Engineering Curriculum: Making it Work. How Creative Mergers Can Help overcome The Rigidity in STEM and Study Abroad

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May 28 - June 2 • Los Angeles, CA USA

S T E A M DEFINED

- S: Physical and Social SCIENCES
- T: Incorporation of TECHNOLOGY
- E: Principles of ENGINEERING and Design
- A: English Language ARTS
- M: Application of MATHEMATICS

Changing STEM to STEAMD

- Challenging Old Systems
- The Willingness to Make Necessary Changes in a New Era
- Creative STEM Promotes Enovation
- Promotes Student Engagement
- Gives Students a Holistic view of the world

CURRICULUM INTEGRATION FOR STEM AT MSU

College of Engineering
Education Abroad Programs

The College of Engineering: Education Abroad Programs Grid provides an overview of the education programs sponsored by the College of Engineering. There is information on each program related to the semester the program is offered, the "ideal" class standing when a student might participate on the program, and the best suited majors for each program. One will find the list of programs down the left-hand side of the grid, and one will find the semester, class standing, and majors across the top of the grid.

PROGRAMS	SEMESTER				CLASS		MAJORS									
	FALL	SPRING	SUMMER	WINTER	Freshman & Sophomore	Junior & Senior	Applied Engineering Sciences	Biosystems Engineering	Chemical Engineering	Civil Engineering	Computer Engineering	Computer Science	Electrical Engineering	Environmental Engineering	Material Sciences Engineering	Mechanical Engineering
Ecole Catholique d'Arts et Metiers (France)			●		●	●	●						●			●
Ecological Engineering in the Tropics (Costa Rica)				●	●	●	●	●	●	●	●	●	●	●	●	●
*Energy Tomorrow: Summer Program (Australia)			●		●	●	●	●	●	●	●	●	●	●	●	●
Engineering in Hannover, Germany			●			●			●				●			●
Hong Kong University of Science and Technology	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●
ICT for Development in Tanzania			●			●	●	●	●	●	●	●	●	●	●	●
John Cabot University (Italy)			●		●	●	●	●	●	●	●	●	●	●	●	●
Monash University (Australia)	●	●			●	●	●	●	●	●	●	●	●	●	●	●
National Taiwan University	●	●				●					●		●			
RWTH-Aachen University (Germany)			●			●										●
*Renewable Biobased Energy Systems (Europe)			●			●	●	●	●	●	●	●	●	●	●	●
Summer in Madrid			●			●									●	●
STEM in Paris			●		●		●	●	●	●	●	●	●	●	●	●
Technical University in Denmark	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●
Tohoku University (Japan)	●	●			●	●										●
University College Dublin: Physics Summer			●		●		●	●	●	●	●	●	●	●	●	●
University of Edinburgh	●	●				●										●
University of Politécnica de Madrid	●	●	●		●	●			●				●		●	●
University of New South Wales (Australia)	●	●			●	●	●	●	●	●	●	●	●	●	●	●
University of KwaZulu-Natal (South Africa)	●	●			●	●	●					●		●		●
10 Trending Technologies in Engineering (Spain)			●		●	●	●	●	●	●	●	●	●	●	●	●

● = indicates that this program is possible for the semester, class standing, and major identified across the top of the grid.
* = check with the College of Engineering Study Abroad Coordinator to determine if this program is running during the current academic year.

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ENGINEERING AND COMM ARTS SERVICE LEARNING PROGRAM IN TANZANIA ACROSS DISCIPLINES

Projects that improve the quality of education for primary schools in rural Tanzania through the installation of computer networks connection of five schools.

Drs. Jennifer Olsen of Communicatio ns Arts & Science and and Erik Goodman of College of Engineering team up to give STEAM students the experience of a lifetime helping students in Tanzania.

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How Can Game Design Be Used In Global Education Abroad

Check Out MSU College of Communications Art's Program In South Korea

The four thematic areas of this course are TECHNOLOGY (wireless, mobile devices, Next-Gen game consoles, emerging technology), CULTURE (perspectives and dimensions of culture, individual traits, societal norms, language), COMMUNICATION (computer-mediated communication, online identities, relating online), and GAMES (game development, game markets, mobile games, games and society).

