July 12, 2018

James D. Fielder, Jr.
Secretary of Higher Education
Maryland Higher Education Commission
6 N. Liberty Street
Baltimore, MD 21201

Dear Secretary Fielder:

I am writing to request approval for a new Post-Baccalaureate Certificate program in Integrated Technology in Education.

The proposal for the new certificate program is attached. I am also submitting this proposal to the University System of Maryland for approval.

The proposal was endorsed by the appropriate faculty and administrative committees, and was recommended for approval by the University Senate at its meeting on May 9, 2018. I also endorse this proposal and am pleased to submit it for your approval.

Sincerely,

Wallace D. Loh
President

MDC
cc: Antoinette Coleman, Associate Vice Chancellor for Academic Affairs
        Mary Ann Rankin, Senior Vice President and Provost
        Jennifer King Rice, Dean, College of Education

Cover Sheet for In-State Institutions
New Program or Substantial Modification to Existing Program

Institution Submitting Proposal	University of Maryland, College Park

*Each **action** below requires a separate proposal and cover sheet.*

○ New Academic Program

○ New Area of Concentration

○ New Degree Level Approval

◉ New Stand-Alone Certificate

○ Off Campus Program

○ Substantial Change to a Degree Program

○ Substantial Change to an Area of Concentration

○ Substantial Change to a Certificate Program

○ Cooperative Degree Program

○ Offer Program at Regional Higher Education Center

Payment Submitted:	○ Yes ◉ No	Payment Type:	○ R*STARS ◉ Check	Date Submitted:	
Department Proposing Program	Teaching and Learning, Policy and Leadership				
Degree Level and Degree Type	Post-Baccalaureate Certificate				
Title of Proposed Program	Integrated Technology in Education				
Total Number of Credits	12				
Suggested Codes	HEGIS:			CIP: 13.0501	
Program Modality	◉ On-campus ○ Distance Education (*fully online*) ○ Both				
Program Resources	◉ Using Existing Resources ○ Requiring New Resources				
Projected Implementation Date	◉ Fall ○ Spring ○ Summer Year: 2018				
Provide Link to Most Recent Academic Catalog	URL: https://academiccatalog.umd.edu				
Preferred Contact for this Proposal	Name: David Weintrop				
	Title: Assistant Professor, Teaching and Learning, Policy and Leadership				
	Phone: (301) 405-3324				
	Email: weintrop@umd.edu				
President/Chief Executive	Type Name: Wallace Loh				
	Signature: Date: 7-13-18				
	Date of Approval/Endorsement by Governing Board:				

Revised 6/13/18

A. Centrality to the University's Mission and Planning Priorities

Description. The University of Maryland (UMD) proposes a 12-credit Post-Baccalaureate Certificate in Integrated Technology in Education. The purpose of this certificate program is to offer professional development to K-12 educators who are currently certified in other content areas and have an interest in developing the pedagogical and theoretical knowledge needed to effectively integrate technology into their professional lives.

Relation to Strategic Goals. As written in the University of Maryland's Mission Statement, one of the university's goals for graduate education is to "Expand excellent professional graduate programs that are nationally recognized for their contributions to the practice of the professions, for their pioneering curricula, and for their spirit of innovation and creativity."[1] UMD's College of Education has a long tradition of both preparing students to teach in state school systems and providing professional development opportunities to certified teachers in the state. The College of Education has identified a particular growth area in technology and innovation in technology. In its most recent strategic plan, the College stated that it will "nurture a critical mass of faculty who are devoted to a culture of technological literacy that will enhance pedagogical innovation and address the research role of technology in education and human development."[2]

Funding. UMD expects that, given the need for the program by the state, tuition revenue will be sufficient to fund the program adequately for the first five years of the program.

Institutional Commitment. The program will be administered by the Department of Teaching and Learning, Policy and Leadership. This department already offers a teacher-education master's program in Curriculum and Instruction and other certificate programs for teacher professional development. Accordingly, the department has the administrative infrastructure in place to operate this professional development certificate program. Moreover, the department has the faculty available to operate the program and the resources to launch the program. In the event that the program is discontinued, the courses will be offered for a reasonable time period so that enrolled students can finish the program. The faculty and administrative infrastructure will still be in place to work with students who have not finished the program.

