

College of Education Technology Sandbox
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1) Project Description

We are proposing to acquire various technologies to expand offerings of the College of Education (COE) [Technology Sandbox](#). The Tech Sandbox is a dynamic learning environment where our students can learn and practice how to use various instructional technologies. This experience provides COE students with an understanding of technology, improves their success in the classroom, and increases their suitability for career placement. The tools available in the Technology Sandbox are currently or imminently available in PreK-16 and other educational organizations, and have a beneficial impact on learning and teaching. More details about the COE Tech Sandbox are available in [this publication](#).

Our Tech Sandbox offers three primary services to students in the College: facilitating learning activities as part of the coursework (an average of 1,400 students per year come to the Sandbox to complete technology-enhanced assignments); conducting workshops for students focusing on specific technologies and their application in education (currently we have a portfolio of 10 regularly offered workshops); and providing supportive environment for students to work collaboratively to learn about new technologies (3D printing, new mobile devices, virtual reality). *On average, we provide services to more than 1,800 students annually.*

If approved, this project will allow COE students to explore current and emerging instructional technologies, develop skills necessary for modern educators, and be more successful in their careers. The COE Sandbox opened about five years ago and proved to be a real success with our current students and a great recruitment tool for both students and faculty. We propose to acquire and make available for our students various virtual reality, interactive devices, and classroom enhancement tools. More details about these technologies (grouped in categories) are provided in Table 1. To put things into perspective, we collected resources on Diigo and put respective links into each category to highlight the application of these tools in education and assist the reviewers.

Table 1. Description of devices for COE Tech Sandbox enhancement

Category 1: Virtual Reality (VR)	
HTC Vive 	Currently VR is undergoing massive growth in education and the Vive's inclusion in the Sandbox would greatly benefit our students by demonstrating the educational capabilities of this hardware (e.g., field trips, interactive environments and laboratories). See this VR collection of additional resources on VR and the <i>HTC Vive</i> . The Vive, its computer, and associated ITS assessment fee are included in the budget.
HoloLens 	Our students will greatly benefit from the addition of <i>Microsoft HoloLens</i> (2 units) which combines virtual reality and augmented reality. This allows educational content to look and sound like it is part of your world. HoloLens allows students to interact with the content in order to learn more about it. Experiencing augmented reality is critical for our COE students and the future of education as evidenced by this collection of resources . The 2 HoloLens, their computers, and ITS assessment fee are included in the budget.
Oculus Touch 	Oculus is one of the most popular devices in the Sandbox. Students have frequently requested adding <i>Oculus Touch</i> to integrate hand and arm movements and interact with the VR environment in a more natural way by "touching" the objects. More details on Oculus in education are available in the Oculus Rift portion of the Diigo VR collection .

