Educational Technology

GRADUATE COURSE DESCRIPTIONS

EME 5054: Foundations of Educational Technology (Online)
Focuses on the role of new media in our daily and professional lives and the implications of new media for educational environments. Students will learn about media ecologies and the potential of new technologies (e.g. social networks, artificial intelligence, virtual reality) for teaching and learning. Research articles, white papers, videos, and descriptions of project implementation that are openly available will be used as a basis for critical thinking, reflection, and decision-making.

EME 5207: Designing Technology Rich Curriculum (Online)
This course uses Universal Design for Learning (UDL) as a framework for designing curriculum in ways that leverage technology to support student strengths and minimize barriers to learning. Students will study the theoretical and empirical underpinnings of UDL and then apply the UDL principles of Engagement, Representation and Action and Expression to technology tools available to them in their practice. They will also analyze their current lessons through the lens of UDL and create an online repository of technology tools they can use in their practice. Students should leave the class prepared to design learning environments that meet the needs of all their students.

EME 5404: Instructional Computing II: Media Ecologies and Open Education (Online)
Focuses on the role of new media in shaping real-life and online identities and the implications of new media for educational environments. Students will explore the potential of new technologies (e.g. social networking tools, virtual worlds, mobile computing devices) for teaching and learning, and for overcoming the digital divide in the US or developing environments. Research, theory, and examples of project implementation will be used as a basis for critical thinking, reflection, and decision-making.

EME 5405: Using the Internet in Education (Online)
This course focuses on how educators can leverage the Internet as a tool to simultaneously support curriculum standards and the goal of helping students become impactful digital citizens. Students will have a chance to explore strategies, tools and concepts that enable digital citizenship to become an integral part of any curriculum. The course is primarily designed for K-12 educators and teacher educators but educators from all contexts will benefit from thinking about how they can integrate digital citizenship in their curriculum. Students will have an opportunity to use a variety of Internet-based tools, engage in online community and develop plans for applying content learned to their own unique professional contexts.

EME 6059: Blended Learning Environments (Online)
This eight-week online course explores blended learning from perspectives of theory and practice and is designed for educators and instructional designers in all educational environments (e.g. K-12, higher education, corporate environments, non-profit organizations). It focuses on the application of theory and research to pedagogy and curriculum design to achieve a synergy between online and classroom environments. Topics include theoretical frameworks and best practices in blended learning, institutional perspectives and assessment, and the design and implementation of a blended curriculum.

EME 6065: Human-Computer Interaction and the Learner (On campus)
Students will explore the interface between pedagogy, educational technology, cognitive science, graphic design, and software engineering, and define effective human-computer interaction. We will discuss relevant methods and seminal research, and deduce implications for learning and design of human computer interfaces such as digital games, mobile applications, and adaptive learning systems.

EME 6066: Issues and Trends in Educational Technology Research (Online)
This course is intended to give students an overview of the "what" and "how" in educational technology research. Having knowledge of the conceptual frameworks and research design paradigms in the field enables students to evaluate the rigor of educational technology research and think more critically about their own research efforts.

EME 6156: Games and Simulations for Teaching and Learning (Online)
Topics include the characteristics and terminology of games and simulations; development life cycles; design principles; evaluation; virtual worlds; and an emphasis on connecting principles of learning and teaching to the design of games and simulations. Students practice these concepts in several assignments relating to educational contexts.

EME 6208: Designing Integrated Media Environments I (Online)
This course is designed as an introduction for educators, trainers and instructional designers in all educational contexts who are interested in teaching with technology or developing technology-enhanced content. Students will apply instructional design and usability principles to develop and evaluate e-learning materials and applications (e.g., e-portfolio, online quiz, screencast, digital video etc) using open source alternatives to commercial software like Adobe Photoshop, Dreamweaver, and Camtasia as well as HTML, CSS, and Javascript.

EME 6209: Designing Integrated Media Environments II (Online)
Study of development and problem-solving as applied to real world educational problems with solutions designed and implemented in various programming and scripting languages. Topics include data types, logic, relational operations, flowcharting, sequence, selection, repetition, functions, arrays, file i/o, object-orientation, relational database design, entity-relationship diagrams, design principles, testing, and debugging. Prior programming experience is neither assumed nor required.