B. Critical and Compelling Regional or Statewide Need as Identified in the State Plan

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[1] University of Maryland, College Park. (April 29, 2014). *Mission and Goals Statement.* 6. Retrieved from https://www.provost.umd.edu/Documents/UMCP-Mission-Statement-Final-2015.pdf.

[2] University of Maryland College of Education. (November, 2009). *Strategic Plan: Excellence in Education.* 23. Retrieved from https://education.umd.edu/sites/default/files/COE_Strategic_Plan_091124.pdf.

The focus of this program is to teach certified teachers to better use technology in their classrooms. The program is not simply to introduce teachers to the latest technologies, but also train teachers to think broadly about how technology can support learning in different content areas and grade levels. Multiple organizations and standards bodies have called for the integration of technology and computational thinking into curricula and pedagogy across the K-12 spectrum. The Maryland State Department of Education has developed the *Maryland Teacher Technology Standards.*[3] The International Society for Technology in Education has also developed standards for teachers to be effective in the digital age.[4] The standards organizations Next Generation Science Standards and the National Curriculum Standards for Social Studies also incorporate aspects of technology into their standards. Teachers meeting these standards will better prepare students for college and the workforce, as teachers who are more adept at using technology, understanding its limitations and benefits, and evaluating its effectiveness and improving it will be in a better position to instill in their students a more sophisticated understanding of technology. Consequently, this program will meet the goal expressed in the *Maryland State Plan for Post-Secondary Education* to make K-12 students "college ready."[5]

C. Quantifiable and Reliable Evidence and Documentation of Market Supply and Demand in the Region and State

This program is designed to help teachers utilize technology in their classrooms, regardless of discipline. Job projection data is of minimal value for determining market demand considering that this a program for teachers who are already employed and not necessarily planning to change their subject area as a result of the program. It is important to note, however, that the state of Maryland has developed technology standards for all teachers to meet, and this program's educational objectives correspond to these standards. Otherwise, the primary indicator of market demand for this program is a request by Prince Georges County Public Schools to develop the program for their staff. The anticipated size of the program is 28 students per year.

D. Reasonableness of Program Duplication

Although integrating technology in education across the academic spectrum is a growing need, there is a lack of certificate programs in the state of Maryland that address this need. UMD's proposed program differs in content, geographic location, or delivery

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[3] Maryland State Department of Education. (March 22, 2002). *Maryland Teacher Technology Standards.* Retrieved from: http://marylandpublicschools.org/programs/Documents/ITSLM/slm/TeacherTechnologyStandardsMSDE.doc

[4] International Society for Technology in Education (ISTE). (2018) *ISTE Standards for Teachers.* Retrieved from: http://www.iste.org/standards/standards/standards-for-teachers.

[5] Maryland Higher Education Commission. (2013-2017). *Maryland Ready: 2013-2017 Maryland State Plan for Postsecondary Education.* 26. Retrieved from http://mhec.maryland.gov/institutions_training/Documents/acadaff/acadproginstitapprovals/MHECStatePlan_2014.pdf.

method from the other programs listed on MHEC's Academic Inventory. McDaniel College's STEM Instructional Leadership certificate is focused on STEM-related fields, whereas the proposed certificate program is for teachers from any academic discipline. This program is also not conveniently located for most teachers in the Montgomery and Prince Georges County public school systems. Towson University's Integrated STEM Instructional Leadership PK-12 also focuses on STEM-related fields. The University of Maryland, Baltimore County's Instructional Technology and Instructional Systems Development certificates are meant for instructional designers and multimedia developers, not the in-service teachers the UMD program would serve. The University of Maryland University College's (UMUC's) Learning Design and Technology certificate is also designed to serve instructional designers and multimedia developers. UMUC's Instructional Technology Integration certificate is closer to UMD's proposed program in content, but the UMUC program is online whereas the proposed program has two face-to-face courses that will be instrumental in developing pedagogy intended for the classroom.

