

Attachment 4A-1

LETTER OF NOTIFICATION – 3

NEW OPTION, CONCENTRATION, EMPHASIS

(Maximum 18 semester credit hours of new theory courses and 6 credit hours of new practicum courses)

1. Institution submitting request: **University of Arkansas Fayetteville**
2. Contact person/title: **Dr. Sharon L. Gaber, Provost**
3. Phone number/e-mail address: **479-575-5459/ sgaber@uark.edu**
4. Proposed effective date: **Fall 2013**
5. Title of degree program: **B.S.E. in Childhood Education**
6. CIP Code: **13.1202**
7. Degree Code: **3770**
8. Proposed option/concentration/emphasis name: **STEM Endorsement for P-4 candidates**
9. Reason for proposed action:
The University of Arkansas has developed graduate certificate in Science, Technology, Engineering, and Mathematics (STEM) Education for P-4 Childhood Education MAT candidates. This action would make this certificate sub-specialty option for the Childhood Education licensure program. There is a great need for increased attention to the STEM disciplines in elementary schools across the State of Arkansas and across the nation. The U of A does have an additional licensure program, or endorsement, in STEM education, but a graduate certificate was implemented in August, 2012. The courses for this program currently exist and are approved by the Arkansas Department of Education. This modification does not require new faculty, or resources. The Childhood Education faculty approved this change at their September 21, 2011 meeting.
10. New option/concentration/emphasis objective:
The University of Arkansas Childhood Education licensure program currently offers three sub-specialty options from which candidates must choose in order to complete the program. They are special education, English as a second language, and a grades 5/6 endorsement. We are proposing to add the fourth option of STEM endorsement for P-4 candidates to prepare more candidates to fill the need in the state for highly qualified teachers in STEM education. The new option requires five courses (15 hours). One of these courses (CIED 5032 Curriculum Design) is already a part of the program. The other four courses (below) have been developed and have been approved as a Graduate Certificate in STEM Education.
11. Provide the following:
 - a. Curriculum outline - List of required courses
 - TEED 4033 Introduction to STEM Education**
 - TEED 5023 Creativity and Innovation in STEM Education**
 - CIED 5032 Curriculum Design**
 - CIED 5203 Problem-based Math for STEM Education**
 - CIED 5213 Problem-based Science in the Elementary Grades**

b. New course descriptions

- **TEED 4033:** This introductory course in integrative STEM education focuses on the development and introduction of STEM content and pedagogy for the PK-12 classroom. The course includes an introduction to the nature of each of the STEM education disciplines, and follows with an exploration of the pedagogies unique to the fields of science, technology, engineering, and mathematics (STEM) education and insights into teaching strategies that can be used to deliver instruction in an integrative fashion.
- **TEED 5023:** This introductory course in technology and engineering education focuses on the development and introduction of technology and engineering-based activities to support science and mathematics instruction in the elementary classroom. Through hands-on, problem based learning challenges, students will develop an understanding of the design process and the integration of science, technology, engineering, and mathematics (STEM) often used to solve real-world problems.
- **CIED 5203:** This graduate level course focuses on sharing, modeling and practicing strategies to support the meaningful integration of science, technology, engineering and mathematics (STEM) with the emphasis on mathematics in the K-4 classroom. A strong foundation for integrating the STEM disciplines through a problems-based approach within the elementary curriculum will be developed by providing students with theoretical frameworks, research, resources, and methods related to appropriate and effective classroom practice.
- **CIED 5213:** This graduate level course focuses on sharing, modeling and practicing strategies to support the meaningful integration of science, technology, engineering and mathematics (STEM) with the emphasis on science in the K-4 classroom. A strong foundation for integrating the STEM disciplines through a problems-based approach within the elementary curriculum will be developed by providing students with theoretical frameworks, research, resources, and methods related to appropriate and effective classroom practice.

c. Program goals and objectives

To prepare teacher candidates to be successful STEM teachers and advocates.

d. Expected student learning outcomes

TEED 4033 Candidates will know and apply the STEM education delivery model across the areas of mathematics, science, technology and engineering. They will develop and test curriculum materials and experiment with appropriate instructional strategies.

TEED 5023 Candidates will use hands-on, problem based learning challenges to develop an understanding of the design process and the integration of science, technology, engineering, and mathematics (STEM) often used to solve real-world problems.

CIED 5032 Candidates will demonstrate the ability to design, implement, and assess appropriate curriculum materials and learning experiences for children in the licensure area.

CIED 5203 Candidates will develop a strong foundation for integrating the STEM disciplines through a problems-based approach within the elementary curriculum using theoretical frameworks, research, resources, and methods related to appropriate and effective classroom practice.

CIED 5213 Candidates will learn to share, model and practice strategies to support the meaningful integration of science, technology, engineering and mathematics (STEM) with the emphasis on science in the K-4 classroom.

12. Will the new option be offered via distance delivery?

No.

13. Mode of delivery to be used:

Traditional classroom format.

14. Explain in detail the distance delivery procedures to be used:

N/A.

15. Is the **degree** approved for distance delivery?

No.

16. List courses in option/concentration/emphasis. Include course descriptions for new courses.

TEED 4033 Introduction to STEM Education

TEED 5023 Creativity and Innovation in STEM Education
CIED 5032 Curriculum Design
CIED 5203 Problem-based Math for STEM Education
CIED 5213 Problem-based Science in the Elementary Grades

17. Specify the amount of the additional costs required, the source of funds, and how funds will be used.
There are no anticipated additional costs. No new faculty lines are required since all these courses are currently offered.

President/Chancellor Approval Date:

Board of Trustees Notification Date:

Chief Academic Officer

Date: