2210 pre or co MTEC 2230*  *•*DESCRIPTION***:****to reflect name change to Experimental Game Design and Development*   1. ***CHANGES TO MTEC 3230***   *•* NAME*: from Introduction to Interactive 3-Dimensional Environments Programming to Mixed Reality for Immersive Worlds*  *•* PREREQUISITE*: MTEC 2210 pre or co MTEC 2230*  • DESCRIPTION:*to reflect name change to Mixed Reality for Immersive Worlds*   1. ***CHANGES TO MTEC 3140***   *•* PREREQUISITE*: MTEC 2210 and MTEC 2230, for non MTEC majors: ENG 1773 Weird Science, ENG 2420 Science Fiction*  *•* DESCRIPTION*: change offered in the fall to offered in the spring*   1. ***PREREQUISITE CHANGE TO MTEC 1101****: co: MTEC 1001* 2. ***PREREQUISITE CHANGE TO MTEC 2120****: pre: 1102 co: CST 1101* 3. ***PREREQUISITE CHANGE TO MTEC 2280****: pre: ENT 1203 or MTEC 1005 and CST 1101/MTEC1103 or MTEC 1103* 4. ***PREREQUISITE CHANGE TO MTEC 3125****: pre: ENG 1121 and MTEC 2210 or ENT 3320 or ENG 1710 or ENG 1773*     **COURSES WITHDRAWN**   1. *MTEC 3800, IDTP I* 2. *MTEC 4801, IDTP III* 3. *MTEC 2002 Media Technology Skills LAB IV* 4. *MTEC 3001 Media Technology Skills LAB V* 5. *MTEC 3002 Media Technology Skills LAB VI* |
| **Brief Rationale for Proposal**  (Provide a concise summary of why this proposed change is important to the department. More detailed content will be provided in the proposal body). | *This is part of the continual focusing of the program to deliver results for our students. Also, much of this change reflects the program’s ability to offer more courses in game design. The design track, which houses the game design focus, is the most effected. We are also adding a fourth concentration: Music Technology. This track has been a part of the long-range goals of the Entertainment Technology Department. The addition of two new courses, one in the Physical Computing concentration and the other in the Media Computation concentration, add to the slim upper division offerings that were available in those two tracks. Finally, we are removing courses and renaming courses to make a more transparent sequence for prospective students.* |
| **Proposal History**  (Please provide history of this proposal: is this a resubmission? An updated version? This may most easily be expressed as a list). | *This is a new proposal: V1 02-2017*  *This proposal has been revised 4 times after consultation with affected departments and the curriculum committee subcommittee.* |

**ALL PROPOSAL CHECK LIST**

|  |  |
| --- | --- |
| Completed CURRICULUM MODIFICATION FORM including: |  |
| * Brief description of proposal | ✓ |
| * Rationale for proposal | ✓ |
| * Date of department meeting approving the modification | ✓ |
| * Chair’s Signature | ✓ |
| * Dean’s Signature | ✓ |
| Evidence of consultation with affected departments  List of the programs that use this course as required or elective, and courses that use this as a prerequisite. | ✓ |
| Documentation of Advisory Commission views (if applicable). | ✓ |
| Completed [Chancellor’s Report Form](http://openlab.citytech.cuny.edu/collegecouncil/files/2014/08/2013-10-09-Chancellor_Report_Quick_Reference_Guide1.doc). | ✓ |

**EXISTING PROGRAM MODIFICATION PROPOSALS**

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

New York City College of Technology, CUNY

NEW COURSE PROPOSAL FORM

|  |  |
| --- | --- |
| **Course Title** | Embedded Systems for Physical Computing |
| **Proposal Date** | February 16, 2016 |
| **Proposer’s Name** | Kevin Patton |
| **Course Number** | MTEC 3280 |
| **Course Credits, Hours** | 3.00 credits, 4.0 hours: 2.0 class hours and 2.0 lab hours |
| **Course Pre / Co-Requisites** | **Prerequisites**  MTEC 2280 Ins and Outs  MTEC 2230 Media Computation  **Co-requisites**  none |
| **Catalog Course Description** | A focus on the design and implementation of embedded systems with specific applications in emerging media including the following: audio media generation, storage, and playback; sensor control of computational environments in projection and animatronics; hardware control of interactive environments used in such applications as museum display and musical composition/performance. Common, low-cost, available components are used and students apply the knowledge learned in this class to a working final prototype for one of these specific areas. |
| **Brief Rationale**  Provide a concise summary of why this course is important to the department, school or college. | This course is the first 3000 level course offered in our Physical Computing track within the department. This Is a logical follow-up to MTEC 2280, Ins and Outs, and it demonstrates a variety of techniques in the development of commonly used embedded systems in emerging media practices. |
| **CUNY – Course Equivalencies**  Provide information about equivalent courses within CUNY, if any. |  |

**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.

|  |  |
| --- | --- |
| **Completed NEW COURSE PROPOSAL FORM** | ✓ |
| * Title, Number, Credits, Hours, Catalog course description | ✓ |
| * Brief Rationale | ✓ |
| * CUNY – Course Equivalencies | ✓ |
| Completed [Library Resources and Information Literacy Form](http://openlab.citytech.cuny.edu/collegecouncil/files/2014/08/curriculum_modification_library_form.doc) | ✓ |
| **Course Outline**  Include within the outline the following. | ✓ |
| Hours and Credits for Lecture and Labs  If hours exceed mandated Carnegie Hours, then rationale for this | ✓ |
| Prerequisites/Co- requisites | ✓ |
| Detailed Course Description | ✓ |
| Course Specific Learning Outcome and Assessment Tables   * Discipline Specific * General Education Specific Learning Outcome and Assessment Tables | ✓ |
| Example Weekly Course outline | ✓ |
| Grade Policy and Procedure | ✓ |
| Recommended Instructional Materials (Textbooks, lab supplies, etc) | ✓ |
| Library resources and bibliography | ✓ |
| **Course Need Assessment.**  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). | ✓ |
| Projected headcounts (fall/spring and day/evening) for each new or modified course. | ✓ |
| 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. | ✓ |
| Where does this course overlap with other courses, both within and outside of the department? | ✓ |
| Does the Department currently have full time faculty qualified to teach this course? If not, then what plans are there to cover this? | ✓ |
| If needs assessment states that this course is required by an accrediting body, then provide documentation indicating that need. | ✓ |
| **Course Design**  Describe how this course is designed. | ✓ |
| Course Context (e.g. required, elective, capstone) | ✓ |
| Course Structure: how the course will be offered (e.g. lecture, seminar, tutorial, fieldtrip)? | ✓ |
| Anticipated pedagogical strategies and instructional design (e.g. Group Work, Case Study, Team Project, Lecture) | ✓ |
| How does this course support Programmatic Learning Outcomes? | ✓ |
| Is this course designed to be partially or fully online? If so, describe how this benefits students and/or program. | ✓ |
| **Additional Forms for Specific Course Categories** | ✓ |
| [Interdisciplinary Form](http://openlab.citytech.cuny.edu/collegecouncil/files/2014/08/Application-for-Interdisciplinary-Course-Designation.docx) (if applicable) | ✓ |
| Interdisciplinary Committee Recommendation (if applicable and if received)\*  \*Recommendation must be received before consideration by full Curriculum Committee | ✓ |
| [Common Core (Liberal Arts) Intent to Submit](http://openlab.citytech.cuny.edu/collegecouncil/files/2014/08/CommonCoreCourseSubmissionForm_4.2.12.doc) (if applicable) | ✓ |
| Writing Intensive Form if course is intended to be a WIC (under development) | ✓ |
| If course originated as an experimental course, then results of evaluation plan as developed with director of assessment. | ✓ |
| **(Additional materials for** [**Curricular Experiments**](http://www.300jaystreet.com/college-council/curriculum_proposals/curricular-experiments)**)** | ✓ |
| Plan and process for evaluation developed in consultation with the director of assessment. (Contact Director of Assessment for more information). | ✓ |
| Established Timeline for Curricular Experiment | ✓ |

# EVIDENCE OF CONSULTATION WITH AFFECTED DEPARTMENTS

The ETET and CET departments offer courses that deal with similar subject matter, although without the focus on emerging media specific applications. We have consulted extensively with both departments and this revision reflects that communication. Despite this, they are still concerned that this course covers the same material as theirs, however, our students have no path to taking their courses. Furthermore, we are using a different approach and our students need to know this material.

**DETAILED RATIONALE**

There are two rationales for the introduction of this course. The first rationale is structural within the degree area and the second is practical given the specific demands set of applicable fields across the emerging media landscape. The structural rationale is that there are no 3000 or 4000 level courses offered from the Emerging Media program for Physical Computing students. (Our program is split into three areas of concentration: Game Design and Multimedia, Media Computation, and Physical Computing). Our program is interdisciplinary in nature—one of our core strengths—so Physical Computing concentrators also can take other courses outside of the department. However, this is the first course of four upper-division courses we hope to offer.

This course builds on MTEC 2280, Ins and Out, and is needed because students in this concentration will be confronted with the need to design and implement embedded systems in the specific contexts that this course addresses. This includes: audio media generation, storage, and playback; interface and dynamic sensor control of computational environments in projection and animatronics; hardware control of interactive environments used in such wide-ranging applications as museum display and musical composition/performance.

**COURSE OUTLINE**

**TITLE AND NUMBER**

MTEC 3280 Embedded Systems for Physical Computing

**HOURS AND CREDITS**

3.00 credits, 4.0 hours: 2.0 lecture hours and 2.0 lab hours

**PRE- / CO-REQUISITES**

Pre-requisites

• MTEC 2280 Ins and Outs

• MTEC 2230 Media Computation

Co-requisites

• None

**DETAILED COURSE DESCRIPTION**

A focus on the design and implementation of embedded systems with specific applications in emerging media including the following: audio media generation, storage, and playback; sensor control of computational environments in projection and animatronics; hardware control of interactive environments used in such applications as museum display and musical composition/performance. Common, low-cost, available components are used and students apply the knowledge learned in this class to a working final prototype for one of these specific areas.

**COURSE-SPECIFIC LEARNING OUTCOMES AND ASSESSMENT TABLES**

|  |  |
| --- | --- |
| **After taking this class, the student will be able to...** | **This will be demonstrated by...** |
| Recognize and use appropriate terminology for embedded systems | Project assignments, class participation |
| Demonstrate knowledge of control circuits used in embedded systems in entertainment context | In class demonstration of assigned labs |
| Demonstrate knowledge of the basic techniques in developing embedded systems for music synthesis | Analysis of student performance on project exercises, preparation of project report and demonstration of course project. |
| Perform calculations using Ohm’s Law and Power Law. Apply them in example electrical systems. | Tests, homework assignments |
| Systems: Understand and navigate Systems; Demonstrate integration of sub-systems into a complete working system | At a minimum students will be able to identify and coordinate the different tool sets used in the design and implementation of technological systems |

**GENERAL EDUCATION LEARNING OUTCOMES AND ASSESSMENT**

|  |  |
| --- | --- |
| **After taking this class, the student will be able to...** | **This will be demonstrated by...** |
| Apply information from a variety of sources; Demonstrate acquisition of discipline specific knowledge | Students will use handouts, data-sheets, and internet searches in different laboratory and homework assignments |
| Demonstrate the ability to work in teams and groups while being aware of the ethical and conflict related situations in group dynamics. | Most of the labs in this course will be team oriented and students will have to work together to achieve the desired outcomes of each lab. |

**REQUIRED TEXT**

Williams, Elliot. *Make: AVR Programming, First Edition*. 2014. Maker Media, Inc.

**RECCOMENDED TEXTS**

*Physical Computing: Sensing and Controlling the Physical World with Computers 1st Edition*

by Dan O'Sullivan (Author), Tom Igoe (Author)

ISBN-13: 978-1592003464

ISBN-10: 159200346X

*Introduction to Embedded Systems: Using ANSI C and the Arduino Development Environment (Synthesis Lectures on Digital Circuits and Systems) 1st Edition*

by David Russell (Author), Mitchell Thornton (Series Editor)

ISBN-13: 978-1608454983

ISBN-10: 1608454983

*Beginning C for Arduino, Second Edition: Learn C Programming for the Arduino 2nd ed. Edition*

by Jack Purdum (Author)

ISBN-13: 978-1484209417

ISBN-10: 1484209419

**EXAMPLE WEEKLY COURSE OUTLINE**

|  |  |  |
| --- | --- | --- |
| **WEEK** | **LECTURE MATERIAL** | **PRACTICUM** |
| 1 | Introduction and Review: how embedded systems are used in emerging media design | Development Environment Set Up/ GitHub |
| text | Part I, Chapter 1, Williams, pgs 3-9 | Part I, Chapter 2, Williams, pgs 13-20 |
| 2 | Controlling multiple LEDs | Multi LED Pattern Control |
| text | Part I, Chapter 2, Williams, pgs 29-40 | Part I, Chapter 3, Williams, pgs 49-55 |
| 3 | Audio synthesis I | Computer Controlled Square Wave Organ |
| text | Part I, Chapter 5, Williams, pgs 77-94 | Part I, Chapter 5, Williams, pgs 95-102 |
| 4 | Button control of sound synthesis | Push Button AVR Music Box |
| text | Part I, Chapter 6, Williams, pgs 105-116 | Part I, Chapter 6, Williams, pgs 116-123 |
| 5 | Using potentiometers and sensors to control projection | Control of Projection Environment in Jitter (given) |
| text | Part I, Chapter 7, Williams, pgs 125-139 | Lab provided by instructor |
| 6 | Incorporating Human Touch | Capacitive Sensor |
| text | Part II, Chapter 8, Williams, pgs 153-163 | Part II, Chapter 8, Williams, pgs 164-174 |
| 7 | Open Lab | Open Lab |
| 8 | Audio Synthesis II | 8-bit Organ |
| text | Part II, Chapter 9, Williams, pgs 175-184  Part II, Chapter 10, Williams, pgs 199-211 | Part II, Chapter 9, Williams, pgs 182-186 |
| 9 | Detecting sound | Voltage Scaling/Footstep Detector |
| text | Part II, Chapter 12, Williams, pgs 243-251 | Part II, Chapter 12, Williams, pgs 252-266 |
| 10 | Audio Synthesis III | Digital Synthesizer |
| text | Part III, Chapter 13, Williams, pgs 269-284 | Part III, Chapter 13, Williams, pgs 269-284 |
| 11 | Creating/controlling Motion | Laser Sundial |
| text | Part II, Chapter 1, Williams, pgs 215-236 | Part II, Chapter 1, Williams, pgs 215-236 |
| 12 | Theatrical/Theme Park Animatronics | Animatronic Eyes |
| text | Part III, Chapter 15, Williams, pgs 305-334 | Part III, Chapter 15, Williams, pgs 305-334 |
| 13 | Sensing and storing performance information | Data Logging Environmental Sensors/Final Project Proposal Due |
| text | Part III, Chapters 16 & 17, Williams, pgs 337-377 | Part III, Chapters 16 & 17, Williams, pgs 337-377 |
| 14 | FINAL PROJECT LAB | Open Lab |
| 15 | FINAL PROJECT LAB | FINAL PROJECT DUE |

**GRADE POLICY AND PROCEDURE**

Participation: 10%

Class Practicum: 60%

Final Project: 30%

**Email**

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

**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**

Each Week there will be a project due at the beginning of class . Students will work in pairs selected by the professor, except for the final project, which must be completed individually. This must be documented by uploading of code to GitHub as well as pictures of breadboards and short videos uploaded to the OpenLab site for the course.