<p>Google Daydream</p> 	<p>The Sandbox has several original Google Cardboards, which are extremely affordable VR headsets. However, since they are literally made of cardboard, they deteriorate quickly and are not hygienic for a multi-user environment. The <i>Google Daydream headset</i> features a comfortable head strap and face rest and is hand washable, making them more suitable for multi-user environment. This VR headset will provide COE students with an affordable and comfortable VR experience that integrates with multiple curricula (see the Google VR section of our VR Collection for more information). Four headsets are included in the budget to allow multiple users to experience VR simultaneously and provide collaborative learning environment during our VR workshops. This is also a good demonstration for our users of a “VR on a budget”.</p>
<p>Google Cardboard V2</p> 	<p><i>Google Cardboard VR V2</i> is a very affordable entry level VR device which may be attractive to many schools where our COE graduates will teach at. Students and teachers can experience VR at low cost using a smart phone and the free Google Cardboard app, which includes numerous educational applications. V2 improves from its predecessor via better controls and removing a flimsy nose piece. Two units are included in the budget to allow multiple users experiencing the Cardboard. For more information visit the Google VR section of our VR collection.</p>
<p>360 video camera</p> 	<p><i>Kodak PIXPRO SP360 4K Action Camera</i> allows for 360 degree recording of classes, field trips, and extracurricular activities in high definition 360 degree videos. With the rising prevalence of VR, the ability to create your own immersive content is becoming more important in education. Using the camera and Kolor software, COE students will learn how to create 360 degree digital video content for simulations, VR, and presentations in education. An associated software for making VR content from 360 degree videos for education is included in the budget.</p>
<p>Category 2: Interactive Devices</p>	
<p>Clear Touch Interactive</p> 	<p><i>Clear Touch Interactive</i> offers a long-term, affordable, and sustainable classroom technology, similar to the interactive whiteboards which are used throughout the nation in PreK-12 and higher education. They connect to multiple devices and can accommodate a variety of teaching styles as evidenced by multiple case studies. A mobile convertible stand and a computer component ITS assessment fee are included in the budget.</p>
<p>SMART Kapp</p> 	<p>Learning how to use <i>SMART Kapp</i> will allow our students to save and share notes as they are written using a regular dry-erase marker, improve communication, and deliver similar instruction to students not physically present in the classroom. More resources about this device in education are available in this Diigo collection. A SMART Kapp stand is included in the proposed budget.</p>
<p>ActivWand</p> 	<p>We already have a Promethean board available in the Sandbox. By adding an <i>ActivWand</i> (a long, mouse-enabled pointer) we raise awareness of our students on how to make this board accessible and make it available for learners who are short or those with various physical disabilities (those who cannot stand or cannot walk to come to the board) and students who are wheelchair bound (see more in this collection).</p>
<p>Microsoft Surface Studio</p> 	<p>The <i>Surface Studio</i> allows students and teachers multiple methods of interacting with a powerful computer. The touchscreen, stylus and new dial add a number of different methods of user interaction. This device is new and there are no case studies available yet. However, this collection of resources contains descriptions of successful classroom use of previous versions of the Surface. The associated ITS assessment fee is included in the budget.</p>

Category 3: Classroom Enhancement Tools	
3D printer 	<p>This <i>3D printer</i> is a complete all-in-one device that students can use for scanning, changing an object, and printing their creation. The model we selected can handle multiple types of filament including metal powder, wood fiber, and conductive materials.</p>
3D scanner 	<p>Our students can use a portable, high quality, and quick <i>3D scanner</i> (stereo cameras with photometric imaging) to capture image files and stitch together those multiple files for full 3D data and 3D modeling.</p> <p>Additional resources about 3D printing in education are available in this collection.</p>
3D pen 	<p><i>3D pens</i> are 3D printers on a much smaller and more affordable scale. A 3D pen allows educators and students to create small plastic sculptures by drawing “in the air” and enhance learning by taking 2D drawings and translating them into compound 3D objects. This collection includes additional examples and resources for incorporating 3D pens into instruction. Two pens are included in the proposed budget to allow students to work collaboratively on curriculum development and during workshops.</p>
Dell 14-inch laptops and desktop	<p>Two <i>laptops and a desktop</i> for housing software for student use. This software includes 3D printing software, interactive whiteboard software, and accessibility programs. Associated assessment fees are included in the proposed budget.</p>
MathTalk 	<p><i>MathTalk</i> is a software product that uses Dragon Naturally Speaking to convert speech into text, math and science symbols. This software allows our COE students to learn how these features can be used in their own work and to assist students with accessibility issues. Additional resources about this program are available in this collection.</p>
Mini projector 	<p>The Technology Sandbox does not mount any technology to the wall in order to allow multiple room configurations to maximize user interaction. Therefore, the ability to have presentations and/or supporting materials on any wall in the room during workshops is very useful.</p>
Video camera 	<p><i>Sony HDR-CX405 video camera</i> will be used to record class sessions for self-reflection, presentations, and pre-service teacher education recordings. These videos provide invaluable information to COE students about their classroom presence, management, and student interactions. Resources using video in instruction are available here. Associated accessories, 2 SD cards, and a camera case are included in the budget.</p>
Glass keyboard 	<p>The glass keyboard is a Bluetooth keyboard that can be paired with multiple devices. COE students will be able to connect via a wireless interface to our various Bluetooth capable devices (e.g., iPads, tablets). Besides, this keyboard is easy to clean due to glass composition and lack of buttons. These features make the glass keyboard ideal for the Tech Sandbox which is a multi-user environment.</p>