EME 6235: Managing Educational Projects (On campus and Online)
Examination of principles of planning, scheduling, allocating resources, budgeting, proposal preparation, cost control, risk assessment, and personnel management for instructional projects. Students negotiate an effective design project plan, how to implement that plan, and how to control and monitor project activities. Case studies will be used as a basis for exercises and discussions. Each student will develop a plan that meets specific criteria.

EME 6236: Distance Education Leadership and Management (Online)
This course focuses on the leadership and management of online programs and initiatives. It encompasses the various elements that contribute to quality online programs across educational contexts. Students will explore and apply research and effective practice to the strategic planning, development, implementation, and quality assessment of online programs and initiatives. Factors contributing to the success of online education (e.g. support structures) will also be discussed.

EDG 6305: Multiple Perspectives on Teaching and Learning (On Campus)
This course will survey theoretical perspectives on teaching and learning including behaviorist, cognitivist, cognitive constructivist, sociocultural, social cognitive, and situative perspectives. Students will gain an understanding of these different perspectives on learning and instruction including associated instructional models and research.

EME 6458: Distance Teaching & Learning (Online)
This course explores forms of synchronous and asynchronous interactive distance education from perspectives of theory and practice. Designed for K-12 and higher education instructors and administrators as well as trainers and instructional designers from other professional settings, the course focuses on the interpretation and application of theory, research and standards-based effective practice to the design, development, and evaluation of distance education experiences. Skills and knowledge acquired in the course will contribute to distance and classroom teaching capabilities. Topics include theoretical bases and critical issues in design for distance learning; developing distance instruction; and applying design and learning standards in a range of development and delivery tools.

EME 6606: Advanced Instructional Design (On campus and Online)
Focuses on the student who is becoming an instructional design (ID) professional by refining skills and adding to the skills learned in the beginning Instructional Design course, building on the foundational knowledge about the practice of ID, and encouraging the development of communication skills through formal project management.

EME 6609: Instructional Design (Online)
Focuses on the application of instructional design principles to the development of instruction. Topics include contemporary issues and trends in instructional design, foundations in learning research, requirements for instruction, task and needs analysis, learning situations and instructional models, learner characteristics, hardware and software innovations, assessing instructional outcomes, and factors affecting utilization.

EME 6637: Managing and Analyzing Multimodal Educational Data (Online)
This course is designed to prepare educational researchers and practitioners to manage and analyze multimodal educational data. In this online course, students will learn about the unique characteristics of multimodal educational data and apply appropriate techniques to discover useful knowledge and insights.

EME 6066: Issues and Trends in Educational Technology Research (Online)
This course is intended to give students an overview of the "what" and "how" in educational technology research. Having knowledge of the conceptual frameworks and research design paradigms in the field enables students to evaluate the rigor of educational technology research and think more critically about their own research efforts.

EDG 6910: Supervised Research (Online)
This 12-week course is designed as a culminating experience for students in the Educational Technology Education Specialist (Ed.S.) degree program. In this class you will demonstrate knowledge, leadership abilities, and skills commensurate with an Ed.S. degree. This class is going to be fun and enriching, but the success of the experiment depends on our work together as a class and intellectual community. By the end of the term, you will have identified a topic of personal relevance, synthesized related literature, and you will have developed a plan to establish yourself as a leader in the field of educational technology. The course will culminate with you presenting your work and demonstrating your technical competency via an synchronous class meeting.

EME 6074: Mobile Technologies in Education (Online)
Mobile technologies are transforming education by providing access to information and learning materials anytime, anywhere. This eight-week online course explores the integration of mobile technologies and app development experiences across formal and informal educational contexts. Students will analyze case studies, identify strategies for implementation, and consider socio-political, economic, and infrastructural factors. Through hands-on projects, including the development of a mobile learning app, students will gain practical skills and insights into the challenges and opportunities of mobile technologies in education.

EME 6067: Emerging Learning Technologies (On Campus)
Explore the potential of emerging technologies relevant to learning, teaching and educational research. Engage in creation of innovative environments that enable learning and teaching from a different perspective. This highly interactive project-based course offers an opportunity for students to design learning experience (e.g. virtual trips) while mastering the use of an array of emerging tools and devices. Close consideration will be placed, but not limited, to immersive virtual reality (VR), augmented reality (AR), mobile AR, mixed reality (MR), and 3D modeling/printing. This course is designed to provide hands-on experience leading to the skill-set necessary for developing digital artefacts such as 360 spherical VR video content or objects for 3D printing. In addition, students will investigate the conceptual framework for meaningful implementation of technological novelties in the classroom as well as current research trends and challenges associated with emerging learning technologies.