Professor Constantinos Coursaris Program Leader

TECHNOLOGY AND CULTURE: COMMUNICATIONS AND GAME DESIGN IN JAPAN

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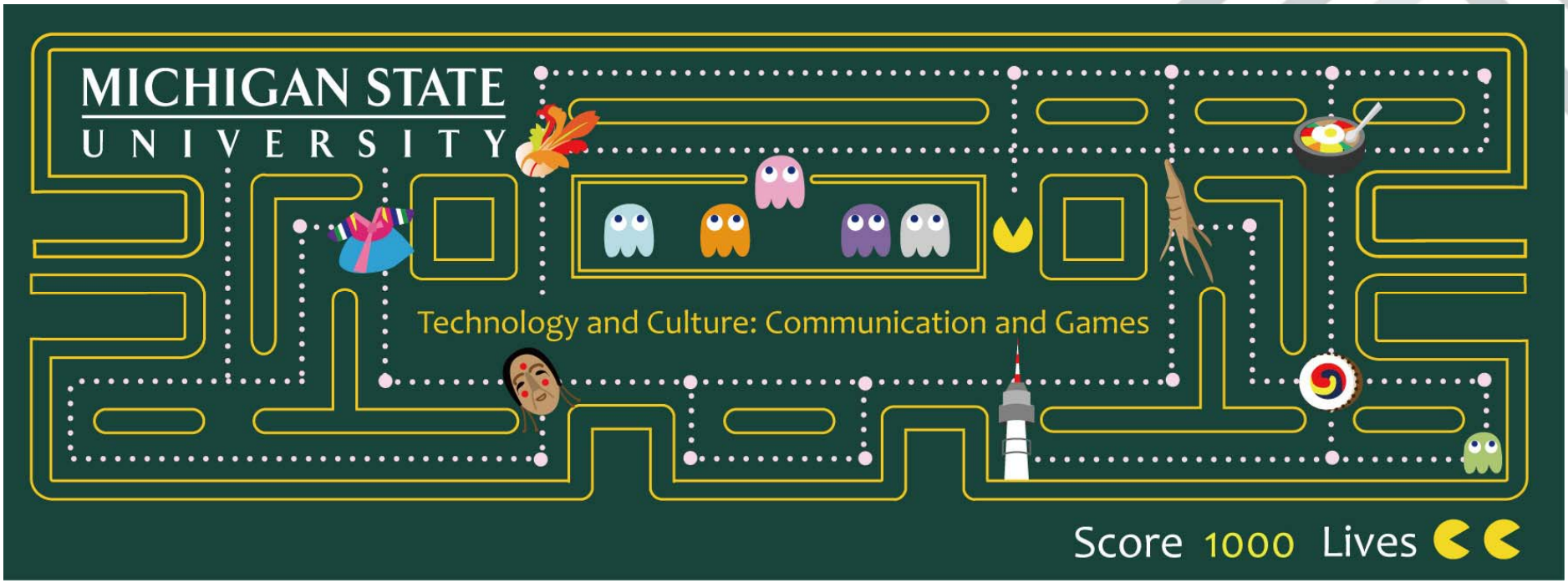
GAME DEVELOPMENT AT MICHIGAN STATE UNIVERSITY



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STEM'D GLOBAL – THE SOFTER-CREATIVE SIDE OF ENGINEERING

A study abroad program that affords students opportunities to (i) visit companies in game design and mobile communications; (ii) meet and hear from professors and students at prestigious peer institutions, and (iii) cultural immersion by exploring historic sites and culinary arts in greater Seoul. The Applied Engineering Sciences (AES) and other majors allows students to cross majors and participate in academic areas of study such as: computer science, business, packaging, supply chain and many others.

GAME DEVELOPMENT AT MSU: Who Can Play? Cross-Discipline Learning

The student's minor brings together students in Media Information, Computer Science, and Studio Art. The minor complements the breadth and depth of knowledge students acquire in their majors with a multidisciplinary understanding of game design and development. For most majors outside of MI, the minor often nearly fulfills the student's cognate requirements

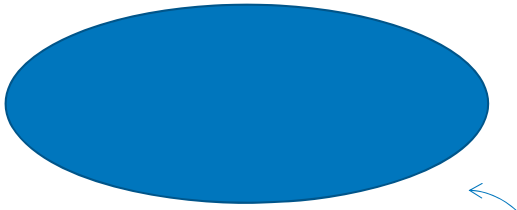
OPPORTUNITIES AND BENEFITS IN CROSS DISCIPLINE RELATIONSHIPS

- *SHARED COST*
- *SHARED RISK*
- *SHARED RESOURCES*
- *SHARRED STUDENT OPPORTUNITY*
- *SHARED BENEFITS!!*

OUTCOMES

Engineering is Rigid

Finding creative opportunities in a world of constant change



QUESTIONS?

THANK YOU

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