E . Relevance to Historically Black Institutions (HBIs)

No such program currently exists at any of Maryland's Historically Black Institutions (HBI's).

F.   Relevance to the identity of Historically Black Institutions (HBIs)

UMD's Department of Teaching and Learning, Policy and Leadership is already established as a producer of certified teachers and a provider of professional development programs for professional teachers. Accordingly, the proposed program would not have an impact on the uniqueness or institutional identity of any Maryland HBI.

G. Adequacy of Curriculum Design, Program Modality, and Related Learning Outcomes

Curricular Development. The curriculum was developed based on the expertise of the faculty informed both by their research as well as experiences creating similar programs at other institutions. Additionally, the designers of the program met with school district stakeholders in order to ensure the proposed curriculum met the needs of their district.

Faculty Oversight. Diane Jass Ketelhut, Associate Professor, and David Weintrop, Assistant Professor, will provide oversight for the program. Both faculty members are from the Department of Teaching and Learning, Policy and Leadership.

Educational Objectives. The educational goals of this program are to prepare educators to:
1.   More effectively use technology in their professional lives.
2.   Better integrate ideas of computational thinking into their instruction.

3. Prepare teachers to collect, analyze, and make decisions based on data from their classrooms.
4. Equip teachers to introduce technology into their classrooms in safe, ethical, and culturally relevant ways.
5. Empower teachers to prepare their students for the computational future that await them.

Learning Outcomes. After completing this program, participants will:
1. Understand how to use technology to support teaching and learning across K-12 contexts, including an understanding of the affordances and limits of technologies in the classroom.
2. Identify the different roles technology can play in education and have a knowledge of the breadth of technologies that can be used for teaching and learning.
3. Bring technology into their classrooms and assess its uses towards achieving specific learning goals.
4. Collect, analyze, and make decisions based on the data generated by students and peers.
5. Bring technology into their classrooms in responsible and safe ways while also preparing their students for responsible and informed uses of technology
6. Know how to use technology in their classrooms in equitable and inclusive ways and be able to support learners with differing levels of prior experience and coming from different cultural and socio-economic backgrounds.
(See Section M below for program assessment plans)

Course requirements. This program is comprised of four courses, all of which are required:

- **TLPL 602**: Foundations of Technology in Education (3 credits)
- **TLPL 600**: Teaching and Learning with Technology (3 credits)
- **TLPL 603**: Data-driven Decision Making in Schools and Classrooms (3 credits)
- **TLPL 605**: Social, Cultural & Ethical Dimensions of Teaching and Learning with Technology (3 credits)
(See Appendix A for course descriptions)

General Education. As a graduate program, the program has no bearing on general education requirements.

Accreditation or Certification Requirements. There are no specialized accreditation or certification requirements for this program.

Other Institutions or Organizations. The department will not contract with another institution or non-collegiate organization for this program.

Student Support. Students enrolled in this program will have access to all the resources necessary in order to succeed in the program and make the most of the learning opportunity. At the outset of the program, students will go through a brief orientation (during class time) where they are introduced to the various resources available to them throughout the program. The online portion of the coursework will primarily utilize the tools in the Learning Management System (LMS), *Canvas* by Instructure. The department will prepare students for the online component of the coursework through a required *Online Student Success Orientation* the first week of classes.

Students will also be introduced to the program coordinator, who will be the designated point person for students to contact if they have any questions or issues throughout the program. The coordinator will also serve as the point of contact for discussions related to financial aid and payment policy questions. The requirements for the program as well as the syllabi for the classes to give students insight into the expectations and requirements for the program.

Marketing and Admissions Information. The program will initially be offered to closed-site cohorts. Accordingly, the marketing and admissions information will be coordinated with the partnering school district. The admissions criteria will also be available on the department website.

H. Adequacy of Articulation

N/A

I. Adequacy of Faculty Resources

Faculty will be drawn from the Department of Teaching and Learning, Policy and Leadership. Biographies of the faculty expected to be teaching in the program are included in Appendix B.