**LIBRARY RESOURCES AND BIBLIOGRAPHY**

No library resources will be required to supplement the instructional materials listed above.

**COURSE NEEDS ASSESSMENT**

This course will be able to utilize much of the already existing equipment in our two labs.

**TARGET STUDENTS**

This course targets students pursuing the BTech in Emerging Media Technologies. The course will be added to the Major Course choices for Physical Computing concentrators. However this course will also be available to all students who are MTEC majors who have met the prerequisites. Any MTEC class not required counts as an elective.

**PROJECTED HEADCOUNTS**

Course capacity will be capped at 16, and we expect to offer the course once a year until enrollment levels necessitate an offering every semester. 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 year of the program. Currently, a typical incoming cohort size for MTEC is 15-30 students per semester.

**PHYSICAL RESOURCES**

One computer lab accommodating 16 students will be sufficient to run course.

**OVERLAP WITH OTHER COURSES**

The proposed course is intended to focus on applications of embedded design relevant to Emerging Media Technologies and Entertainment Contexts. There is special emphasis given to audio, projection, and museum display oriented applications. Our goal with this course is to give a detailed account of an ad-hoc collection of techniques that apply to our discipline. Embedded Systems for Emerging Media does not seek to theorize the operation of microcontrollers in general, rather this course seeks to help emerging media students navigate the use of embedded systems in entertainment and creative media fields.

The ETET and CET departments offer courses that deal with similar subject matter, although without the focus on emerging media specific applications. We have consulted extensively with both departments and this revision reflects that communication. They are still concerned that this course covers the same material as theirs, however we are using a different approach and feel we have the right to teach this material to our students.

\*Please see Appendix for the response from the ETET department and CET department

**QUALIFIED FULL-TIME FACULTY IN DEPARTMENT**

Entertainment Technology has two full-time faculty members in the Emerging Media Technologies program who have the skills and experience to teach the proposed course for the foreseeable future.

**DOCUMENTATION SHOWING THE COURSE IS REQUIRED BY AN ACCREDITING BODY**

Not applicable.

**COURSE DESIGN**

**COURSE CONTEXT**

This course is the first 3000 level course to support the Physical Computing concentration which all Emerging Media students will be able to take as a part of their degree path.

**COURSE STRUCTURE**

This course will be a combination overview and practicum, and will be divided equally into two hours of lecture and two hours of lab. Class time will be used to present tools, concepts, and projects, while lab will provide time for students to implement these projects with guidance from the instructor.

**PEDAGOGICAL STRATEGIES**

The first meeting each week will take the form of a lecture, during which the instructor will introduce new tools and concepts. The second meeting will take the form of a lab, in which students will implement a predesigned project that is outlined in the book and worked on with the professor’s help. Many of the projects build upon each other throughout the semester such that the more complicated projects will already be partly completed when the students begin to work on it. All lab assignments must be committed to Github while also uploading photos or short videos of completed projects to the course OpenLab site.

**SUPPORT OF PROGRAMMATIC LEARNING OUTCOMES**

This course supports a number of the Emerging Media learning outcomes, by providing experience in the following areas:

• cloud computing (GitHub)

• procedural oriented programming

• physical computing

• systems design

**ONLINE COMPONENT**

There is no online component to the pedagogical aspect of the class, however cloud services such as Github will be used. Furthermore, there will be an OpenLab site for the course maintained by the professor to collect documentation of student completion of the lab assignments.

# LIBRARY RESOURCES & INFORMATION LITERACY: MAJOR CURRICULUM MODIFICATION

Please complete for **all** major curriculum modifications. This information will assist the library in planning for new acquisitions; it will not affect curriculum proposals either positively or negatively.

Consult with library faculty subject selectors (<http://cityte.ch/dir>) **3 weeks in advance** when planning course proposals to ensure enough time to allocate budgets if materials need to be purchased.

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

|  |  |  |
| --- | --- | --- |
| **1** | **Title of proposal:**  New Course Proposal: “Embedded Systems for Physical Computing” (MTEC 3280) | **Department/Program:**  Entertainment Technology |
|  | **Proposed by** (include email & phone):  Kevin Patton  [kpatton@citytech.cuny.edu](mailto:kpatton@citytech.cuny.edu)  718-260-5588 | **Expected date course(s) will be offered:**  Spring 2017  **Number of students:**  16 |

|  |  |
| --- | --- |
| **2** | **Are City Tech library resources sufficient for course assignments? Please elaborate.**  No new library resources are needed. The course is largely an overview/practicum introducing a collection of very specific software development and analysis tools and techniques. All required resources, including in-class instructional materials, open-source and commercial software tools, and publically available online reference materials, will be provided or referenced by the instructor and/or department. There is a book that students must purchase, but it will be available online as well. |

|  |  |
| --- | --- |
| **3** | **Are additional resources needed for course assignments? Please provide details about format of resources (e.g., ebooks, journals, DVDs, etc.), author, title, publisher, edition, date, and price.**  No additional library resources are needed for course assignments (see section 2). |

|  |  |
| --- | --- |
| **4** | **Library faculty focus on strengthening students' information literacy skills in finding, evaluating, and ethically using information. We can collaborate on developing assignments and offer customized information literacy instruction and research guides for your course.**  **Do you plan to consult with the library faculty subject specialist for your area? Please elaborate.**  There is no need for a consultation with library faculty (see section 2). |

|  |  |
| --- | --- |
| **5** | **Library Faculty Subject Selector:** Junior Tidal, JTidal@citytech.cuny.edu  **Comments and Recommendations:**  After surveying the library’s collection, I would suggest acquiring the required and recommended texts, pending course approval. Although we have monographs and eBooks related to Arduino and C programming, it may be necessary to add supplemental materials related to sound modules and sensors.  **Date: 02.16.17** |

New York City College of Technology, CUNY

**NEW COURSE PROPOSAL FORM**

This form is used for all new course proposals. Attach this to the [Curriculum Modification Proposal Form](http://openlab.citytech.cuny.edu/collegecouncil/files/2014/08/2013-10-10-Curriculum_Modification_Proposal_Form.docx)

and submit as one package as per instructions. Use one New Course Proposal Form for each new course.

|  |  |
| --- | --- |
| **Course Title** | Computational Creativity |
| **Proposal Date** | February 16, 2016 |
| **Proposer’s Name** | Adam Wilson |
| **Course Number** | MTEC 4030 |
| **Course Credits, Hours** | 3.00 credits, 4.0 hours: 2.0 class hours and 2.0 lab hours |
| **Course Pre / Co-Requisites** | **Pre-requisites:**  “Media Computation” (MTEC 2230),  “Discrete Structures and Algorithms I” (MAT 2440)  **Co-requisites:**  None |
| **Catalog Course Description** | Introduction to artificial intelligence techniques for computational creativity. Topics covered include formal grammars, Markov chains, hidden Markov models, probabilistic automata, and artificial neural networks. Students use these techniques to analyze and generate digital art and music. |
| **Brief Rationale**  Provide a concise summary of why this course is important to the department, school or college. | New media design often involves manipulating formal structures that influence aesthetics. Developing software that replicates some of the capabilities of human creativity can aid us in providing solutions to these problems. Studying models of computational creativity also helps us to understand human creative behavior and how we perceive creative work. |
| **­­** | There are no CUNY course equivalences |
| **Intent to Submit as Common Core**  If this course is intended to fulfill one of the requirements in the common core, then indicate which area. | The proposed course is not intended to fulfill Common Core requirements. |
| **For Interdisciplinary Courses:**   * Date submitted to ID Committee for review * Date ID recommendation received   - Will all sections be offered as ID? Y/N |  |
|  |
|  |
| **Intent to Submit as a Writing Intensive Course** | The proposed course is not intended as a writing intensive course. However, excellent reading comprehension is necessary for success in the course; the requirement for CUNY proficiency in reading and writing is implicitly required through course prerequisites |

**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.

|  |  |
| --- | --- |
| **Completed NEW COURSE PROPOSAL FORM** |  |
| * Title, Number, Credits, Hours, Catalog course description | ✔ |
| * Brief Rationale | ✔ |
| Completed [Library Resources and Information Literacy Form](http://openlab.citytech.cuny.edu/collegecouncil/files/2014/08/curriculum_modification_library_form.doc) | ✔ |
| **Course Outline**  Include within the outline the following. |  |
| Hours and Credits for Lecture and Labs  If hours exceed mandated Carnegie Hours, then rationale for this | ✔ |
| Pre-requisites/Co-requisites | ✔ |
| Detailed Course Description | ✔ |
| Course Specific Learning Outcome and Assessment Tables   * Discipline Specific * General Education Specific Learning Outcome and Assessment Tables | ✔ |
| Example Weekly Course outline | ✔ |
| Grade Policy and Procedure | ✔ |
| Recommended Instructional Materials (Textbooks, lab supplies, etc.) | ✔ |
| Library resources and bibliography | ✔ |
| **Course Need Assessment.**  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). | ✔ |
| Projected headcounts (fall/spring and day/evening) for each new or modified course. | ✔ |
| 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. | ✔ |
| Where does this course overlap with other courses, both within and outside of the department? | ✔ |
| Does the Department currently have full time faculty qualified to teach this course? If not, then what plans are there to cover this? | ✔ |
| If needs assessment states that this course is required by an accrediting body, then provide documentation indicating that need. | N/A |
| **Course Design**  Describe how this course is designed. |  |
| Course Context (e.g. required, elective, capstone) | ✔ |
| Course Structure: how the course will be offered (e.g. lecture, seminar, tutorial, fieldtrip)? | ✔ |
| Anticipated pedagogical strategies and instructional design (e.g. Group Work, Case Study, Team Project, Lecture) | ✔ |
| How does this course support Programmatic Learning Outcomes? | ✔ |
| Is this course designed to be partially or fully online? If so, describe how this benefits students and/or program. | ✔ |
| **Additional Forms for Specific Course Categories** |  |
| [Interdisciplinary Form](http://openlab.citytech.cuny.edu/collegecouncil/files/2014/08/Application-for-Interdisciplinary-Course-Designation.docx) (if applicable) | N/A |
| [Common Core (Liberal Arts) Intent to Submit](http://openlab.citytech.cuny.edu/collegecouncil/files/2014/08/CommonCoreCourseSubmissionForm_4.2.12.doc) (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 |
| **(Additional materials for** [**Curricular Experiments**](http://www.300jaystreet.com/college-council/curriculum_proposals/curricular-experiments)**)** |  |
| 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 |

# EVIDENCE OF CONSULTATION WITH AFFECTED DEPARTMENTS

The proposed course affects only the Entertainment Technology Department, and is only required of students taking the Bachelor of Technology in Emerging Media Technologies. However, we have checked with the CET department to ensure that our course does not overlap significantly with the newly proposed CET4793, “Artificial Intelligence.” See **APPENDIX: RESPONSE FROM OTHER DEPARTMENTS** for documented communication with CET.

# DETAILED RATIONALE

New media design often involves manipulating formal structures that influence aesthetics. Developing software that replicates some of the capabilities of human creativity can aid us in providing solutions to these problems. Studying models of computational creativity also helps us to understand human creative behavior and how we perceive creative work.

Our Emerging Media Technology students primarily work in real-time graphics, audio, and multimedia applications for the web. An increasing number of fields are leveraging AI for solving practical issues – tuning search engines, driving cars, manufacturing, etc. Rooting our explication of these techniques in areas of application familiar to our students will allow them to more easily acquire concepts that have applications in many arenas, both directly and indirectly associated with their program of study, increasing their opportunities for employment.

# COURSE OUTLINE

## HOURS AND CREDITS

3.00 credits, 4.0 hours: 2.0 lecture hours and 2.0 lab hours

## PRE- / CO-REQUISITES

Pre-requisites

* “Media Computation” (MTEC 2230)
* “Discrete Structures and Algorithms I” (MAT 2440)

Co-requisites

* None

## COURSE DESCRIPTION

Introduction to artificial intelligence techniques for computational creativity. Topics covered include formal grammars, Markov chains, hidden Markov models, probabilistic automata, and artificial neural networks. Students use these techniques to analyze and generate digital art and music.