2) Impact of This Project on Instruction

The Sandbox has been in existence since 2011. We focus on providing COE students (in Educational Leadership and Policy Studies (ELPS), Educational Psychology and Learning Systems (EPLS), School of Teacher Education (STE), and Sport Management (SM) with an enriching hands-on learning experience. Many of the programs in the

COE have courses that incorporate the COE Technology Sandbox activities into their curriculum. Thus, we have a record of 45 courses that include Sandbox assignments in their syllabi. Our most active users are teacher education courses (e.g., EDF 1005), instructional technology courses (e.g., EME 2040, EDH 5305), specific course content areas (e.g., MAE 4326, EEC 4303), special education courses (e.g., EEX 5765), and sport management (e.g., SPM 5907) both at the undergraduate and graduate level. In addition, when we conduct workshops, we tailor them specifically to needs of students in a specific major to ensure the best possible integration of technology and its application in education. Currently, targeted workshops are offered on 10 specific topics/technologies with many more available upon request from students and faculty.

The Sandbox staff survey the users on a regular basis. The findings indicate that the provided workshops and hosted activities are consistently highly rated. Over the past two years approximately 80% of our respondents were “very satisfied” and 20% “satisfied” with the Technology Sandbox experience. Many items included in this proposal (HTC Vive, Oculus Touch, 3D printer/scanner, and other instructional technologies) came from student feedback. The Technology Sandbox’s continued success is dependent upon the ability to meet students’ needs and bring emerging technologies into their education. Acquiring and implementing additional technologies in the COE Tech Sandbox will allow our students to be technologically savvy, creative, and innovative educators when they take positions in different educational organizations.

3) Project Plan

Major project activities and milestones are outlined in Table 2.

Table 2. Project activities and milestones

Project Activities	Who	When (Timeline)	Outcomes
Funding granted	Student Technology Fee Advisory Committee	Spring 2017	Funding allocated and made available.
Technology acquisition	Dr. Dina Vyorkina OIIT	Spring 2017	Devices purchased.
Participation in FSU DigiTech	Project team	April 2017	Create a display and demo tech usage in instruction
Installation, training, and piloting	Project team	Spring-Summer 2017	Designed workshops and self-study guides; workshops piloted to faculty and students; collection of resources updated.
Curriculum alignment	Dr. Vyorkina	Summer 2017	Faculty and TAs informed and technologies embedded into courses.
Participate in COE Tech Showcase	Project team	October 2017	Workshops/demos/display of the technology implemented.
Community outreach	Project team	Ongoing commitment	Conferences, technology showcases and various presentations within and outside of FSU.

Project Activities	Who	When (Timeline)	Outcomes
Project report	Dr. Vyortkina	December 2017	Report consisting of instructional use of the acquired equipment in the curriculum and assessment of its effectiveness

4) Relationship of This Project to Other University Activities

The COE Technology Sandbox technology-enhanced activities directly impact 4 of the 6 goals of the [FSU's 2017-2022 strategic plan](#). First, the commitment to continuous innovation is critical to the Technology Sandbox's mission to provide students with the opportunity to experience new and emerging technologies in the field of education and across the university. Second, to ensure student success on campus and beyond, the Technology Sandbox strives to provide students with the opportunity to learn technologies that they can use in their current classrooms and projects as well as in future classrooms as teachers. Next, the Technology Sandbox addresses Goal V of the strategic plan by preparing our graduates for 21st century careers. While teaching is an ancient occupation, it is a continuously developing vocation which demands constant upskilling. The Technology Sandbox provides our students with the opportunity to use instructional technologies before they become widespread allowing them to stay ahead of the curve. Finally, the Technology Sandbox is a strategic investment in our institution and reputation. Over the summer 2016, both Tallahassee Community College (TCC) and Florida State University Schools (FSUS) staff and faculty visited the Technology Sandbox to explore if their schools would benefit from the creation of a Technology Sandbox. FSUS has since created their own version of the Technology Sandbox modeled after our own.

5) Cost of Ongoing Support

When all equipment is installed, there will be no additional costs associated with maintenance of equipment. Any routine maintenance will be covered by the College of Education.

6) Description of the Project Team

Our project team is well equipped to successfully implement this project:

Dr. Dina Vyortkina Director of the COE OIIIT and OIIIT team 644.9623 dvyortkina@fsu.edu	Dina Vyortkina, Ph.D., is Director of the COE Office of Information and Instructional Technologies (OIIIT) which provides advice related to technology-enhanced learning, teaching, and research, organizes workshops and professional development activities at the College of Education, and supervises Sandbox. Dr. Vyortkina will coordinate all project activities. She has extensive experience in managing IT-related projects in educational settings. Her knowledge and skills in instructional design systems would facilitate successful project progression and collaborative work with colleagues regarding embedding Sandbox activities in instruction. She taught Intro to Educational Technology (EME2040) and Technology and Communications in Schools (CGS 5310), thus having first hand understanding of standards, requirements, and needs of students in teacher education programs. She is actively collaborating with FSUS regarding technology integration and better preparation of student-teachers. OIIIT will be providing technical advice and support for this project.
Jason Ritchie jlr12@my.fsu.edu Esra Ozdemir eo14b@my.fsu.edu	Both are PhD students in the College of Education and are staff member in the Technology Sandbox designing and leading workshops, conducting student satisfaction surveys, and collating user feedback.

7) Budget

To successfully implement planned initiatives, expand the COE Tech Sandbox assets, and enhance our students learning experiences, we are requesting \$34,681.10. The itemized budget is presented in Appendix A and its justification/rationale was provided in Table 1 of this proposal. All budget items are grouped in three categories: virtual reality, interactive devices, and classroom enhancement tools. In most cases we requested a single piece of each technology as a practice tool for our students. However, in some cases multiple pieces were proposed to provide collaborative experiences for users. We followed FSU procurement procedures to obtain price quotes and included selected quotes in Appendix B. Due to the length (47 pages) and a specific format of the price quotes, we made available Appendix B as a standalone document.

If approved, this project will continue the greatly successful educational initiative of the COE Technology Sandbox in providing our students with opportunities to learn how to use the instructional technology, experience new and emerging tools first-hand, explore their application in education, and find ways to innovate teaching practices enhanced with technology.

Appendix A
Project Budget



STUDENT TECH FEE BUDGET

2016-2017 Project Funding Proposal

Project Details

Project Title:	College of Education Technology Sandbox
Organization or College:	College of Education
Department or Unit:	Office of Information and Instructional Technologies (OIIT)
Project Period:	Spring 2017-ongoing
Start Date:	Spring 2017
End Date:	Ongoing

I. Senior/Key Personnel (list senior and/or key personnel whose compensation will be funded through project non-recurring funds)

First Name	Middle Name	Last Name	Project Role	Requested Salary	Fringe Benefits	Funds Requested
Total Funds Requested for Senior/Key Personnel						\$ -

II. Student & Other Personnel (insert description)

Type	FTE	Requested Salary	Fringe Benefits	Funds Requested
Graduate Students				
Undergraduate Students				
Other Personnel				
Total Funds Requested for Students & Other Personnel				\$ -
Total Salaries, Wages & Benefits				<u>\$ -</u>

III. Equipment (list items and dollar amounts for each item or multiple items of the same type, including software, with a total cost of over \$2,000)