There are currently three tenured/tenure-track faculty prepared to teach courses in this program:

Dr. Diane Jass Ketelhut, Associate Professor, Department of Teaching & Learning, Policy & Leadership
Dr. Tammy Clegg, Assistant Professor, Department of Teaching & Learning, Policy & Leadership
Dr. David Weintrop, Assistant Professor, Department of Teaching & Learning, Policy & Leadership

All three faculty are capable of teaching any of the four courses in the sequence. Any adjunct professor hired to teach courses will be vetted by the UMD Graduate School, trained appropriately, and evaluated as part of the program assessment process. At the

end of each year, the various stakeholders in the program (faculty, administrative coordinator, academic coordinator, and representative of the student body and our district partners) will convene to review the program. This review will include an analysis of student-submitted course evaluations along with reviewing the materials created and submitted by students over the course of the year. As part of this meeting, discussions will be held to decide what, if any, modifications, including modifications to pedagogy, will be made for the following year.

For the learning management system, faculty teaching in this program will have access to teacher development opportunities available across campus, including those offered as part of the Teaching and Learning Transformation Center. For online elements of the coursework, instructors will work with the learning design specialists on campus to incorporate best practices when teaching in the online environment.

J. Adequacy of Library Resources

The University of Maryland Libraries has conducted an assessment of library resources required for this program. The assessment concluded that the University Libraries are able to meet, with its current resources, the curricular and research needs of the program.

K. Adequacy of Physical Facilities, Infrastructure, and Instructional Resources

The courses for this program do not require any facilities beyond those commonly found in contemporary classrooms. Any specific technology to be used as part of instruction will be provided by the instructor. Given the intention to follow a cohort model, we will coordinate with districts to tailor location and delivery strategies to fit the needs of our cohort stakeholders.   Care will be taken to ensure the closed-site locations have adequate resources, specifically, internet connectivity and the ability to project from a computer, beyond that, there are no special requirements for the program. As UMD students, all students will have access to the institutional electronic mailing system and the campus learning management system, *Canvas*.

L. Adequacy of Financial Resources

Program expenditures will be accommodated by tuition revenue and with modest reallocation of the instructional budget of the Department of Teaching and Learning, Policy and Leadership. The tables (located after Section P below) provide an estimate of the anticipated enrollments, and show the tuition revenue associated with this specific program balanced against the expected faculty, personnel, and services required for its delivery. Enrollments were based on discussions with school districts and projection of what would be an appropriate cohort size for this type of program. For budgeting purposes, inflation factors of 3% on both tuition and salaries are assumed.

M. Adequacy of Program Evaluation

Various assessments will be used across the four courses to ensure the curriculum is achieving the stated objectives. Below are the major assessments that will be given and the courses/assignment where they fit within the 4-course sequence.

- Student-designed unit plans that integrate technology, focusing on the appropriateness of the chosen tool(s) for the stated learning goals and reflections on the implementations of those (the Technology Integration Project in TLPL 600).
- Student-designed unit plans that attend specifically to social, cultural, and ethical aspects of bringing technology into the classroom (the Unit Plan Project in TLPL 605).
- Case studies on technology integration in varied educational settings (the Technology Deep-dive and Final Projects in TLPL 602).
- Literature reviews of key topics on technology integration theory and pedagogy (the Book Review assignment in TLPL 602).
- Designs of data collection plans and intended analytic approaches (the Data Collection project in TLPL 603).
- Technology-mediated content assessments (the Assessing Learning with Technology project in TLPL 600).
- Short reaction papers to course readings demonstrating students' understandings, critiques, and applications for technology the classroom (assessed throughout the 4-course sequence).

Formal program review is carried out according to the University of Maryland's policy for Periodic Review of Academic Units, which includes a review of the academic programs offered by, and the research and administration of, the academic unit (http://www.president.umd.edu/policies/2014-i-600a.html). Program Review is also monitored following the guidelines of the campus-wide cycle of Learning Outcomes Assessment (https://www.irpa.umd.edu/Assessment/LOA.html). Faculty within the department are reviewed according to the University's Policy on Periodic Evaluation of Faculty Performance (http://www.president.umd.edu/policies/2014-ii-120a.html). Since 2005, the University has used an online course evaluation instrument that standardizes course evaluations across campus. The course evaluation has standard, university-wide questions and also allows for supplemental, specialized questions from the academic unit offering the course.