EME 6651: Learning Analytics Concepts and Techniques (formerly EDG 6931) (Online)
This course is designed to equip students with the ability to leverage educational data collected from technology-enhanced learning environments. In addition to the basic concept and process of learning analytics, students will explorer cutting-edge data mining techniques. Students will also have opportunities to process and analyze various types of real-world educational data to discover useful insights and knowledge. The ultimate goal of this course is to prepare students to be a successful educational researcher and practitioner who is able to use learning analytics in their specific subject area.

EME 6645: Neurotechnologies in Education (formerly EDG 6931)(On Campus)
Description coming soon.

EDG 6931 Seminar in Computer Science Education (On Campus)
Description coming soon.

EDG 6931: Theory, Design, and Development of Stealth Assessment for Learning (On Campus)
With advances in learning sciences, computer sciences, technology, and psychometrics we now can design and develop assessments such as stealth assessment that are embedded into the fabric of learning environments (e.g., an educational game). Stealth assessment is ubiquitous, unobtrusive, and in real-time. It aims to blur the boundaries between game play, learning, and assessment. As the learners interact with the learning environments and provide evidence for what they know and are capable of, the stealth assessment machinery diagnostically estimates their level of knowledge and skills in various grain sizes. These estimates then can be used as the basis for providing learning supports, feedback, instructions, or matching the challenges in the learning environment (e.g., game difficulty) to students' proficiency level and help them maximize their learning. Stealth assessment has been used to assess hard-to-measure competencies (e.g., creativity, persistence, problem solving) and knowledge acquisition (e.g., physics understanding, calculus, art history). In this course, you will learn about the related theories, examples, and the design and development processes of stealth assessment.

EDG 6931: Enabling Technologies for Neurodiverse Learners (On Campus)
This course will explore the current state of the art in the field of assistive technologies with a focus on enabling technologies for neurodiverse learners. The course will draw upon a range of definitions and students will work through these while assessing and deconstructing a range of technologies, platforms, and software. This will lead to consideration of accessibility, usability and spaces where neurodiverse people access and use technologies. The course will include the voices of neurodiverse individuals and we will connect the current state of the art with the voices and perspectives of these communities. Students will propose designs and solutions for digital technologies that could be applied with a range of neurodiverse groups. This will include producing proposals for their designs. Students will be expected to identify creative solutions to real-world problems via prototyping rather than designing or creating technology, so no prior technology experience is required or necessary.

EDG 6931: Writing Grants (On Campus)
Developing effective grant writing skills is essential to acquire funding from increasingly competitive government agencies and private and corporate foundations. Grant writing is particularly important for emerging scholars looking to secure tenure-track lines at colleges and universities. This course will provide you with the skills and knowledge to seek, solicit, receive, and manage grant awards support programs and projects. Students will select their own funding program and begin to develop their own grant proposal. Additionally, students will experience the grant review process and receive several rounds of feedback on their grant ideas.

EME 7938: Seminar in Educational Media (Online M.Ed. and Ed.D.; On Campus Ph.D.)
This course serves three different audiences: (1) One version (offered in Spring semesters) serves as the culminating experience for our M.Ed. students. (2) One version focuses on literature analysis and review for our Ed.D. cohorts. (3) One version includes a two-part seminar series for our Ph.D. students.

EME 7435: Implementing Educational Technology Innovations (Online Ed.D. cohort only)
Educational technologists seek to improve teaching and learning through the use of technology tools and processes. Yet, they are often more well versed in how to use the technology than in how innovations diffuse across a particular context or in how to evaluate the effectiveness of these innovations. In this course we will focus on diffusion and evaluation as key components to implementing ETIs. This course is designed to remain true to the framework of the online Ed.D. program in that it seeks to help you merge theory, research and practice as related to implementing ETIs. As such, you will analyze research on innovation diffusion theory and on the evaluation of ETIs and programs. You will then apply this research in your practice through case study analysis and completion of a small-scale evaluation of an ETI task.