## COURSE-SPECIFIC LEARNING OUTCOMES AND ASSESSMENT TABLES

**Learning Outcomes and Assessment**

|  |  |
| --- | --- |
| **For the successful completion of this course, a student should be able to:** | **Evaluation methods and criteria:** |
| Define and use technical vocabulary, such as “Markov chain,” “grammar,” “neuron,” etc. | Each lab assignment will be given verbally and in written form as a “word problem ”using vocabulary from lectures. Students will demonstrate comprehension by successfully completing each lab. |
| Effectively modify software based on pseudo-code instructions. | All lab assignments and code commentary will be submitted over Github via git, which will require students to adhere to a strict protocol for versioning and communication. Students will be motivated to learn in order to receive credit for their work; properly completed assignments indicate success. |
| Synthesize new concepts and apply them in software. | Each technique that is introduced is followed immediately by labs in which students implement that technique (or part of it) in software. |

**General Education Learning Outcomes and Assessment**

|  |  |
| --- | --- |
| **For the successful completion of this course, a student should be able to:** | **Evaluation methods and criteria:** |
| Integrate knowledge and skills within a knowledge domain. | Labs integrate many disparate technologies and concepts; students who are able to get these separate pieces interoperating in their lab software implementations will have demonstrated success in this area. |
| Reason quantitatively and mathematically. | During lab hours, students may struggle with quantitative problems that may require a bit more cogitation outside of class; such labs will overflow into homework assignments. Those who submit largely correct work in these cases will demonstrate that they have spent the extra time to think these problems through independently. |
| Work collaboratively. | For more complex lab assignments, students will be encouraged to work in “pair programming” teams. Functional lab assignment submissions completed within the time limits of the lab meeting indicate success. |

## EXAMPLE WEEKLY COURSE OUTLINE

|  |  |
| --- | --- |
| **WEEK** | **CLASS OBJECTIVE** |
| 1 | Lecture week  Overview of the field, techniques and applications; review of git/Github.  **Reading**:   * git HOWTO.md in class Github repository * Colton et al., “Computational Creativity: Coming of Age,” <http://www.aaai.org/ojs/index.php/aimagazine/article/download/2257/2096> * Colton and Wiggins, “Computational Creativity: The Final Frontier?” <http://computationalcreativity.net/iccc2014/wp-content/uploads/2013/09/ComputationalCreativity.pdf> * Fernández and Vico, “AI Methods in Algorithmic Composition: A Comprehensive Survey,” <https://jair.org/media/3908/live-3908-7454-jair.pdf>   **Assignment 1**: Set up SSH keys for Github and submit a preliminary pull request. |
| 2 | Lecture week  Introduction to Lindenmayer systems and parameter mapping.  **Reading**:   * Lindenmayer and Prusinkiewicz, The Algorithmic Beauty of Plants, Chapter 8: “Fractal Properties of Plants,” pp. 175-189. * Wilson, “A Symbolic Sonification of L-Systems,” <http://academicworks.cuny.edu/ny_pubs/125/> |
| 3 | Lab week  **Assignment 2**: Students use Lindenmayer systems to generate graphics by filling in missing portions of software written by the professor. |
| 4 | Lecture week  Markov chains introduced.  **Reading**:  Armstrong, “Markov Chains – Explained,” <http://techeffigytutorials.blogspot.com/2015/01/markov-chains-explained.html>  (or similar blog/tutorial)  Papadapoulos et al., “Generating Non-Plagiaristic Markov Sequences with Max Order Sampling”, in Creativity and Universality in Language, pp. 85-103. |
| 5 | Lab week  **Assignment 3**: Students complete implementation a first-order Markov text analyzer based on instructions and software provided by the professor. |
| 6 | Lab week  **Assignment 4**: Students complete code for generation of new text sequences leveraging the analyzer from the previous week. |
| 7 | Lecture week  Hidden Markov model is introduced.  **Reading**:   * Zubek, draft version of “Introduction to Hidden Markov Models,” in Rabin, S. (ed.), AI Game Programming Wisdom 3, <http://www.zubek.net/robert/publications/Intro-to-HMMs-draft.pdf> * Govindaraju, “Introduction to Hidden Markov Models” (lecture notes), <https://www.cse.buffalo.edu/~jcorso/t/CSE555/files/lecture_hmm.pdf> |
| 8 | Lab week  **Assignment 5**: Students develop a program that looks at the number of “islands” in a sequence of vertical slices of a typed character. |
| 9 | Lab week  **Assignment 6**: Students implement an HMM to determine the most likely typed character from the islands observed in sequences of vertical character slices. |
| 10 | Lecture week  Introduction to probabilistic automaton based on a modified factor oracle.  **Reading**:   * Allauzen et al., “Factor Oracle: a New Structure for Pattern Matching,” <https://hal.archives-ouvertes.fr/hal-00619846/document>  Wilson, “factorOracle: an Extensible Max External for Investigating Applications of the Factor Oracle Automaton in Real-Time Music Improvisation,” <http://academicworks.cuny.edu/ny_pubs/114/> |
| 11 | Lab week  **Assignment 7**: Students complete software for encapsulating cross-alphabet MIDI notes/durations in a factor oracle automaton. |
| 12 | Lab week  **Assignment 8**: Students add a probabilistic model to the factor oracle and generate symbolic music with it. |
| 13 | Lecture week  Artificial neural networks introduced.  **Reading**:   * Rowe, Machine Musicianship, Chapter 3: “Subsymbolic Processes,” section 3.1: “Neural Networks,” pp. 93-110. |
| 14 | Lab week  **Assignment 9**: Students develop and train an ANN to recognize the notes of the chromatic scale. |
| 15 | Lab week  **Assignment 10**: Students apply their ANN’s to more or less appropriate target data sets and observe the outcomes. |

## 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.

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 must complete all lab assignments. **All students must sign up for a Github repository and bring a USB drive to class** – without these items, you will be unable to submit work. Lecture and lab classes alternate, and the coding assignment for each lab are due in your Github repository 24 hours prior to the following lecture. **There are 3 conditions that warrant a failing grade for an assignment (note that avoiding these conditions does not necessarily guarantee a passing grade):**

1. **Minimal code that evidences a lack of any significant attempt to fulfill the assigned objectives.**
2. **Any code in an assignment has been plagiarized (this does not include identical work from pairs of programmers who have been allowed to work together).**
3. **The assignment is not received before the deadline, or you have not set up a Github account before the deadline.**

Note that there are 10 lab assignments. Lab assignments will receive comments on Github. These will be visible to all members of the class. Based on suggestions for improvement, lab assignments may be resubmitted for a revised grade up to one week after the initial due date. The revised grade will be averaged with the initial grade. Each of the 10 assignments is worth 10 points.

## INSTRUCTIONAL MATERIALS

The articles listed in the weekly course outline provide examples of the kinds of readings that will accompany each lecture topic. We will use exclusively free, open, or fair-use readings.

## LIBRARY RESOURCES AND BIBLIOGRAPHY

No library resources will be required to supplement the instructional materials listed above.

# COURSE NEED ASSESSMENT

## TARGET STUDENTS

This course targets students pursuing the BTech in Emerging Media Technologies. The course will be an advanced elective for all students in the Emerging Media Technologies program.

## PROJECTED HEADCOUNTS

Course capacity will be capped at 16, and we expect to offer the course once a year until enrollment levels necessitate an offering every semester.

## PHYSICAL RESOURCES

One computer lab accommodating 16 students will be sufficient to run the course. The Entertainment Technology Department already maintains a suitable lab in Voorhees, room 314, in which most of the software required to run the course has already been installed; the few required additions are open-source. Along with the physical computing resources in the lab, Github will be used for code versioning, organization, and commentary.

## OVERLAP WITH OTHER COURSES

There is no known overlap with any courses at City Tech. Please see **APPENDIX: RESPONSE FROM OTHER DEPARTMENTS** for commentary from the CET department.

## QUALIFIED FULL-TIME FACULTY IN DEPARTMENT

Entertainment Technology has one full-time faculty member devoted to the Media Computation area in the Emerging Media Technologies program who will teach the proposed course for the foreseeable future.

## DOCUMENTATION SHOWING THE COURSE IS REQUIRED BY AN ACCREDITING BODY

Not applicable.

**COURSE DESIGN**

***C******OURSE CONTEXT***

## This is an advanced elective course for MTEC students.

## COURSE STRUCTURE

## This course will be a combination overview and practicum, and will be divided into two hour of instruction (lecture/discussion) and two hours of lab. Lecture time will be used to present tools and concepts, and lab will provide time for students to attempt to implement, with guidance from the instructor, pieces of a larger system or application.

## PEDAGOGICAL STRATEGIES

Since we want all of the students to be exposed to all of the material, we cannot split the students into groups to work on separate components of the project, as we do often in ENT 3320, “Technical Production.” However, although all students will be assigned the same task in each lab, when tasks become especially difficult, students will be allowed to organize into pairs to help one another. “Pair programming” is a strategy for rapid development in which two people take on the task of solving a coding problem; one types and the other reviews the code. The instructor will also be available during this time to assist when roadblocks are encountered. Students will be assigned incomplete lab tasks for homework. All lab assignments must be committed to Github in order to receive commentary from the instructor. Students will be offered a chance to revise their initial assignments outside of class/lab time based on instructor commentary.

In general, the following rubric will be used to evaluate the work of individual or pair student programmers:

* A 100% on a particular assignment means that the code produced by the students in fulfillment of the assignment is fully functional, satisfies the objective, is optimized, and has no redundant patterns.
* A grade between 90% and less than 100% is earned if all the above conditions are met except for full optimization and complete elimination of redundancies.
* A grade greater than 60% and less than 90% is earned if some error-free implementation of the assignment is turned in with only partial functionality.
* A 60% is earned if it is clear that a significant effort was spent coding, but the student(s) could not produce an error-free program.
* A 0% is earned if the assignment is not committed to Github by the due date (in most cases, the due date is the first week of the class following the lab week during which the work was assigned).

## SUPPORT OF PROGRAMMATIC LEARNING OUTCOMES

This course supports a number of the Emerging Media learning outcomes, by providing experience in the following areas:

* Facility with object-oriented programming
* Mastery of industry-standard code management tools
* Application of technology to solve design problems

## ONLINE COMPONENT

While this course will not initially be offered as a hybrid class, there will be a significant online component. Students will push all code for weekly assignments to Github for commentary and revision.

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

Please complete for **all** major curriculum modifications. This information will assist the library in planning for new acquisitions; it will not affect curriculum proposals either positively or negatively.

Consult with library faculty subject selectors (<http://cityte.ch/dir>) **3 weeks in advance** when planning course proposals to ensure enough time to allocate budgets if materials need to be purchased.

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

|  |  |  |
| --- | --- | --- |
| **1** | **Title of proposal:**  New Course Proposal: “Computational Creativity” (MTEC 4030) | **Department/Program:**  Entertainment Technology |
|  | **Proposed by** (include email & phone):  Adam Wilson  [awilson@citytech.cuny.edu](mailto:awilson@citytech.cuny.edu)  718-260-5898 | **Expected date course(s) will be offered:**  Spring 2018  **Number of students:**  16 |

|  |  |
| --- | --- |
| **2** | **Are City Tech library resources sufficient for course assignments? Please elaborate.**  No new library resources are needed. The course is largely an overview/practicum introducing a collection of very specific software development and analysis tools and techniques. All required resources, including in-class instructional materials, open-source and commercial software tools, and publically available online reference materials, will be provided or referenced by the instructor and/or department. |

|  |  |
| --- | --- |
| **3** | **Are additional resources needed for course assignments? Please provide details about format of resources (e.g., ebooks, journals, DVDs, etc.), author, title, publisher, edition, date, and price.**  No additional library resources are needed for course assignments (see section 2). |

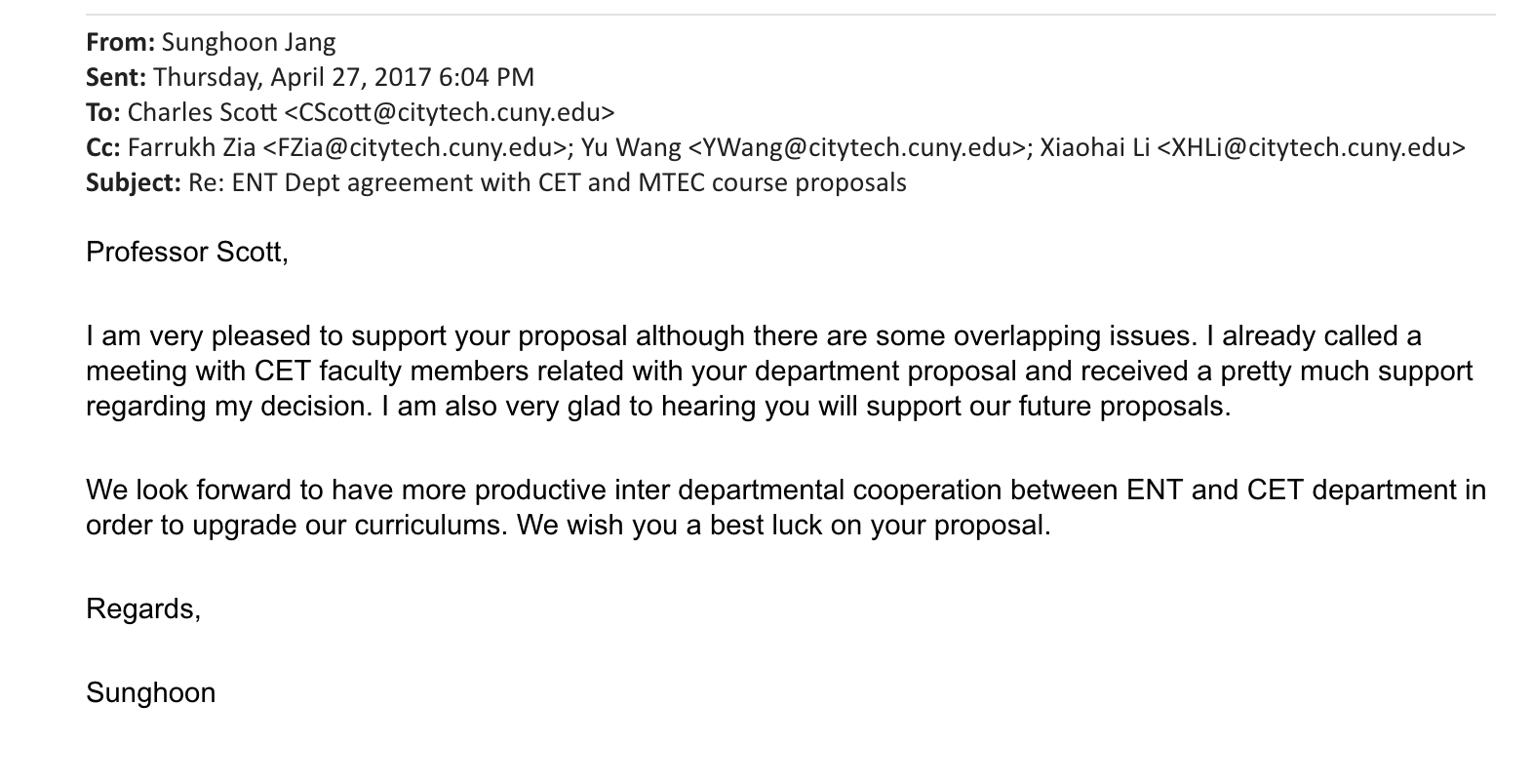
|  |  |
| --- | --- |
| **4** | **Library faculty focus on strengthening students' information literacy skills in finding, evaluating, and ethically using information. We can collaborate on developing assignments and offer customized information literacy instruction and research guides for your course.**  **Do you plan to consult with the library faculty subject specialist for your area? Please elaborate.**  There is no need for a consultation with library faculty (see section 2). |