N. Consistency with Minority Student Achievement goals

Recruitment will be a collaborative effort between the College of Education and the district partners, at both the building and central administrative levels. Every effort will

be made to identify, recruit, and cultivate participation of diverse candidates. Developing a diverse professional teacher workforce that is adept at integrating technology into the classroom is a goal for both UMD and our partnering school systems.

O. Relationship to Low Productivity Programs Identified by the Commission

N/A

P. Adequacy of Distance Education Programs

Although individual courses may be offered online for this program, at least 50% of the courses will be offered face-to-face. For the online component of the program, UMD has been approved by MHEC to offer distance education programs and is fully approved by the Middle States Commission on Higher Education to offer distance education programs. UMD is an institutional member of the National Council for State Authorization Reciprocity Agreements (NC-SARA) and adheres to the Council of Regional Accrediting Commissions (C-RAC's) *Interregional Guidelines for Distance Education.*

The online coursework for the proposed program will be delivered synchronously and asynchronously by utilizing the tools in the learning management system, *Canvas*. The department acknowledges some fundamental differences between quality teaching in the online environment and in the face-to-face classroom and will take steps to ensure the quality of the online instruction. In particular, the department will take special care to address course environment issues such as student participation, communication, and ease of navigation in the learning management system. The key to learning for all students is to vary pedagogical approaches as different students find their voice in different environments. Accordingly, these courses will make use of a broad set of tools and approaches, both synchronous and asynchronous. Finally, while it is ultimately the responsibility of the instructor to evaluate the quality and authenticity of student work, the department will be using a tool to help in that effort. *Turnitin* is not only an originality checker but also has robust commenting and rubric features. When submitting assignments, students will be required to sign the UMD honor pledge, stating that they did not receive any human assistance.

Resources and Expenditures

TABLE 1: RESOURCES

Resources Categories	Year 1	Year 2	Year 3	Year 4	Year 5
1.Reallocated Funds		$0	$0	$0	$0
2. Tuition/Fee Revenue (c+g below)	$204,900	$211,047	$217,378	$223,900	$230,617
a. #FT Students	0	0	0	0	0
b. Annual Tuition/Fee Rate	0	0	0	0	0
c. Annual FT Revenue (a x b)	0	0	0	0	0
d. # PT Students	25	25	25	25	25
e. Credit Hour Rate	$683.00	$703.49	$724.59	$746.33	$768.72
f. Annual Credit Hours	12	12	12	12	12
g. Total Part Time Revenue (d x e x f)	$204,900	$211,047	$217,378	$223,900	$230,617
3. Grants, Contracts, & Other External Sources	0	0	0	0	0
4. Other Sources	0	0	0	0	0
TOTAL (Add 1 - 4)	**$204,900**	**$211,047**	**$217,378**	**$223,900**	**$230,617**

TABLE 2: EXPENDITURES

Expenditure Categories	Year 1	Year 2	Year 3	Year 4	Year 5
1. Faculty (b+c below)	$53,200	$54,796	$56,440	$58,133	$59,877
a. #FTE	0.25	0.25	0.25	0.25	0.25
b. Total Salary	$40,000	$41,200	$42,436	$43,709	$45,020
c. Total Benefits	$13,200	$13,596	$14,004	$14,424	$14,857
2. Admin. Staff (b+c below)	$23,275	$23,973	$24,692	$25,433	$26,196
a. #FTE	0.25	0.25	0.25	0.25	0.25
b. Total Salary	$17,500	$18,025	$18,566	$19,123	$19,696
c. Total Benefits	$5,775	$5,948	$6,127	$6,310	$6,500
3. Total Support Staff (b+c below)	$16,625	$17,124	$17,637	$18,167	$18,712
a. #FTE	0.25	0.25	0.25	0.25	0.25
b. Total Salary	$12,500	$12,875	$13,261	$13,659	$14,069
c. Total Benefits	$4,125	$4,249	$4,376	$4,507	$4,643
4. Equipment	0	0	0	0	0
5. Library	0	0	0	0	0
6. New or Renovated Space	0	0	0	0	0
7. Other Expenses: Operations	$60,900	$60,900	$60,900	$60,900	$60,900
TOTAL (Add 1 - 7)	**$154,000**	**$156,793**	**$159,670**	**$162,633**	**$165,685**

