

CDE 232: SCIENCE, TECHNOLOGY, ENGINEERING & MATH IN ECE

Date Submitted: Tue, 19 Feb 2019 00:33:07 GMT

Formerly known as:

ECE 038 (or if cross-listed - inactivated courses associated with this course)

Originator

dgreene

Justification / Rationale

Re-number courses to better align with guided pathways

Effective Term

Fall 2020

Credit Status

Credit - Degree Applicable

Subject

CDE - Child Development & Education

Course Number

232

Full Course Title

Science, Technology, Engineering & Math in ECE

Short Title

STEM CONCEPTS

Discipline

Disciplines List

Child Development/Early Childhood Education

Modality

Face-to-Face
100% Online
Hybrid

Catalog Description

This course explores the development of curriculum ideas for teaching about scientific, mathematical, engineering, and technology (STEM) concepts to young children.

Schedule Description

Students will explore science, technology, engineering, and mathematical (STEM) concepts and their application in the early childhood classroom. Prerequisite: CDE 101

Lecture Units

3

Lecture Semester Hours

54

In-class Hours

54

Out-of-class Hours

108

Total Course Units

3

Total Semester Hours

162

Prerequisite Course(s)

CDE 101

Required Text and Other Instructional Materials**Resource Type**

Book

Author

Moomaw, S.

Title

Teaching STEM in the Early Years: Activities for Integrating Science, Technology, Engineering, and Mathematics

Edition

1st

Publisher

Redleaf Press

Year

2013

College Level

Yes

Flesch-Kincaid Level

12

ISBN #

9781605541211

Resource Type

Web/Other

Open Educational Resource

Yes

Description

California Preschool Curriculum Framework California Preschool Foundations, Volume 1, 2, and 3
Preschool Program Guidelines Available from California Department of Education Press as Free Downloads
<http://www.cde.ca.gov/sp/cd/re/cddpublications.asp>

Resource Type

Web/Other

Open Educational Resource

Yes

Year

2019

Description

Early Edu Washington State Open Course Resource.
As members in the Early Edu community COD faculty have access to the full course content.
<https://earlyedu.instructure.com/courses/445>

Class Size Maximum

35

Entrance Skills

Students must understand major developmental theories to be able to apply them in the classroom with children.

Requisite Course Objectives

CDE 101-Summarize developmental stages and milestones.

CDE 101-Evaluate the influence of multiple contexts on children's development.

Course Content
Lecture:

1. Integrating STEM concepts throughout the indoor and outdoor environment.
2. Sequence of basic mathematical concepts and their importance.
3. Review of Theories of Cognitive Development.
4. Integrating technology and engineering activities in classroom centers.
5. Create activity plans for science, math, technology and engineering.
6. Create and demonstrate homemade math and science activities.
7. Construction of teacher-made activities.
8. Evaluate the use of technology in the ECE classroom by children and by adults according to NAEYC criteria.
9. Read and summarize research related to cognitive neuroscience and child development

Course Objectives

	Objectives
Objective 1	Describe and explain the basic principles of STEM in relation to a child's perspective and development.
Objective 2	Design and implement STEM curricula that will show enthusiasm and appreciation for the subject.
Objective 3	Explain how children learn STEM concepts.
Objective 4	Identify appropriate STEM curricula experiences and materials.
Objective 5	Read and apply the most recent research about child development and cognition.

Student Learning Outcomes

	Upon satisfactory completion of this course, students will be able to:
Outcome 1	Integrate STEM concepts into curriculum by developing lessons and play materials and models to help children explore basic STEM concepts.
Outcome 2	Organize and present learning activities that expand cognitive processes for young children according to best and promising practices that incorporate the latest research in child development and neuroscience
Outcome 3	Develop play materials and models to help children explore basic STEM concepts.

Methods of Instruction

Method	Please provide a description or examples of how each instructional method will be used in this course.
Observation	Students will view at least three classrooms (toddler, preschool and early elementary) and educational settings to see integrated STEM concepts.
Lecture	Instructor will conduct lectures regarding course objectives.
Experiential	Students will engage in STEM activities designed for children ages 0-8 and will reflect on how to implement them.
Collaborative/Team	Students will work in teams to create and share STEM activities.

Methods of Evaluation

Method	Please provide a description or examples of how each evaluation method will be used in this course.	Type of Assignment
Product/project development evaluation	Students will create STEM games and activities. They will bring to class and present to each other for evaluation.	In and Out of Class
Group activity participation/observation	Students will interact with STEM materials in small groups while others observe and note the learning opportunities.	In Class Only
Field/physical activity observations	Students will observe classrooms to identify best and promising practices in STEM education for children ages 0-8. They will observe in several age ranges and will present results of their observations to the class for discussion and critique.	In and Out of Class
Portfolios	Students will create a portfolio artifact that will summarize what they learned in this course and how they plan to continue their learning in this subject.	Out of Class Only
Other	Lesson plans : students will create and present developmentally appropriate lesson plans for STEM learning for children ages 0-8	Out of Class Only

Assignments

Other In-class Assignments

1. Develop material tests for math and science experiences.
2. Presentations/student demonstration.
3. Group activity/participation/observation.

Other Out-of-class Assignments

1. Read textbook.
2. Compile an activity file which includes lesson plans and activities specific with curriculum materials.
3. Construct teacher-made math materials that are developmentally appropriate.
4. Compose a parent letter explaining Early Childhood Philosophy of math and science education.
5. Research, read and summarize three peer-reviewed journal articles related to cognitive neuroscience.

Grade Methods

Letter Grade Only

Distance Education Checklist

Include the percentage of online and on-campus instruction you anticipate.

Online %

70

On-campus %

30

Instructional Materials and Resources

Effective Student/Faculty Contact

Which of the following methods of regular, timely, and effective student/faculty contact will be used in this course?

Within Course Management System:

Timely feedback and return of student work as specified in the syllabus
 Discussion forums with substantive instructor participation
 Chat room/instant messaging
 Regular virtual office hours
 Private messages

Online quizzes and examinations
Video or audio feedback
Weekly announcements

External to Course Management System:

Direct e-mail
E-portfolios/blogs/wikis
Posted audio/video (including YouTube, 3cm mediasolutions, etc.)
Synchronous audio/video
Telephone contact/voicemail
USPS mail

For hybrid courses:

Scheduled Face-to-Face group or individual meetings
Field trips
Library workshops
Orientation, study, and/or review sessions

Other Information**MIS Course Data****CIP Code**

13.1210 - Early Childhood Education and Teaching.

TOP Code

130500 - Child Development/Early Care and Education

SAM Code

C - Clearly Occupational

Basic Skills Status

Not Basic Skills

Prior College Level

Not applicable

Cooperative Work Experience

Not a Coop Course

Course Classification Status

Credit Course

Approved Special Class

Not special class

Noncredit Category

Not Applicable, Credit Course

Funding Agency Category

Not Applicable

Program Status

Program Applicable

Transfer Status

Transferable to CSU only

Allow Audit

No

Repeatability

No

Materials Fee

No

Additional Fees?

No

Files Uploaded**Attach relevant documents (example: Advisory Committee or Department Minutes)**

ECE_CommitteeMinutes March 14 2018.pdf

Approvals**Curriculum Committee Approval Date**

10/01/2019

Academic Senate Approval Date

10/10/2019

Board of Trustees Approval Date

11/13/2019

Chancellor's Office Approval Date

12/09/2019

Course Control Number

CCC000609928

Programs referencing this courseEarly Childhood Education Master Teacher Certificate of Achievement (<http://catalog.collegeofthedesert.eduundefined?key=129/>)