|  |  |
| --- | --- |
| **5** | **Library Faculty Subject Selector:** Junior Tidal  **Comments and Recommendations:**  After surveying the library’s collection, I recommend acquiring additional supplemental materials to support this course, pending its approval. This may include print and electronic monographs on topics such as computer generated music, the open-source repository GitHub, and digital art. This may be useful for students to expand on class topics and assist in the construction of projects.  **Date: 02.23.17** |

**APPENDIX: RESPONSE FROM OTHER DEPARTMENTS TO NEW COURSE PROPOSALS**

**MTEC 3280 Embedded Systems for Physical Computing**

We have adjusted the syllabus to address the concerns of the CET department. Plese read below.

****

**MTEC 4030 Computational Creativity**

****

**Chancellor’s University Report – Emerging Media Technology Major Modification**

**Section AIII: Changes in Degree Programs**

**The following revisions are proposed for the Bachelor of Technology in Emerging Media Technology**

**Program: Emerging Media Technology**

Program Code: 33748

**Effective: Spring 2018**

|  |  |
| --- | --- |
| **FROM:** | **TO:** |
| CONCENTRATIONS/CAREER TRACKS   1. ~~MEDIA DESIGN~~   ~~Media Design covers foundational skills in the creation and design of digital media systems to prepare students for careers such as interface/interaction designers, multimedia programmers and web/mobile app designers.~~   1. ~~TANGIBLE MEDIA~~   ~~Tangible Media covers foundational skills in fabrication, electronics and interface design to prepare students for careers such as 3D printing/CNC milling fabrication specialists, embedded system designers, and video game interface developers.~~   1. MEDIA COMPUTATION   ~~Media Computation covers foundational skills in the use of computation itself as the material for the creation of interactive systems to prepare students for careers such as video game/virtual world creators, mobile application programmers and web/cloud computing developers.~~  Note: GenEd requirements are specific to each concentration. | CONCENTRATIONS/CAREER TRACKS   1. GAME DESIGN AND INTERACTIVE MEDIA   The Game Design and Interactive Media concentration provides students with foundational skills in game design and development, as well as current interactive and immersive media platforms to prepare them for careers as game designers, VR/AR designers, web/mobile app designers, UX, UI and experience designers, and multi-media programmers.   1. PHYSICAL COMPUTING   Physical Computing concentration provides students with foundational skills in fabrication, circuit design for sound and entertainment and interface design to prepare students for careers such as 3D printing/CNC milling fabrication specialists, embedded system designers, custom sound and media device creation, and video game interface developers.   1. MEDIA COMPUTATION   Media Computation concentration covers the tools and techniques of software development for interactive new media, including responsive applications for mobile and web, video games, and real-time audio and video systems.   1. MUSIC TECHNOLOGY   The Music Technology concentration provides students with skills in the development of musical interfaces and applications. Students learn systems for real-time signal processing and audio scheduling. Instruction targets installations, live performance, video games, and the web, as well as contemporary music production systems and sound design for games.  Note: GenEd requirements are specific to each concentration. |

Rationale:

1. Game Design and Interactive Media: This concentration has been refocused to reflect the overwhelming student interest in Game Design and interactive media such as augmented and virtual reality. This change is supported by the expertise of our new faculty member, Dr. Heidi Boisvert.

2. Physical Computing: We are changing the name of the Tangible Media to Physical Computing because Physical Computing is a more accurate description of the desired outcomes in the concentration. Physical computing is an approach to hardware design and fabrication in the context of interactive media and design. It is a term developed at NYU in the Interactive Telecommunications Program which was situated in the Tisch School of the Arts. Physical Computing is the title of the book written by the ITP program professors, Tom Igoe and Dan O’Sullivan. Another concern was that the current name of the concentration, Tangible Media, is also used in a specific context based on the work of the Tangible Media Group in the MIT Media Lab. Tangible Media is concerned with finding future dynamic materials (radical atoms) that can dynamically express information, not hardware development for media and entertainment. Finally, in the current catalog there are 5 uses of the term ‘physical computing.’ Four of them are in MTEC, the other is in CET.

3. Media Computation: Edited for Clarity.

4. Music Technology: This is a new track created to reflect student interest in music and interactive media. Creating this track has been a target of the Emerging Media Technologies Program and the Entertainment Technology department for several years. It was included as a target in our last three-year plan.

|  |  |  |  |
| --- | --- | --- | --- |
| **FROM:** | **Cr.** | **TO:** | **Cr.** |
| I – REQUIRED CORE  English Composition (2 courses, 6 credits)  ENG 1101 English Composition I  ENG 1121 English Composition II  ~~Science and Math Required for Media Design~~  ~~MAT 1190 Quantitative Reasoning or higher~~  PHYS 1000 The Physical Universe or higher  Science and Math Required for Media Computation  MAT 1375 Precalculus or higher  PHYS 1433 General Physics I: Algebra Based or  PHYS 1441 General Physics I: Calculus Based  ~~Science and Math Required for Tangible Media~~  MAT 1475 Calculus or Higher  PHYS 1441 General Physics I: Calculus Based | 6  3  3  3  3  4  4-5  4  5 | I – REQUIRED CORE  English Composition (2 courses, 6 credits)  ENG 1101 English Composition I  ENG 1121 English Composition II  Science and Math Required for Game Design and Interactive Media  MATH ANY COURSE  PHYS 1000 The Physical Universe or higher,  Science and Math Required for Media Computation  MAT 1275 or higher  PHYS 1433 General Physics I: Algebra Based or  PHYS 1441 General Physics I: Calculus Based  Science and Math Required for Physical Computing  MAT 1275 or higher  PHYS 1441 General Physics I: Calculus Based  Science and Math Required for Music Technology  MATH ANY COURSE  PHYS 1000 The Physical Universe or higher  \* MAT 1375 recommended | 6  3  3  3  3  4  4-5  4  5  3  3 |

**Rationale:** We are adding the math and science requirements to the new Music Technology Concentration as well as recommending but not requiring a higher math for the Game Design and Interactive Media track. Students with only the MAT 1190 proficiency can be successful in with the game design and interactive media and music technology concentrations. We encourage higher quantitative skill development in general in order for students to take courses from the other concentrations.

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| **FROM:** | | **TO:** | |
| **~~CREATIVE MEDIA FOUNDATIONS (14 COURSES, 32 CREDITS)~~**  ENT 1100 Introduction to Entertainment Technology  ~~ENT 1103 Basic Electricity for Live Entertainment~~  ~~ENT 1203 Basic Electricity for Live Entertainment Lab~~  ~~MTEC 1001 Media Design Skills Lab~~  MTEC 1003 Media Computation Skills Lab  ~~MTEC 1005 Tangible Media Skills Lab~~  MTEC 1101 Emerging Media Foundation  MTEC 1102 Production Practices  MTEC 2230 Media Computation  MTEC 2120 Interactive Media Systems Design  ~~MTEC 2250 Tangible Media~~  MTEC 2280 Ins and Outs  CST 1101 Problem Solving with Computer Programming  CST 1201 Programming Fundamentals | cr.  3  ~~1~~  ~~1~~  1  1  1  3  3  3  3  3  3  3  3 | **CREATIVE MEDIA FOUNDATIONS (13 COURSES, 33 CREDITS)**  ENT 1100 Introduction to Entertainment Technology  MTEC 1001 Game Design and Interactive Media Skills Lab  MTEC 1003 Media Computation Skills Lab  MTEC 1005 Physical Computing Skills Lab  MTEC 1101 Emerging Media Foundation  MTEC 1102 Production Practices  MTEC 2210 Game Design and Interactive Media,  MTEC 2230 Media Computation  MTEC 2120 Interactive Media Systems Design  MTEC 2250 Fabrication for Physical Computing  MTEC 2280 Ins and Outs  CST 1101 Problem Solving with Computer Programming  CST 1201 Programming Fundamentals | cr.  3  1  1  1  3  3  3  3  3  3  3  3  3 |

Rationale: ENT 1103 and ENT 1203 are not needed because this material is covered in the MTEC 1005. We are adding MTEC 2210 Game Design and Interactive Media to strengthen the Game Design focus. Furthermore, by adding MTEC 2210 Game Design, a 3-credit course and removing the two 1-credit courses we increase the Creative Media Foundation by only 1 credit. This 1 credit increase will be offset by a 1 credit decrease in the Advanced Courses section.

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| --- | --- | --- | --- |
| **FROM:** | | **TO:** | |
| **ADVANCED COURSES (6 COURSES, 22 CREDITS)**  MTEC 3140 Topics and Perspectives in Emerging Technologies  ENT 3320 Technical Production ~~(must be taken 4 times)~~  ENT 4430 Project Management  ENT 4499 Culmination Project  ENT 4900 Internship (135 Field Hours)  MTEC 4800 Interdisciplinary Team Project | cr.  3  ~~8~~  3  2  3  3 | **ADVANCED COURSES (6 COURSES, 21 CREDITS)**  MTEC 3140 Topics and Perspectives in Emerging Technologies  ENT 3320 Technical Production (must be taken 3 times)  ENT 4430 Project Management  ENT 4498 Career Skills  ENT 4499 Culmination Project  ENT 4900 Internship  MTEC 4800 Interdisciplinary Team Project | cr.  3  6  3  1  2  3  3 |

Rationale: This reflects the credit change of ENT 4499 from 2 to 3 credits. To balance this change as well as the added credit in the Creative Media Foundations we have removed two credits of the Technical Production requirement from 8 to 6. This leaves the upper-division credit requirement unchanged.

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| **FROM:** | | **TO:** | |
| **~~MEDIA DESIGN CONCENTRATION~~**  REQUIRED COURSES 13-15 cr.  PHYS 1000 The Physical Universe or higher Met as GenEd  *Select five (5) courses from the following list:*  COMD 3508 Introduction to Game Design Concepts  COMD 3540 2-Dimensional Animation  COMD 3640 3-Dimensional Animation and Modeling I  COMD 3740 3-Dimensional Animation and Modeling II  COMD 4720 Multimedia Design I  ARCH 3550 Building Performance Workshop  ARCH 3551 Sustainability: History and Practice  ENT 1190/ COMD 2320 Introduction to Film and Video Production Design  ENT 1250 Lighting Technology  ENT 1270 Sound Technology I  ENT 3390 Sound for Multimedia  IND 2313 Industrial Design I  ~~MTEC 2210 Media Design~~  MTEC 3125 Nonlinear Narrative  MTEC 3160 Performance Design  ~~MTEC 3175 Ecological Design~~  ~~MTEC 3230 Introduction to Interactive~~  ~~3D Environments Programming~~  MTEC 3240 Data Sonification and Visualization  Other Degree-Specific Elective Courses 9-11 | cr.  3  2  3  3  3  3  3  3  3  3  3  2  3  3  3  3  3  3 | **GAME DESIGN AND INTERACTIVE MEDIA CONCENTRATION**  REQUIRED COURSES 13-15 cr.  PHYS 1000 The Physical Universe or higher Met as GenEd  *Select five (5) courses from the following list:*  COMD 3508 Introduction to Game Design Concepts  COMD 3540 2-Dimensional Animation  COMD 3640 3-Dimensional Animation and Modeling I  COMD 3740 3-Dimensional Animation and Modeling II  COMD 4720 Multimedia Design I  ARCH 3550 Building Performance Workshop  ARCH 3551 Sustainability: History and Practice  ENT 1190/ COMD 2320 Introduction to Film and Video Production Design  ENT 1250 Lighting Technology  ENT 1270 Sound Technology I  ENT 3390 Sound for Multimedia 3  IND 2313 Industrial Design I  MTEC 2210 Game Design and Interactive Media  MTEC 3125 Nonlinear Narrative  MTEC 3160 Performance Design  MTEC 3175 Experimental Game Design and Development  MTEC 3230 Mixed Reality for Immersive Worlds  MTEC 3240 Data Sonification and Visualization  Other Degree-Specific Elective Courses 9-11 | cr.  3  2  3  3  3  3  3  3  3  3  3  2  3  3  3  3  3  3 |

**Rationale:** This reflects the courses whose names have been changed for the Game Design and Interactive Media concentration.