Appendix A: Post-Baccalaureate Certificate in Integrated Technology in Education -- Course Descriptions

TLPL 602: Foundations of Technology in Education (3 credits)
This survey course will tackle both theoretical and practical dimensions of technology in education. It will serve as an introduction to technology and the impact the 'digital revolution' is having and will have on education. Examples will be drawn from multiple disciplines. We will discuss what is meant by technology and explore research into how the digital revolution and emergence of concepts such as "Computational Thinking" might be impacting our role as educators. We will think through the impact that technology is having on teacher practices, student learning and motivation, and learning across distance and time. Issues around equity will be explored. We will end with considering what learning and education might look like in the future, given what we have learned. Time will be spent in hands-on exploration of various media, some directly designed for education, and others more indirectly related. Discussion will be based on these experiences with the media, plus empirical literature, and insights from key players in this field.

TLPL 600: Teaching and Learning with Technology (3 credits)
This course provides a concrete, hands-on introduction to teaching and learning with technology. We will explore digital technology and its impact on learning and institutions. We will consider big ideas of the field as well as specific types of learning technologies and pedagogies for use in K-12 classrooms. We will discuss K-12 teaching methods that address the interdisciplinary nature of technology integration. The course will draw on class discussions, inquiry, instructional technology, and collaborative lab-based activities and prepare you to merge technology with your current teaching practice. Assessment with and of technology will also be explored.

TLPL 603: Data-driven Decision Making in Schools and Classrooms (3 Credits)
This course will equip educators to productively use the data that surrounds them. This includes data students generate that can be used to improve student learning outcomes as well as data generated by the classroom and school that can be used to improve pedagogy and classroom culture. After completing this course, students will be better able to collect, analyze, and make decisions based on the data generated by the students and peers.

TLPL 605: Social, Cultural & Ethical Dimensions of Teaching and Learning with Technology (3 Credits)
This course situates technology in the classroom within a larger social and cultural context. Along with exploring social opportunities afforded by technology, this course will cover important social and cultural dimensions of technology, including equity, inclusion, ethical dimensions of technology, and questions of privacy and digital citizenship (for both teachers and students). After this course, you will be prepared to bring technology into your classroom in responsible and safe ways while being able to take advantage of the new forms of interaction and communication made possible through technology.

Appendix B: Post-Baccalaureate Certificate in Integrated Technology in Education -- Faculty Credentials

Tamara Clegg, Ph.D. in Computer Science, Georgia Tech University
Associate Professor, College of Information Studies and the Department of Teaching and Learning, Policy and Leadership (Joint Appointment)
Teaching/research focus: Developing technology and learning experiences to support life-relevant learning environments.
Courses: TPLP602, TLPL600, TLPL603, or TLPL605

Diane Jass Ketelhut, Ed.D. in Learning and Teaching, Harvard University
Associate Professor, Department of Teaching and Learning, Policy and Leadership
Teaching/research focus: Student learning and engagement with science and science-based serious games, and working with teachers to integrate scientific inquiry, learning technologies, and computational thinking into their classrooms.
Courses: TPLP602, TLPL600, TLPL603, or TLPL605

David Weintrop, Ph.D. in Learning Sciences, Northwestern University
Assistant Professor, Department of Teaching and Learning, Policy and Leadership and College of Information Studies (Joint Appointment)
Teaching/research focus: Computational Thinking & Computational Literacy, Computer Science Education, Broadening Participation in STEM, Human-Computer Interaction, Computational Methodologies, Educational Technology, Design of Learning Environments
Courses: TPLP602, TLPL600, TLPL603, or TLPL605