Item	Description	Funds Requested
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Virtual Reality		
<u>HTC Vive</u>	The HTC Vive is virtual reality (VR) hardware that presents interactive 360 degree content to users including filmed and animated media.	\$ 799.00
<u>Vive Computer</u>	In order to use the HTC Vive an appropriately powerful computer is required (Price includes additional warranty, monitor, and controller).	\$ 3,691.76
<u>Vive CPU Assessment</u>	Microsoft assessment fee for Vive computer.	\$ 235.00
<u>HoloLens (QTY 2)</u>	An augmented reality headset that integrates the real world and virtual content.	\$ 598.00
<u>HoloLens Computer</u>	A computer designed to run the HoloLens programs.	\$ 3,691.76
<u>HoloLens CPU Assessment</u>	Microsoft assessment fee for HoloLens computer.	\$ 235.00
<u>Oculus Touch</u>	The Touch control for Oculus Rift retains most of the features of a traditional controller while integrating Wii remote like hand and arm movement.	\$ 199.00
<u>Google Daydream (QTY 4)</u>	The daydream VR headset features a comfortable head strap and face rest, is hand washable, and controlled via remote.	\$ 316.00
<u>Google Cardboard V2 (QTY 2)</u>	Google cardboard VR headset V2 is an extremely affordable entry level VR experience which fits smart phones up to 6" screen size.	\$ 29.98
<u>360 Camera</u>	The Kodak PIXPRO SP360 has the ability to create immersive content for field trips, class sessions, or extracurricular events.	\$ 229.50
<u>Kolor Autopano Video</u>	Software for converting 360 degree video into VR content.	\$ 637.20
Interactive Devices		
<u>Clear Touch Interactive</u>	Clear Touch is an alternative to classroom projectors, capable of connecting to multiple devices with touch capacity (includes 4 year warranty).	\$ 3,591.64
<u>Clear Touch Interactive Stand</u>	Convertible stand for cleartouch that includes rotation, height adjustments, and 90 degree flip functionality.	\$ 2,132.00
<u>Clear Touch Assessment</u>	ITS assessment fee for Clear Touch.	\$ 235.00
<u>SMART Kapp</u>	42 inch SMART Kapp is an interactive whiteboard allows instructors to save and share notes as they unfold using a regular dry-erase marker (2 year additional extended warranty included).	\$ 585.52
<u>SMART Kapp Stand</u>	HD Wilson FP2000 Stand for SMART Kapp.	\$ 279.99
<u>Activwand</u>	ActivWand makes the Promethean board accessible by expanding user reach.	\$ 101.40
<u>Microsoft Surface Studio</u>	Microsoft Surface Studio, dial, and assessment fee, a touch screen computer with various interfaces including traditional, touch, pen and dial.	\$ 3,598.99
<u>Surface Studio Assessment</u>	ITS assessment fee for Surface Studio	\$ 235.00
Classroom Enhancements		
<u>3D Printer</u>	This 3D printer has built in Model Viewer/Slicer/Editor and scanner. It can also handle filaments like metal powder, wood fiber and conductive materials (3 year additional warranty and filament included).	\$ 4,022.94
<u>3D Scanner</u>	A portable, high quality, quick 3D scanner and accompanying accessories (10% educational discount)	\$ 1,420.19
<u>3D Pen (QTY 2)</u>	3D pen allows the user to create small plastic sculptures by drawing "in the air" (Price includes 8 100 Count Filaments for each pen).	\$ 679.82
<u>14 Inch Dell Laptop (QTY 2)</u>	Laptops for our software for various devices (price includes 4 year warranty).	\$ 3,152.00
<u>IWB CPU Assessment (QTY 2)</u>	Microsoft assessment fee for IWB computers.	\$ 470.00

Sandbox Desktop	Desktop for software to support hardware and various programs	\$ 1,477.46
<u>Sandbox CPU Assessment</u>	ITS assessment fee for Technology Sandbox computer.	\$ 295.00
<u>MathTalk</u>	A software bundle that converts speech to text and speech to math.	\$ 895.00
<u>MiniProjector</u>	Small table top projector to demonstrate portability of today's projectors.	\$ 443.12
<u>Video Camera</u>	Sony HDR-CX405 Video Camera can record long class sessions in high-definition video and audio.	\$ 195.99
Associated Accessories	2 times 64 GB micro SD cards for video and 360 camera. 1 camera case (Video Camera)	\$ 108.84
<u>Glass Keyboard</u>	A blue tooth keyboard which allows users to type without physical buttons.	\$ 99.00
Total Funds Requested for Items Over \$2,000		\$ 23,881.09
Total Funds Requested for Items Under \$2,000		\$ 10,800.01
Total Funds Requested for Equipment Costs		\$ 34,681.10

IV. Other Costs

Category	Funds Requested	
Materials & Supplies		
Consultant Services		
Equipment or Facility Rental/Use Fees		
Additional Project Costs (describe in budget justification)		
Total Funds Requested for Other Costs		<u><u>\$ -</u></u>

Total Project Cost	<u><u>\$ 34,681.10</u></u>
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Appendix B

Price Quotes

Note to reviewers: All price quotes are assembled in a separate document. As the document is 47 pages long, the file is available as a standalone item.