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| **FROM:** | | **TO:** | |
| **~~TANGIBLE MEDIA CONCENTRATION~~**  REQUIRED COURSES 9-17  MAT 1475 Calculus 2 or Higher Met as GenEd  PHYS 1441 General Physics I: Calculus Based Met as GenEd  PHYS 1442 General Physics II: Calculus Based Met as GenEd  MAT 1575 Calculus II Met as GenEd  *Select four (4) courses from the following list:*  ~~IND 1112 Engineering Drawing I~~  MECH 1222 Computer-Aided Engineering Graphics  MECH 1233 Statics and Strength of Materials  IND 2304 Advanced Solids Modeling  ETN 1102 Principles of Electricity and Electronics  ETN 1302 Principles of Electricity, Electronics and Computer Operation  EMT 1150 Electrical Circuits  EMT 1250 Fundamentals of Digital Systems  ENT 2280 Entertainment Control Systems  ENT 4480 Show Systems Integration  MAT 2580 Introduction to Linear Algebra  CST 2403 Introductory C++ Programming Language Part I  CET 3510 Microcomputer Systems Technology  CET 3640 Software for Computer Control  CET 4952 Robotics Technology  OTHER DEGREE-SPECIFIC ELECTIVE COURSES 7-15 | cr.  ~~2~~  2  3  2  4  4  5  4  3  3  3  3  4  3  4 | **PHYSICAL COMPUTING CONCENTRATION**  REQUIRED COURSES 9-17cr.  MAT 1475 Calculus 2 or Higher Met as GenEd  PHYS 1441 General Physics I: Calculus Based Met as GenEd  PHYS 1442 General Physics II: Calculus Based Met as GenEd  MAT 1575 Calculus II Met as GenEd  *Select four (4) courses from the following list:*  MTEC 3280 Embedded Systems for Physical Computing  ENT 1108 Entertainment Drafting I  MECH 1222 Computer-Aided Engineering Graphics  MECH 1233 Statics and Strength of Materials  IND 2304 Advanced Solids Modeling  ETN 1102 Principles of Electricity and Electronics  ETN 1302 Principles of Electricity, Electronics and  Computer Operation  EMT 1150 Electrical Circuits  EMT 1250 Fundamentals of Digital Systems  ENT 2280 Entertainment Control Systems  ENT 4480 Show Systems Integration  MAT 2580 Introduction to Linear Algebra  CST 2403 Introductory C++ Programming Language Part I  CET 3510 Microcomputer Systems Technology  CET 3640 Software for Computer Control  CET 4952 Robotics Technology  OTHER DEGREE-SPECIFIC ELECTIVE COURSES 7-15 | cr.  3  2  3  2  3  2  4  4  5  4  3  3  3  3  4  3 |

Rationale: Adding new course, MTEC 3280 Embedded Systems for Tangible Media, to possible concentration required courses. This title was changed as a compromise with ETET and CET. This is a new course. The change of the concentration’s name from Tangible Media to Physical Computing is articulated on pg. 28, in the rational section for the change. The change in credit requirements for degree specific electives reflects the increase of one credit in the Creative Media Foundations.

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| **FROM:** | | **TO:** | |
| **MEDIA COMPUTATION CONCENTRATION**  REQUIRED COURSES 15-16  MAT 1375 Precalculus or higher Met as Gen Ed  PHYS 1433 General Physics I: Algebra Based or  PHYS 1441 General Physics I: Calculus Based Met as Gen Ed  MAT 2440 Discrete Structures and Algorithms I Met as Gen Ed  *Select five (5) courses from the following list:*  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 Introductory C++ Programming Language Part 3  MTEC 3125 Nonlinear Narrative 3  ~~MTEC 3230 Introduction to Interactive 3D~~  ~~Environments Programming 3~~  ~~MTEC 3240 Interactive Sound for Games and Simulations 3~~  MAT 1475 Calculus I 4  MECH 3550 Simulation and Visualization 3  COMD 3508 Introduction to Game Design Concepts 3  OTHER DEGREE-SPECIFIC ELECTIVE COURSES 8-9 | cr.  3  3  3  3  3  3  3  3  4  3  3 | **MEDIA COMPUTATION CONCENTRATION**  REQUIRED COURSES 15-16cr.  AT 1375 Precalculus or higher Met as Gen Ed  PHYS 1433 General Physics I: Algebra Based or  PHYS 1441 General Physics I: Calculus Based Met as Gen Ed  MAT 2440 Discrete Structures and Algorithms I Met as Gen Ed  *Select five (5) courses from the following list:*  CST 1204 Database System Fundamentals  CST 1215 Operating Systems Fundamentals  CST 2301 Multimedia and Mobile Device Programming  CST 2309 Web Programming I  CST 2403 Introductory C++ Programming Language Part  MTEC 3125 Nonlinear Narrative  MTEC 3175 Experimental Game Design and Development  MTEC 3230 Mixed Reality for Immersive Worlds  MTEC 3240 Data Sonification and Visualization  MTEC 4030 Computational Creativity  MAT 1475 Calculus I  MECH 3550 Simulation and Visualization  COMD 3508 Introduction to Game Design Concepts  OTHER DEGREE-SPECIFIC ELECTIVE COURSES 8-9 | cr.  3  3  3  3  3  3  3  3  3  3  4  3  3 |

Rationale: Adding new course, MTEC 4030 Computational Creativity, to concentration required courses. This is a new course. The change in credit requirements for degree specific electives reflects the increase of one credit in the Creative Media Foundations.

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| **FROM:** | **TO:** | |
|  | **4. MUSIC TECHNOLOGY CONCENTRATION**  **REQUIRED COURSES 15 cr.**  PHYS 1000 The Physical Universe or higher Met as GenEd  *Take these five courses*:  ENT 1270 Sound I  ENT 2370 Sound II  MTEC 2240 Music Technology  MTEC 2260 Music Synthesis and Sampling  ENT 4470 Sound Design  Other Degree-Specific Elective Courses | cr.  3  3  3  3  3  9 |

Rationale: These courses are added for the new concentration of Music Technology.

**Section AIV: New Courses**

**New course to be offered in the Entertainment Technology department**

|  |  |
| --- | --- |
| **Department(s)** | Entertainment Technology |
| **Academic Level** | **[ X ] Regular  [   ] Compensatory  [   ] Developmental  [   ] Remedial** |
| **Course** | MTEC 3280 Embedded Systems for Physical Computing |
| **Prerequisite** | MTEC 2280, MTEC 2230 |
| **Corequisite** |  |
| **Pre- or corequisite** |  |
| **Hours** | 2.0 lecture hours and 2.0 lab hours |
| **Credits** | 3.00 credits |
| **Description** | A focus on the design and implementation of embedded systems with specific applications in emerging media including the following: audio media generation, storage, and playback; sensor control of computational environments in projection and animatronics; hardware control of interactive environments used in such applications as museum display and musical composition/performance. Common, low-cost, available components are used and students apply the knowledge learned in this class to a working final prototype for one of these specific areas. |
| **Requirement Designation** |  |
| **Liberal Arts** | [ ] Yes [ X ] No |
| **Course Attribute (e.g. Writing Intensive, Honors, etc** |  |
| **Course Applicability** | |  | | --- | | [ x] Major | | [ ] Gen Ed Required | | [ ] English Composition | | [ ] Mathematics | | [ ] Science | | [ ] Gen Ed - Flexible | | [ ] World Cultures | | [ ] US Experience in its Diversity | | [ ] Creative Expression | | [ ] Individual and Society | | [ ] Scientific World | | [ ] Gen Ed - College Option | | [ ] Speech | | [ ] Interdisciplinary | | [ ] Advanced Liberal Arts | |
| **Effective Term** | Spring 2018 |

**Rational:** This course builds on MTEC 2280, Ins and Out, and is needed because students in this concentration will be confronted with the need to design and implement embedded systems in the specific contexts that this course addresses. This includes: audio media generation, storage, and playback; interface and dynamic sensor control of computational environments in projection and animatronics; hardware control of interactive environments used in such wide-ranging applications as museum display and musical composition/performance

|  |  |
| --- | --- |
| **Department(s)** | Entertainment Technology Department |
| **Academic Level** | **[ X ] Regular  [   ] Compensatory  [   ] Developmental  [   ] Remedial** |
| **Subject Area** | Emerging Media Technologies |
| **Course Prefix** | MTEC |
| **Course Number** | 4030 |
| **Course Title** | Computational Creativity |
| **Catalog Description** | Introduction to artificial intelligence techniques for computational creativity. Topics covered include formal grammars, Markov chains, hidden Markov models, probabilistic automata, and artificial neural networks. Students use these techniques to analyze and generate digital art and music. |
| **Prerequisite** | MTEC 2230, MAT 2440 |
| **Corequisite** | N/A |
| **Pre- or corequisite** | N/A |
| **Credits** | 3 |
| **Contact Hours** | 2 Class Hours, 2 Lab Hours |
| **Liberal Arts** | **[ ] Yes  [ X ] No** |
| **Course Attribute (e.g. Writing Intensive, etc.)** | N/A |
| **Course Applicability** | |  |  |  | | --- | --- | --- | | **[X] Major** |  | | | **[ ] Gen Ed Required** | **[ ] Gen Ed - Flexible** | **[ ] Gen Ed - College Option** | | **[ ] English Composition** | **[ ] World Cultures** | **[ ] Speech** | | **[ ] Mathematics** | **[ ] US Experience in its Diversity** | **[ ] Interdisciplinary** | | **[ ] Science** | **[ ] Creative Expression** | **[ ] Advanced Liberal Arts** | |  | **[ ] Individual and Society** |  | |  | **[ ] Scientific World** |  | |
| **Effective Term** | Spring 2018 |

**Rationale**: New media design often involves manipulating formal structures that influence aesthetics. Developing software that replicates some of the capabilities of human creativity can aid us in providing solutions to these problems. Studying models of computational creativity also helps us to understand human creative behavior and how we perceive creative work.

**Section AV: Changes to Existing Courses**

|  |  |  |  |
| --- | --- | --- | --- |
| **CUNYFirst Course ID** | 119021 |  |  |
| **FROM:** |  | **TO:** |  |
| **Department(s)** |  | **Department(s)** |  |
| **Course** | MTEC 1001 ~~Media Design Skills Lab~~ | **Course** | MTEC 1001 Game Design and Interactive Media Skills Lab. |
| **Prerequisite** |  | **Prerequisite** |  |
| **Corequisite** |  | **Corequisite** |  |
| **Pre- or corequisite** |  | **Pre- or corequisite** |  |
| **Hours** |  | **Hours** |  |
| **Credits** |  | **Credits** |  |
| **Description** |  | **Description** |  |
| **Requirement Designation** |  | **Requirement Designation** |  |
| **Liberal Arts** | [ ] Yes [ ] No | **Liberal Arts** | [ ] Yes [ ] No |
| **Course Attribute (e.g. Writing Intensive, Honors, etc** |  | **Course Attribute (e.g. Writing Intensive, Honors, etc** |  |
| **Course Applicability** | |  | | --- | | [ x ] Major | | [ ] Gen Ed Required | | [ ] English Composition | | [ ] Mathematics | | [ ] Science | | [ ] Gen Ed - Flexible | | [ ] World Cultures | | [ ] US Experience in its Diversity | | [ ] Creative Expression | | [ ] Individual and Society | | [ ] Scientific World | | [ ] Gen Ed - College Option | | [ ] Speech | | [ ] Interdisciplinary | | [ ] Advanced Liberal Arts | | **Course Applicability** | |  | | --- | | [ x ] Major | | [ ] Gen Ed Required | | [ ] English Composition | | [ ] Mathematics | | [ ] Science | | [ ] Gen Ed - Flexible | | [ ] World Cultures | | [ ] US Experience in its Diversity | | [ ] Creative Expression | | [ ] Individual and Society | | [ ] Scientific World | | [ ] Gen Ed - College Option | | [ ] Speech | | [ ] Interdisciplinary | | [ ] Advanced Liberal Arts | |
| **Effective Term** | Spring 2018 |  |  |

**Rational:** This name change updates the course to reflect the change of track title from Media Design to Game Design and interactive Media.

