

STEM Educ (STEM ED)

Courses

STEM ED 650. STEM Curriculum and Methods. 3 Credits.

A thorough review of content standards (Standards for Technological Literacy) and program standards for technology education (Advancing Excellence in Technological Literacy). Opportunities are provided to compare and contrast with the Next Generation Science Standards and the Common Core. The course covers standards-based curriculum development and methods.

Typically Offered: Fall.

STEM ED 655. STEM Curriculum and Methods in Elementary. 3 Credits.

An overview for elementary teachers of the evolution, philosophy, methods, character, and purpose of each of the STEM disciplines. The course includes contemporary strategies unique and common among the disciplines such as analysis, modeling, inquiry, design, thematic instruction, team challenges, and practical problem solving. Current forces and trends acting on STEM education will also be explored. The overlay between STEM education and Gifted Education curriculum and methods will be emphasized.

Typically Offered: Fall.

STEM ED 660. Design for Engineering. 3 Credits.

A study of the concepts related to engineering design, a cornerstone of the standards-based approach to technology education. The course covers the standards, benchmarks, content, and techniques necessary to successfully teach a recommended core course at the secondary level and utilizes the Engineering by Design curriculum developed by the ITEEA.

Typically Offered: Fall.

STEM ED 665. Invention and Innovation. 3 Credits.

A study of the concepts related to engineering design as well as concepts surrounding inventions and innovations. This course covers the standards, benchmarks, content, and techniques necessary to successfully teach a recommended core course at the middle school level and utilizes the curriculum concepts from Engineering by Design from the ITEEA. The intersection of STEM and Gifted and Talented standards will be emphasized.

Typically Offered: Summer.

STEM ED 670. Design, Technology, and Engineering for Elementary. 3 Credits.

A course focused on creating standards-based thematic units at the elementary level using the engineering design process and design challenges to integrate science, mathematics and other subject areas. A primary goal of the course is to expand the range of activities implemented in the self-contained elementary classroom, while meeting the specific needs of Gifted and Talented students and fostering technological literacy in all elementary students.

Typically Offered: Spring.

STEM ED 671. Inquiry Based Thematic Instruction. 3 Credits.

A course focused on the use of scientific inquiry, mathematics concepts, the engineering design process, design challenges, and additional subject areas in the implementation of standards-based thematic STEM and Gifted and Talented education units at the elementary level. Emphasis is also placed on evaluating and enhancing available thematic STEM and Gifted and Talented education curricula.

Typically Offered: Fall.

STEM ED 680. Building Math. 3 Credits.

A course focused on hands-on activities that integrate engineering design while developing algebraic thinking skills through the collection and analysis of data used to solve real-world problems. Students will develop the ability to apply math knowledge and concepts to their investigations and use the engineering design process. Suitable for secondary and middle school level teachers; and will provide opportunities to create standards-based materials in STEM for all students, while meeting the specific needs of Gifted and Talented students..

Typically Offered: Summer.

STEM ED 682. Engineering the Future. 3 Credits.

A course focused on the use of concepts in physics, mathematics, and the engineering design process while exploring the social, historical and environmental contexts of current and emerging technologies. Suitable for secondary level teachers; and will provide opportunities to plan and create standards-based materials.

Typically Offered: Spring.

STEM ED 699. Special Topics. 1-4 Credits.

An advanced study covering topics not regularly taught in the Master of education program. The course provides learners with the flexibility to investigate topics of interest.

Typically Offered: On sufficient demand.

Repeatable: Up to 12 Credits.