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| --- | --- | --- | --- |
| **CUNYFirst Course ID** | 119038 |  |  |
| **FROM:** |  | **TO:** |  |
| **Department(s)** |  | **Department(s)** |  |
| **Course** | MTEC 4800 ~~Interdisciplinary Team Project II~~ | **Course** | MTEC 4800 Interdisciplinary Team Project |
| **Prerequisite** |  | **Prerequisite** |  |
| **Corequisite** |  | **Corequisite** |  |
| **Pre- or corequisite** |  | **Pre- or corequisite** |  |
| **Hours** |  | **Hours** |  |
| **Credits** |  | **Credits** |  |
| **Description** |  | **Description** |  |
| **Requirement Designation** |  | **Requirement Designation** |  |
| **Liberal Arts** | [ ] Yes [ ] No | **Liberal Arts** | [ ] Yes [ ] No |
| **Course Attribute (e.g. Writing Intensive, Honors, etc** |  | **Course Attribute (e.g. Writing Intensive, Honors, etc** |  |
| **Course Applicability** | |  | | --- | | [ x ] Major | | [ ] Gen Ed Required | | [ ] English Composition | | [ ] Mathematics | | [ ] Science | | [ ] Gen Ed - Flexible | | [ ] World Cultures | | [ ] US Experience in its Diversity | | [ ] Creative Expression | | [ ] Individual and Society | | [ ] Scientific World | | [ ] Gen Ed - College Option | | [ ] Speech | | [ ] Interdisciplinary | | [ ] Advanced Liberal Arts | | **Course Applicability** | |  | | --- | | [ x ] Major | | [ ] Gen Ed Required | | [ ] English Composition | | [ ] Mathematics | | [ ] Science | | [ ] Gen Ed - Flexible | | [ ] World Cultures | | [ ] US Experience in its Diversity | | [ ] Creative Expression | | [ ] Individual and Society | | [ ] Scientific World | | [ ] Gen Ed - College Option | | [ ] Speech | | [ ] Interdisciplinary | | [ ] Advanced Liberal Arts | |
| **Effective Term** | Spring 2018 |  |  |

**Rationale:** We are removing the series of these courses leaving only the one, thus designating this course as the second of a series is no longer necessary.

|  |  |  |  |
| --- | --- | --- | --- |
| **CUNYFirst Course ID** | 038778 |  |  |
| **FROM:** |  | **TO:** |  |
| **Department(s)** |  | **Department(s)** |  |
| **Course** | ~~ENT 2240~~ Music Technology | **Course** | MTEC 2240 Music Technology |
| **Prerequisite** |  | **Prerequisite** |  |
| **Corequisite** |  | **Corequisite** |  |
| **Pre- or corequisite** |  | **Pre- or corequisite** |  |
| **Hours** |  | **Hours** |  |
| **Credits** |  | **Credits** |  |
| **Description** |  | **Description** |  |
| **Requirement Designation** |  | **Requirement Designation** |  |
| **Liberal Arts** | [ ] Yes [ ] No | **Liberal Arts** | [ ] Yes [ ] No |
| **Course Attribute (e.g. Writing Intensive, Honors, etc** |  | **Course Attribute (e.g. Writing Intensive, Honors, etc** |  |
| **Course Applicability** | |  | | --- | | [x ] Major | | [ ] Gen Ed Required | | [ ] English Composition | | [ ] Mathematics | | [ ] Science | | [ ] Gen Ed - Flexible | | [ ] World Cultures | | [ ] US Experience in its Diversity | | [ ] Creative Expression | | [ ] Individual and Society | | [ ] Scientific World | | [ ] Gen Ed - College Option | | [ ] Speech | | [ ] Interdisciplinary | | [ ] Advanced Liberal Arts | | **Course Applicability** | |  | | --- | | [x ] Major | | [ ] Gen Ed Required | | [ ] English Composition | | [ ] Mathematics | | [ ] Science | | [ ] Gen Ed - Flexible | | [ ] World Cultures | | [ ] US Experience in its Diversity | | [ ] Creative Expression | | [ ] Individual and Society | | [ ] Scientific World | | [ ] Gen Ed - College Option | | [ ] Speech | | [ ] Interdisciplinary | | [ ] Advanced Liberal Arts | |
| **Effective Term** | Spring 2018 |  |  |

Rationale: As a part of creating the Music Technology track we are changing the designation of the Music Technology course from ENT to MTEC

|  |  |  |  |
| --- | --- | --- | --- |
| **CUNYFirst Course ID** | 120941 |  |  |
| **FROM:** |  | **TO:** |  |
| **Department(s)** |  | **Department(s)** |  |
| **Course** | ~~ENT 2260~~ Music Synthesis and Sampling | **Course** | MTEC 2260 Music Synthesis and Sampling |
| **Prerequisite** |  | **Prerequisite** |  |
| **Corequisite** |  | **Corequisite** |  |
| **Pre- or corequisite** |  | **Pre- or corequisite** |  |
| **Hours** |  | **Hours** |  |
| **Credits** |  | **Credits** |  |
| **Description** |  | **Description** |  |
| **Requirement Designation** |  | **Requirement Designation** |  |
| **Liberal Arts** | [ ] Yes [ ] No | **Liberal Arts** | [ ] Yes [ ] No |
| **Course Attribute (e.g. Writing Intensive, Honors, etc** |  | **Course Attribute (e.g. Writing Intensive, Honors, etc** |  |
| **Course Applicability** | |  | | --- | | [x ] Major | | [ ] Gen Ed Required | | [ ] English Composition | | [ ] Mathematics | | [ ] Science | | [ ] Gen Ed - Flexible | | [ ] World Cultures | | [ ] US Experience in its Diversity | | [ ] Creative Expression | | [ ] Individual and Society | | [ ] Scientific World | | [ ] Gen Ed - College Option | | [ ] Speech | | [ ] Interdisciplinary | | [ ] Advanced Liberal Arts | | **Course Applicability** | |  | | --- | | [x ] Major | | [ ] Gen Ed Required | | [ ] English Composition | | [ ] Mathematics | | [ ] Science | | [ ] Gen Ed - Flexible | | [ ] World Cultures | | [ ] US Experience in its Diversity | | [ ] Creative Expression | | [ ] Individual and Society | | [ ] Scientific World | | [ ] Gen Ed - College Option | | [ ] Speech | | [ ] Interdisciplinary | | [ ] Advanced Liberal Arts | |
| **Effective Term** | Spring 2018 |  |  |

Rationale: As a part of creating the Music Technology track we are changing the designation of the Music Technology course from ENT to MTEC

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| --- | --- | --- | --- |
| **CUNYFirst Course ID** | 039646 |  |  |
| **FROM:** |  | **TO:** |  |
| **Department(s)** |  | **Department(s)** |  |
| **Course** | MTEC 1102 Production Practices | **Course** | MTEC 1102 Production Practices |
| **Prerequisite** |  | **Prerequisite** |  |
| **Corequisite** |  | **Corequisite** |  |
| **Pre- or corequisite** |  | **Pre- or corequisite** |  |
| **Hours** |  | **Hours** |  |
| **Credits** |  | **Credits** |  |
| **Description** | ~~A hands-on introduction to the applied~~  ~~principles and production techniques~~  ~~used in interactive media development.~~  ~~Students will be introduced to the basic~~  ~~principles, practices and technology~~  ~~necessary for success in digital media~~  ~~courses including imaging, sound, video~~  ~~and animation, as well as, interactive,~~  ~~networked and physical computing~~  ~~technologies. The structure of this~~ ~~course emphasizes an integrated and~~  ~~creative approach to interactive media~~  ~~with detailed instruction and practice in~~  ~~the technical aspects of production that~~  ~~go hand-in-hand with critical academic~~  ~~thinking.~~ | **Description** | A hands-on introduction to the best practices for production techniques used in games, interactive media, and physical computing product development. Students will acquire a deep understanding of content generation, technology pipeline and delivery systems for creating web, mobile, games, virtual & augmented reality, interactive installation and museum display, wearables and other hardware designs. Students learn the roles and responsibilities, build the skills for each role, as well as apply the design and development processes for each medium. An introduction to design thinking and rapid prototyping techniques, as well as the approval processes essential to bringing a product to market. The structure of this course emphasizes an integrated and multi-modal approach to game design, interactive media and physical computing with modeled instruction and practice in the technical aspects of production. |
| **Requirement Designation** |  | **Requirement Designation** |  |
| **Liberal Arts** | [ ] Yes [ ] No | **Liberal Arts** | [ ] Yes [ ] No |
| **Course Attribute (e.g. Writing Intensive, Honors, etc** |  | **Course Attribute (e.g. Writing Intensive, Honors, etc** |  |
| **Course Applicability** | |  | | --- | | [ x] Major | | [ ] Gen Ed Required | | [ ] English Composition | | [ ] Mathematics | | [ ] Science | | [ ] Gen Ed - Flexible | | [ ] World Cultures | | [ ] US Experience in its Diversity | | [ ] Creative Expression | | [ ] Individual and Society | | [ ] Scientific World | | [ ] Gen Ed - College Option | | [ ] Speech | | [ ] Interdisciplinary | | [ ] Advanced Liberal Arts | | **Course Applicability** | |  | | --- | | [ x] Major | | [ ] Gen Ed Required | | [ ] English Composition | | [ ] Mathematics | | [ ] Science | | [ ] Gen Ed - Flexible | | [ ] World Cultures | | [ ] US Experience in its Diversity | | [ ] Creative Expression | | [ ] Individual and Society | | [ ] Scientific World | | [ ] Gen Ed - College Option | | [ ] Speech | | [ ] Interdisciplinary | | [ ] Advanced Liberal Arts | |
| **Effective Term** | Spring 2018 |  |  |

**Rationale:** We are changing the description to more clearly articulate the current desired outcomes as well as explicitly supporting our added emphasis in game design.

|  |  |  |  |
| --- | --- | --- | --- |
| **CUNYFirst Course ID** | 128203 |  |  |
| **FROM:** |  | **TO:** |  |
| **Department(s)** |  | **Department(s)** |  |
| **Course** | MTEC 2250 ~~Tangible Media~~ | **Course** | MTEC 2250 Fabrication for Physical Computing |
| **Prerequisite** |  | **Prerequisite** | MTEC 1005, MTEC 1102 |
| **Corequisite** |  | **Corequisite** |  |
| **Pre- or corequisite** | ~~Prerequisite: MTEC 1005; Pre- or~~  ~~corequisite: MTEC 1102~~ | **Pre- or corequisite** | CST 1101 |
| **Hours** |  | **Hours** |  |
| **Credits** |  | **Credits** |  |
| **Description** | ~~Focuses on the human side of~~  ~~technology. Students investigate the~~  ~~reasoning behind different materials~~  ~~selections and the technology behind~~  ~~products, such as touch screens, iPods,~~  ~~and other electronics designed for~~  ~~human interaction~~ | **Description** | A companion course to MTEC 2280, Ins and Outs, Fabrication for Physical Computing is a project-oriented course that focuses on digital fabrication techniques in emerging media practices. Students deepen their knowledge of 3D design tools for use in CNC, laser cutters, 3D printers, and printed circuit boards. Students also explore and experiment with different materials available for the different fabrication machines. |
| **Requirement Designation** |  | **Requirement Designation** |  |
| **Liberal Arts** | [ ] Yes [ ] No | **Liberal Arts** | [ ] Yes [ ] No |
| **Course Attribute (e.g. Writing Intensive, Honors, etc** |  | **Course Attribute (e.g. Writing Intensive, Honors, etc** |  |
| **Course Applicability** | |  | | --- | | [ x] Major | | [ ] Gen Ed Required | | [ ] English Composition | | [ ] Mathematics | | [ ] Science | | [ ] Gen Ed - Flexible | | [ ] World Cultures | | [ ] US Experience in its Diversity | | [ ] Creative Expression | | [ ] Individual and Society | | [ ] Scientific World | | [ ] Gen Ed - College Option | | [ ] Speech | | [ ] Interdisciplinary | | [ ] Advanced Liberal Arts | | **Course Applicability** | |  | | --- | | [ x] Major | | [ ] Gen Ed Required | | [ ] English Composition | | [ ] Mathematics | | [ ] Science | | [ ] Gen Ed - Flexible | | [ ] World Cultures | | [ ] US Experience in its Diversity | | [ ] Creative Expression | | [ ] Individual and Society | | [ ] Scientific World | | [ ] Gen Ed - College Option | | [ ] Speech | | [ ] Interdisciplinary | | [ ] Advanced Liberal Arts | |
| **Effective Term** | Spring 2018 |  |  |

**Rationale:** This course description often created a duplicate course to MTEC 2280 Ins and Outs, which focuses on the circuitry for interface design. By changing the description to emphasize the fabrication side of Physical Computing and interface design it more accurately reflects course objectives.

|  |  |  |  |
| --- | --- | --- | --- |
| **CUNYFirst Course ID** | 119025 |  |  |
| **FROM:** |  | **TO:** |  |
| **Department(s)** |  | **Department(s)** |  |
| **Course** | MTEC 2210 ~~Media Design~~ | **Course** | MTEC 2210 Game Design and Interactive Media |
| **Prerequisite** |  | **Prerequisite** | MTEC 1102 |
| **Corequisite** |  | **Corequisite** |  |
| **Pre- or corequisite** | ~~Pre- or corequisite: MTEC 1102~~ | **Pre- or corequisite** | MTEC 2120 |
| **Hours** |  | **Hours** |  |
| **Credits** |  | **Credits** |  |
| **Description** | ~~A cross-disciplinary foundation~~  ~~presenting design principles and~~  ~~applied concepts for all creative~~  ~~disciplines, including media design,~~  ~~computing, and engineering. Using~~  ~~case studies, brainstorming, and~~  ~~idea generation, students learn~~  ~~creative thinking and problem solving~~  ~~techniques to enhance usability,~~  ~~influence perception, increase appeal,~~  ~~and make better design decisions.~~ | **Description** | Game Design and Interactive Media is a cross-disciplinary foundation for the design of games and interactive multi-media technology for artists, engineers, scientists and technologists. Students learn human-centered design principles and apply these methodologies to collaborative team-based projects across web interactive, mobile, games, virtual & augmented reality, biomedia, and environmental installation. Using case studies, brainstorming processes, and rapid analog and digital prototyping, students learn design thinking and problem solving techniques to enhance usability, incorporate sensory experience, influence perception, increase appeal, and make more effective interactive design decisions. |
| **Requirement Designation** |  | **Requirement Designation** |  |
| **Liberal Arts** | [ ] Yes [ ] No | **Liberal Arts** | [ ] Yes [ ] No |
| **Course Attribute (e.g. Writing Intensive, Honors, etc** |  | **Course Attribute (e.g. Writing Intensive, Honors, etc** |  |
| **Course Applicability** | |  | | --- | | [ x] Major | | [ ] Gen Ed Required | | [ ] English Composition | | [ ] Mathematics | | [ ] Science | | [ ] Gen Ed - Flexible | | [ ] World Cultures | | [ ] US Experience in its Diversity | | [ ] Creative Expression | | [ ] Individual and Society | | [ ] Scientific World | | [ ] Gen Ed - College Option | | [ ] Speech | | [ ] Interdisciplinary | | [ ] Advanced Liberal Arts | | **Course Applicability** | |  | | --- | | [ x] Major | | [ ] Gen Ed Required | | [ ] English Composition | | [ ] Mathematics | | [ ] Science | | [ ] Gen Ed - Flexible | | [ ] World Cultures | | [ ] US Experience in its Diversity | | [ ] Creative Expression | | [ ] Individual and Society | | [ ] Scientific World | | [ ] Gen Ed - College Option | | [ ] Speech | | [ ] Interdisciplinary | | [ ] Advanced Liberal Arts | |
| **Effective Term** | Spring 2018 |  |  |

**Rationale:** This course has been dormant for several years. This name and description change focuses the course to reflect the change of our media design track to Game Design and Interactive Media.

|  |  |  |  |
| --- | --- | --- | --- |
| **CUNYFirst Course ID** | MTEC 3175 |  |  |
| **FROM:** |  | **TO:** |  |
| **Department(s)** |  | **Department(s)** |  |
| **Course** | MTEC 3175 ~~Ecological Design~~ | **Course** | MTEC 3175 Experimental Game Design and Development |
| **Prerequisite** |  | **Prerequisite** | MTEC 2210 |
| **Corequisite** |  | **Corequisite** |  |
| **Pre- or corequisite** | ~~MTEC 2120 or MTEC 2250~~ | **Pre- or corequisite** | MTEC 2230 |
| **Hours** |  | **Hours** |  |
| **Credits** |  | **Credits** |  |
| **Description** | ~~An introduction to the principles and~~  ~~practices of eco-effectiveness as they~~  ~~relate to the design of environments,~~  ~~products, and systems. Examination~~  ~~of scientific principles and design~~  ~~approaches, such as biomimicry,~~  ~~diversity, and cradle-to-cradle~~  ~~design process. Students engage~~  ~~in collaborative online discussions,~~  ~~hands-on experiments and interviews,~~  ~~and produce a tangible, final project.~~ | **Description** | This hands-on studio course focuses on the creation of innovative workable prototypes exploring expressive forms of gameplay using a variety of multi-media approaches, methodologies and materials. The aesthetics of game design, including asset and character development, level design, game play experience and delivery systems is covered. Supplemental readings on the complex interplay between story and game is used to analyze effective narrative devices and game mechanics. The class covers game theory, design exercises and in-depth analysis of works across commercial, art & social change sectors. |
| **Requirement Designation** |  | **Requirement Designation** |  |
| **Liberal Arts** | [ ] Yes [ ] No | **Liberal Arts** | [ ] Yes [ ] No |
| **Course Attribute (e.g. Writing Intensive, Honors, etc** |  | **Course Attribute (e.g. Writing Intensive, Honors, etc** |  |
| **Course Applicability** | |  | | --- | | [ x] Major | | [ ] Gen Ed Required | | [ ] English Composition | | [ ] Mathematics | | [ ] Science | | [ ] Gen Ed - Flexible | | [ ] World Cultures | | [ ] US Experience in its Diversity | | [ ] Creative Expression | | [ ] Individual and Society | | [ ] Scientific World | | [ ] Gen Ed - College Option | | [ ] Speech | | [ ] Interdisciplinary | | [ ] Advanced Liberal Arts | | **Course Applicability** | |  | | --- | | [ x] Major | | [ ] Gen Ed Required | | [ ] English Composition | | [ ] Mathematics | | [ ] Science | | [ ] Gen Ed - Flexible | | [ ] World Cultures | | [ ] US Experience in its Diversity | | [ ] Creative Expression | | [ ] Individual and Society | | [ ] Scientific World | | [ ] Gen Ed - College Option | | [ ] Speech | | [ ] Interdisciplinary | | [ ] Advanced Liberal Arts | |
| **Effective Term** | Spring 2018 |  |  |

**Rationale**: MTEC 3175 has never been offered. This change will help provide an upper level course to support the Game Design and Interactive Media Track as well as generate student interest. In changing this course description and title, we are using a very broad definition of ecological design relating to the creation of ‘environments, products (apps), and systems.’ (to borrow from the old course description.) This is what experimental game design is concerned with, the creation of interactive ecologies—visual systems for exploration. This course has never been offered. We are using this course number to create a functional upper-division course for the Game Design and Interactive Media concentration.

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| --- | --- | --- | --- |
| **CUNYFirst Course ID** | 119033 |  |  |
| **FROM:** |  | **TO:** |  |
| **Department(s)** |  | **Department(s)** |  |
| **Course** | MTEC 3230 ~~Interactive Introduction to Interactive 3-Dimensional Environments Programming~~ | **Course** | MTEC 3230 Mixed Reality for Immersive Worlds |
| **Prerequisite** |  | **Prerequisite** | MTEC 2210 |
| **Corequisite** |  | **Corequisite** |  |
| **Pre- or corequisite** | ~~MTEC 2230, MAT 1190~~ | **Pre- or corequisite** | MTEC 2230 |
| **Hours** |  | **Hours** |  |
| **Credits** |  | **Credits** |  |
| **Description** | ~~This course provides students with~~  ~~technical foundations and opportunity~~  ~~to work with state of the art virtual~~  ~~reality (VR) systems and interactive~~  ~~3D environments. The foundations~~  ~~covered in this course apply to~~  ~~computer games, 3D film production,~~  ~~immersive environments, and virtual~~  ~~scenery for live performance. Students~~  ~~will be prepared to apply and extend~~  ~~basic skills in modeling, scripting and~~  ~~programming. Emphasizes production,~~  ~~teamwork, analysis of interactive~~  ~~3D systems, and applications-driven~~  ~~user experiences with assessment of~~  ~~aesthetic orientation.~~ | **Description** | An exploration of the new frontier of virtual, augmented and mixed reality across different market sectors. Students experiment with designing and developing game-based and interactive projects employing augmented reality (AR), virtual reality (VR), wearables, Internet-of-Things, and machine learning for mobile, web and console environments. Students learn the fundamentals of Unity development, 3D modeling, stereoscopic perception and experiential design in the context of storytelling and content creation specific to these emerging forms. They work in small teams on collaborative projects with the latest head-mounted and sensor technology. |
| **Requirement Designation** |  | **Requirement Designation** |  |
| **Liberal Arts** | [ ] Yes [ ] No | **Liberal Arts** | [ ] Yes [ ] No |
| **Course Attribute (e.g. Writing Intensive, Honors, etc** |  | **Course Attribute (e.g. Writing Intensive, Honors, etc** |  |
| **Course Applicability** | |  | | --- | | [ x] Major | | [ ] Gen Ed Required | | [ ] English Composition | | [ ] Mathematics | | [ ] Science | | [ ] Gen Ed - Flexible | | [ ] World Cultures | | [ ] US Experience in its Diversity | | [ ] Creative Expression | | [ ] Individual and Society | | [ ] Scientific World | | [ ] Gen Ed - College Option | | [ ] Speech | | [ ] Interdisciplinary | | [ ] Advanced Liberal Arts | | **Course Applicability** | |  | | --- | | [ x] Major | | [ ] Gen Ed Required | | [ ] English Composition | | [ ] Mathematics | | [ ] Science | | [ ] Gen Ed - Flexible | | [ ] World Cultures | | [ ] US Experience in its Diversity | | [ ] Creative Expression | | [ ] Individual and Society | | [ ] Scientific World | | [ ] Gen Ed - College Option | | [ ] Speech | | [ ] Interdisciplinary | | [ ] Advanced Liberal Arts | |
| **Effective Term** | Spring 2018 |  |  |

**Rationale**: This change updates the course to current vocabulary and techniques in the field.

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| **CUNYFirst Course ID** | 126450 |  |  |
| **FROM:** |  | **TO:** |  |
| **Department(s)** |  | **Department(s)** |  |
| **Course** | MTEC 3140 Topics and Perspectives in  Emerging Technologies | **Course** | MTEC 3140 Topics and Perspectives in  Emerging Technologies |
| **Prerequisite** |  | **Prerequisite** |  |
| **Corequisite** |  | **Corequisite** |  |
| **Pre- or corequisite** | ~~ENG 1121 and any one of~~  ~~the following: MTEC 2230, ENT 3200,~~  ~~ENT 2280, ENT 2370, or ENT 3390~~ | **Pre- or corequisite** | MTEC 2210 and MTEC 2230, for non MTEC majors: ENG 1773 Weird Science or ENG 2420 Science Fiction, |
| **Hours** |  | **Hours** |  |
| **Credits** |  | **Credits** |  |
| **Description** | ~~(Offered in the fall semester)~~ | **Description** | .  ~~(~~Offered in the spring semester) |
| **Requirement Designation** |  | **Requirement Designation** |  |
| **Liberal Arts** | [ ] Yes [ ] No | **Liberal Arts** | [ ] Yes [ ] No |
| **Course Attribute (e.g. Writing Intensive, Honors, etc** |  | **Course Attribute (e.g. Writing Intensive, Honors, etc** |  |
| **Course Applicability** | |  | | --- | | [ x] Major | | [ ] Gen Ed Required | | [ ] English Composition | | [ ] Mathematics | | [ ] Science | | [ ] Gen Ed - Flexible | | [ ] World Cultures | | [ ] US Experience in its Diversity | | [ ] Creative Expression | | [ ] Individual and Society | | [ ] Scientific World | | [ ] Gen Ed - College Option | | [ ] Speech | | [ ] Interdisciplinary | | [ ] Advanced Liberal Arts | | **Course Applicability** | |  | | --- | | [ x] Major | | [ ] Gen Ed Required | | [ ] English Composition | | [ ] Mathematics | | [ ] Science | | [ ] Gen Ed – Flexible | | [ ] World Cultures | | [ ] US Experience in its Diversity | | [ ] Creative Expression | | [ ] Individual and Society | | [ ] Scientific World | | [ ] Gen Ed - College Option | | [ ] Speech | | [ ] Interdisciplinary | | [ ] Advanced Liberal Arts | |
| **Effective Term** | Spring 2018 |  |  |

**Rationale**: We are changing the prerequisites to create a path for students not in the Emerging Media major to take the course as an upper-level liberal arts course. There are two different paths for this critical analysis of new technologies course because each set of students will approach it from different perspectives. This is intentional and the course requires no technological or computational skills.

**Changes to be offered in the Entertainment Technology department**

|  |  |  |  |
| --- | --- | --- | --- |
| **CUNYFirst Course ID** | 039645 |  |  |
| **FROM:** |  | **TO:** |  |
| **Department(s)** |  | **Department(s)** |  |
| **Course** | MTEC 1101 Emerging Media Foundation | Course | MTEC 1101 Emerging Media Foundation |
| **Prerequisite** |  | **Prerequisite** |  |
| **Corequisite** |  | **Corequisite** |  |
| **Pre- or corequisite** | MTEC 1001~~, CST 1101~~ | **Pre- or corequisite** | MTEC 1001, ENT 1100, |
| **Hours** |  | **Hours** |  |
| **Credits** |  | **Credits** |  |
| **Description** |  | **Description** |  |
| **Requirement Designation** |  | **Requirement Designation** |  |
| **Liberal Arts** | [ ] Yes [ ] No | **Liberal Arts** | [ ] Yes [ ] No |
| **Course Attribute (e.g. Writing Intensive, Honors, etc** |  | **Course Attribute (e.g. Writing Intensive, Honors, etc** |  |
| **Course Applicability** | |  | | --- | | [ x ] Major | | [ ] Gen Ed Required | | [ ] English Composition | | [ ] Mathematics | | [ ] Science | | [ ] Gen Ed - Flexible | | [ ] World Cultures | | [ ] US Experience in its Diversity | | [ ] Creative Expression | | [ ] Individual and Society | | [ ] Scientific World | | [ ] Gen Ed - College Option | | [ ] Speech | | [ ] Interdisciplinary | | [ ] Advanced Liberal Arts | | **Course Applicability** | |  | | --- | | [ x ] Major | | [ ] Gen Ed Required | | [ ] English Composition | | [ ] Mathematics | | [ ] Science | | [ ] Gen Ed – Flexible | | [ ] World Cultures | | [ ] US Experience in its Diversity | | [ ] Creative Expression | | [ ] Individual and Society | | [ ] Scientific World | | [ ] Gen Ed - College Option | | [ ] Speech | | [ ] Interdisciplinary | | [ ] Advanced Liberal Arts | |
| **Effective Term** | Spring 2018 |  |  |

Rationale:. We removed CST 1101 in the prerequisites because we hope that students can take this in their first year. This is a conceptual, historical course.

**Changes to be offered in the Entertainment Technology department**

|  |  |  |  |
| --- | --- | --- | --- |
| **CUNYFirst Course ID** | 119022 |  |  |
| **FROM:** |  | **TO:** |  |
| **Department(s)** |  | **Department(s)** |  |
| **Course** | MTEC 2120 Interactive Media Systems Design | Course | MTEC 2120 Interactive Media Systems Design |
| **Prerequisite** |  | **Prerequisite** | MTEC 1101 |
| **Corequisite** |  | **Corequisite** |  |
| **Pre- or corequisite** | MTEC 1102 | **Pre- or corequisite** | MTEC 1102, CST 1101 |
| **Hours** |  | **Hours** |  |
| **Credits** |  | **Credits** |  |
| **Description** |  | **Description** |  |
| **Requirement Designation** |  | **Requirement Designation** |  |
| **Liberal Arts** | [ ] Yes [ ] No | **Liberal Arts** | [ ] Yes [ ] No |
| **Course Attribute (e.g. Writing Intensive, Honors, etc** |  | **Course Attribute (e.g. Writing Intensive, Honors, etc** |  |
| **Course Applicability** | |  | | --- | | [ x ] Major | | [ ] Gen Ed Required | | [ ] English Composition | | [ ] Mathematics | | [ ] Science | | [ ] Gen Ed - Flexible | | [ ] World Cultures | | [ ] US Experience in its Diversity | | [ ] Creative Expression | | [ ] Individual and Society | | [ ] Scientific World | | [ ] Gen Ed - College Option | | [ ] Speech | | [ ] Interdisciplinary | | [ ] Advanced Liberal Arts | | **Course Applicability** | |  | | --- | | [ x ] Major | | [ ] Gen Ed Required | | [ ] English Composition | | [ ] Mathematics | | [ ] Science | | [ ] Gen Ed - Flexible | | [ ] World Cultures | | [ ] US Experience in its Diversity | | [ ] Creative Expression | | [ ] Individual and Society | | [ ] Scientific World | | [ ] Gen Ed - College Option | | [ ] Speech | | [ ] Interdisciplinary | | [ ] Advanced Liberal Arts | |
| **Effective Term** | Spring 2018 |  |  |

Rationale: Changing the prerequisites to give students more experience before taking the course.

**Changes to be offered in the Entertainment Technology department**

|  |  |  |  |
| --- | --- | --- | --- |
| **CUNYFirst Course ID** | 126448 |  |  |
| **FROM:** |  | **TO:** |  |
| **Department(s)** |  | **Department(s)** |  |
| **Course** | MTEC 2280 Ins and Outs | Course | MTEC 2280 Ins and Outs |
| **Prerequisite** | ~~ENT 1203 and~~ CST 1101; | **Prerequisite** | CST 1101 and ENT 1203 or MTEC 1005 |
| **Corequisite** |  | **Corequisite** |  |
| **Pre- or corequisite** |  | **Pre- or corequisite** |  |
| **Hours** |  | **Hours** |  |
| **Credits** |  | **Credits** |  |
| **Description** |  | **Description** |  |
| **Requirement Designation** |  | **Requirement Designation** |  |
| **Liberal Arts** | [ ] Yes [ ] No | **Liberal Arts** | [ ] Yes [ ] No |
| **Course Attribute (e.g. Writing Intensive, Honors, etc** |  | **Course Attribute (e.g. Writing Intensive, Honors, etc** |  |
| **Course Applicability** | |  | | --- | | [ x ] Major | | [ ] Gen Ed Required | | [ ] English Composition | | [ ] Mathematics | | [ ] Science | | [ ] Gen Ed - Flexible | | [ ] World Cultures | | [ ] US Experience in its Diversity | | [ ] Creative Expression | | [ ] Individual and Society | | [ ] Scientific World | | [ ] Gen Ed - College Option | | [ ] Speech | | [ ] Interdisciplinary | | [ ] Advanced Liberal Arts | | **Course Applicability** | |  | | --- | | [ x ] Major | | [ ] Gen Ed Required | | [ ] English Composition | | [ ] Mathematics | | [ ] Science | | [ ] Gen Ed - Flexible | | [ ] World Cultures | | [ ] US Experience in its Diversity | | [ ] Creative Expression | | [ ] Individual and Society | | [ ] Scientific World | | [ ] Gen Ed - College Option | | [ ] Speech | | [ ] Interdisciplinary | | [ ] Advanced Liberal Arts | |
| **Effective Term** | Spring 2018 |  |  |

Rationale: Adding prerequisites to give MTEC students more experience prior to the course.

**Changes to be offered in the Entertainment Technology department**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CUNYFirst Course ID** | 128204 |  |  |  |
| **FROM:** |  |  | **TO:** |  |
| **Department(s)** |  |  | **Department(s)** |  |
| **Course** | MTEC 3125 Nonlinear Narrative |  | **Course** | MTEC 3125 Nonlinear Narrative |
| **Prerequisite** |  |  | **Prerequisite** | ENG 1121, MTEC 2210 |
| **Corequisite** |  |  | **Corequisite** |  |
| **Pre- or corequisite** | ~~MTEC 2120 or MTEC 2250~~ |  | **Pre- or corequisite** | ENT 3320 or ENG 1710 or ENG 1773 |
| **Hours** |  |  | **Hours** |  |
| **Credits** |  |  | **Credits** |  |
| **Description** |  |  | **Description** |  |
| **Requirement Designation** |  |  | **Requirement Designation** |  |
| **Liberal Arts** |  | [ ] Yes [ ] No | **Liberal Arts** | [ ] Yes [ ] No |
| **Course Attribute (e.g. Writing Intensive, Honors, etc** |  |  | **Course Attribute (e.g. Writing Intensive, Honors, etc** |  |
| **Course Applicability** |  | |  | | --- | | [x ] Major | | [ ] Gen Ed Required | | [ ] English Composition | | [ ] Mathematics | | [ ] Science | | [ ] Gen Ed - Flexible | | [ ] World Cultures | | [ ] US Experience in its Diversity | | [ ] Creative Expression | | [ ] Individual and Society | | [ ] Scientific World | | [ ] Gen Ed - College Option | | [ ] Speech | | [ ] Interdisciplinary | | [ ] Advanced Liberal Arts | | **Course Applicability** | |  | | --- | | [x ] Major | | [ ] Gen Ed Required | | [ ] English Composition | | [ ] Mathematics | | [ ] Science | | [ ] Gen Ed - Flexible | | [ ] World Cultures | | [ ] US Experience in its Diversity | | [ ] Creative Expression | | [ ] Individual and Society | | [ ] Scientific World | | [ ] Gen Ed - College Option | | [ ] Speech | | [ ] Interdisciplinary | | [ ] Advanced Liberal Arts | |
| **Effective Term:** | **Spring 2018** |  |  |  |

**Rationale:** Creating a path to take the course for ENT students as well as MTEC students.

**Section AVI: Courses Withdrawn**

**Entertainment Technology Department**

MTEC 3800 IDTP I

MTEC 4801 IDTP III

MTEC 2002 Media Technology Skills LAB IV

MTEC 3001 Media Technology Skills LAB V

MTEC 3002 Media Technology Skills LAB VI

**Rationale:** These courses are part of a sequence of courses from the very first iteration of the Emerging Media Technologies program. They have not been offered since 2013.

###### Change or Adapt a Registered Program

Use the [Request to Change or Adapt a Registered Program](#changeform)form to request program changes that require approval by the State Education Department (see chart).[[1]](#footnote-1) For **programs that are registered jointly** with another institution, all participating institutions must confirm support for the changes.

***Exceptions***:

* To change a registered professional licensure program or add a license qualification to an existing program, contact the [Office of the Professions](http://www.op.nysed.gov/contact.htm) for guidance.
* To change a registered teacher certification or educational leadership certification program or add a certificate qualification to an existing program, use the education program change form.

| **Changes and Adaptations Requiring State Education Department Approval** |
| --- |
| **Changes in Program Content** (all programs)   1. *Any* of the following substantive changes:  * Cumulative change from the Department’s last approval of the registered program of one-third or more of the minimum credits required for the award (e.g., 20 credits in an associate degree program) * Changes in the program’s focus or design (e.g., eliminating management courses in a business administration program), including a change in the program’s major disciplinary area * Adding or eliminating an option or concentration * Eliminating a requirement for completion, including an internship, clinical, cooperative education, or other work-based experience * Altering the liberal arts and science content in a way that changes the degree classification, as defined in Section 3.47(c)(1-4) of [Regents Rules](http://www.highered.nysed.gov/ocue/rules.htm) |
| **Other Changes** (all programs)   1. Program title 2. Program award (e.g., change in degree) 3. Mode of delivery (**Note**: if the change involves adding a **distance education format** to a registered program, please complete the [distance education application](http://www.highered.nysed.gov/ocue/ded/reviseddepplication.doc).) **included in Part C of this Handbook)** 4. Discontinuing a program 5. A format change that alters the program's financial aid eligibility (e.g., from full-time to part-time, or to an abbreviated or accelerated semester) 6. A change in the total number of credits of any certificate or advanced certificate program |
| **Establishing New Programs Based on Existing Registered Programs**   1. Creating a dual-degree program from existing registered programs 2. Creating a new program from a concentration/track in an existing registered program |

PLEASE NOTE:

Establishing an existing program at a new location requires new registration of the program. If the requested action changes the program’s major disciplinary area, master plan amendmentmay be needed if the revised program represents the institution’s first program in that major subject area, at that degree level. If a requested **degree title** is not authorized for an institution chartered by the Board of Regents, charter amendment will be needed.

NEW YORK STATE EDUCATION DEPARTMENT

Office of Higher Education—Office of College and University Evaluation

89 Washington Avenue, Albany, NY 12234

(518) 474-2593 Fax: (518) 486-2779

ocueinfo@mail.nysed.gov

<http://www.highered.nysed.gov/ocue/>

|  |  |
| --- | --- |
| Request to Change or Adapt a Registered Program | |
| **Item** | **Response** *(type in the requested information)* |
| **Institution name and address** | New York City College of Technology  300 Jay Street  Brooklyn NY 11201 |
| **Identify the program you wish to change** | Program title: Emerging Media Technology  [Award](http://www.highered.nysed.gov/ocue/chapter_i_of_title_8_of_the_offi.htm) BTech  Credits: 120  HEGIS code: 1099.00  [Program code](http://www.nysed.gov/heds/IRPSL1.html): 33748 |
| **Contact person for this proposal** | Name and title: Bonne August, Provost    Telephone: 718-260-5560 Fax: E-mail: BAugust@citytech.cuny.edu |
| **CEO** (or designee) **approval**  *Signature affirms the institution’s commitment to support the program as revised.* | Name and title:  Signature and date**:** |
| If the program will be registered jointly[[2]](#footnote-2) with another institution, provide the following information: |
| Partner institution’s name:  Name and title of partner institution’s CEO:  Signature of partner institution’s CEO**:** |

* For **programs that are registered jointly** with another institution, all participating institutions must confirm their support of the changes.
* To change a registered professional licensure program or add a license qualification to an existing program, contact the [Office of the Professions](http://www.op.nysed.gov/contact.htm) for guidance.
* To change a registered teacher certification or educational leadership certification program or add a certificate qualification to an existing program, use the education program change form.
  + - If the change involves **establishing an existing registered program at a new location**, complete a new registration application for the proposed program.

|  |
| --- |
| **Check all changes that apply and provide the requested information.** |
| Changes in Program Content *(Describe and explain all proposed changes; provide a side-by-side comparison of the existing and newly modified programs.)* |
| [ ] Cumulative change from the Department’s last approval of the registered program that impacts one- third or more of the minimum credits required for the award (e.g., 20 credits in an associate degree program)  [ ] Changes in a program’s focus or design  [X] Adding or eliminating an option or concentration  [ ] Eliminating a requirement for program completion  [ ] Altering the liberal arts and science content in a way that changes the degree classification, as defined in Section 3.47(c)(1-4) of [Regents Rules](http://www.highered.nysed.gov/ocue/rules.htm)  **If new courses are being added as part of the noted change(s)**, provide a syllabus for each new course and list the name, qualifications, and relevant experience of faculty teaching the course(s). Syllabi should include a course description and identify course credit, objectives, topics, student outcomes, texts/resources, and the basis for determining grades. |
| Other Changes *(describe and explain all proposed changes)* |
| [ ] **Program title** |
| [ ] **Program award** |
| [ ] **Mode of** **Delivery** (**Note**: if the change involves adding a **distance education format** to a registered program, please complete the [distance education application](http://www.highered.nysed.gov/ocue/ded/reviseddepplication.doc).) |
| [ ] **Discontinuing a program** |
| [ ] **Format change** (e.g., from full-time to part-time, or to an abbreviated or accelerated semester)   1. Indicate proposed format: 2. Describe availability of courses and any change in faculty, resources, or support services: 3. Use the Sample Program Schedule to show the sequencing and scheduling of courses in the program. |

|  |
| --- |
| Establishing New Programs Based on Existing Registered Programs |
| [ ] **Creating a dual-degree program** from existing registered programs   1. Complete the following table to identify the existing programs:  |  |  |  |  | | --- | --- | --- | --- | |  | **Program Title** | **Degree Award** | **Program Code** | | Program 1 |  |  |  | | Program 2 |  |  |  |  1. Proposed dual-degree program (title and award):[[3]](#footnote-3) 2. Courses that will be counted toward both awards: 3. Length of time for candidates to complete the proposed program: 4. Use the Sample Program Schedule to show the sequencing and scheduling of courses in the dual-degree program. |
| [ ] **Creating a new program from a** **concentration/track in an existing program**.  If the new program is based ***entirely*** on existing courses in a registered program, provide the current program name, program code, and the following information:  **Note**: this abbreviated option applies only if a master plan amendment is NOT required ***and*** there are no new courses or changes to program admissions and evaluation elements. If these conditions are not met, submit a new registration application for the proposed program.   1. Information from the Application for Registration of a New Program form: cover page (page 1), Sample Program Schedule form, and faculty information charts (full-time faculty, part-time faculty, and faculty to be hired) 2. Brief description of the proposed program and rationale for converting the existing coursework to a separately registered program: 3. Expected impact on existing program: 4. Adjustments the institution will make to its current resource allocations to support the program: 5. Statement confirming that the admission standards and process and evaluation methods are the same as those in the existing registered program: |

**Note**: if the change involves **establishing an existing registered program at a new location**, complete a new registration application for the proposed program.

**RATIONAL FOR CHANGES IN PROGRAM CONTENT 🡪 ADDING A CONCENTRATION**

The Emerging Media Technology Program is adding a Music Technology Concentration, to bring the total of concentrations to FOUR. This new track reflects student interest in music and interactive media. Creating this track has been a target of the Emerging Media Technologies Program and the Entertainment Technology department for several years. It was included as a target in our last three-year plan.

1. **CUNY and SUNY** institutions: contact System Administration for guidance. [↑](#footnote-ref-1)
2. If the partner institution is non-degree-granting, see CEO Memo 94-04 at [www.highered.nysed.gov/ocue/ceo94-04.htm](http://www.highered.nysed.gov/ocue/ceo94-04.htm). [↑](#footnote-ref-2)
3. Only candidates with the capacity to complete the requirements of both degrees shall be admitted to a dual-degree program. [↑](#footnote-ref-3)