JOY HOFMEISTER
STATE SUPERINTENDENT OF PUBLIC INSTRUCTION
OKLAHOMA STATE DEPARTMENT OF EDUCATION

MEMORANDUM

TO: The Honorable Members of the State Board of Education

FROM: Joy Hofmeister

DATE: June 23, 2016

SUBJECT: Kiamichi and Meridian Technology Center Academy Requesting Approval of Applications for Focus Fields of Study

The State Department of Education is requesting approval of the Kiamichi and Meridian Technology Center's Application for Focused Field of Career Study.

"Technology centers may offer programs designed in cooperation with institutions of higher education which have an emphasis on a focused field of career study upon approval of the State Board of Education and the independent district board of education. Students in the tenth grade may be allowed to attend these programs for up to one-half (1/2) of a school day and a credit for the units or sets of competencies required in paragraphs 2 and 3 of subsection B of this section shall be given if the courses are taught by a teacher certified in the secondary subject area."
70 O.S § 11-103.6

Based on Title 70 §11-103.6.G.1, the State Board of Education shall "*ensure that rigor is maintained in the content, teaching methodology, level of expectations for student achievement, and application of learning in all the courses taught to meet the graduation requirements.*" The submitted applications for Kiamichi and Meridian Technology Centers were reviewed based on three primary considerations to address this mandate:

1. the extent to which the course addresses the **necessary and appropriate content**
    a. Evidence Reviewed: Alignment Study of Course Materials and Competencies to Oklahoma Academic State Standards
2. the extent to which the instructor is certified to provide **rigorous instruction** and ensures a **high level of expectations** for students
    a. Evidence Reviewed: Course Description, Course Syllabus and Identification of Properly Certified Instructor
3. the extent to which there is **application of learning**

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a. Evidence Reviewed: Joint Program Agreements

For courses that provided all necessary documentation, each component was reviewed based on the submitted materials and has been rated as demonstrating either Insufficient Evidence or Sufficient Evidence. Where possible and appropriate, recommendations are provided to increase supporting evidence. Otherwise, an account of the provided evidence is summarized.

The attached reports indicate that both applications have **Sufficient Evidence** across all three considerations. It is, therefore, our recommendation that **both Fields of Study should be approved**.

The Oklahoma State Department of Education is thankful for the time and dedication of all applicants and especially to the guidance and support offered by Tina Fugate and Sara Wright of the Oklahoma State Department of Career Technology.

JH

attachment

Review of Kiamichi Technology Center's Academy Application

Date: June 20, 2016

Reviewed By: Levi Patrick, Director of Secondary Mathematics, and Tiffany Neill, Director of Science Education

Summary of Findings

The reviewed courses listed below were identified in the Application for Focused Field of Career Study in Bio-Medical Sciences as required or available to students at the Kiamichi Technology Center.

Pending completion of identified AP training and approval of the AP Calculus and AP Chemistry syllabi by College Board, the application has provided sufficient evidence to satisfy all considerations and is approved to provide the mathematics and science content required by the identified Focus Field of Study to sophomores, juniors, and seniors of the cooperating partner schools.

Course Identified in Field of Study	Alignment Study	Syllabus [1]	College Board Approval Letter [2]	Result
Honors Geometry	Sufficient	Sufficient	Not Required	Sufficient
Honors Algebra 2	Sufficient	Sufficient	Not Required	Sufficient
Honors Trigonometry/ Pre-Calculus	Not Required	Sufficient	Not Required	Sufficient
AP Calculus	Not Required	Sufficient	Pending	Pending
AP Biology	Sufficient	Sufficient	Sufficient	Sufficient
Honors Anatomy and Physiology	Not Required	Sufficient	Not Required	Sufficient
Honors Chemistry	Sufficient	Sufficient	Not Required	Sufficient
AP Chemistry	Sufficient	Sufficient	Pending	Pending
AP Physics C-Mechanics	Removed from Original Field of Study Submission by Kiamichi			
Microbiology	Not Required	Sufficient	Not Required	Sufficient

[1] Course syllabi should indicate assigned staff holding appropriate teacher certifications. If no staff is currently identified, job descriptions may be submitted instead.

[2] Applicable for College Board Advanced Placement courses only.

Process

Based on Title 70 §11-103.6.G.1, the State Board of Education shall "*ensure that rigor is maintained in the content, teaching methodology, level of expectations for student achievement, and application of learning in all the courses taught to meet the graduation requirements.*" The submitted application for Kiamichi Technology Center was reviewed based on three primary considerations to address this mandate:

1) the extent to which the course addresses the **necessary and appropriate content**
    a) Evidence Reviewed: Alignment Study
2) the extent to which the instructor is certified to provide **rigorous instruction** and ensures a **high level of expectations** for students
    a) Evidence Reviewed: Course Description, Syllabus and Identification of Certified Instructor
3) the extent to which there is **application of learning**
    a) Evidence Reviewed: Joint Program Agreements

Courses not providing necessary documentation are not reviewed and considered to be not presently approved. Upon submission of all required documents, these courses will be re-evaluated.

For courses that provided all necessary documentation, each component was reviewed based on the submitted materials and has been rated as demonstrating either Insufficient Evidence or Sufficient Evidence. Where appropriate, recommendations are provided to increase supporting evidence. Further, possible revisions are provided to indicate that they are not required but may be useful in increasing supporting evidence.

Consideration 1: Necessary and Appropriate Content[3]

Honors Geometry

- **Findings for Honors Geometry:** The Honors Geometry course outline provides Sufficient Evidence regarding the coverage of necessary and appropriate content found in the new Oklahoma Academic Standards for Science.

Honors Algebra 2

- **Findings for Honors Algebra 2:** The Honors Algebra 2 course outline provides Sufficient Evidence regarding the coverage of necessary and appropriate content found in the new Oklahoma Academic Standards for Mathematics.
- **Possible Revisions for Algebra 2:** The provided alignment study indicates the coverage of a number of concepts that fall outside of the scope of content for Algebra 2. In some instances, the alignment seems to be simply a *closest standard* rather than a consideration of the learner's experience as they progress through the Algebra 2 course. For example, nearly everything addressed until Systems of Equations in Three Variables (A2.A.1.8) is actually aligned to Algebra 1 content. The syllabus does not adequately indicate how those addressed concepts will be addressed at a level above Algebra 1. Two examples are provided here to illustrate this point. Solving Equations is addressed in Unit 1 and aligned to A2.A.2.2 and A2.A.1.3. The first of these standards states that students will be able to "add, subtract, multiply, divide, and simplify polynomial and rational expressions." The second standard states that students will be able to "solve one-variable rational equations and check for

[3] Some courses submitted were not included in Consideration 1 because corresponding state standards do not exist at this time. If Oklahoma Academic Standards for Science are developed for said courses, they will be included in future Field of Study Reviews.

extraneous solutions." These two standards simply are not adequately addressed by "solving equations" and the alignment should be reconsidered. Other examples occur on the other end of the spectrum. For an Honors Algebra 2 course, this is not unusual. The use of the textbook as the primary indication of the content covered in the course is concerning as it appears to be disconnected from the expected Algebra 2 experience and perhaps disconnected from the anticipated Pre-Calculus experience. An example for this is the coverage of Confidence Intervals and Hypothesis Testing. This is presently aligned to A2.D.2.1 and A2.D.2.2. While Confidence Intervals should be addressed in a Statistics course, the expectations of the written standards do not go this far. It is certainly up to the discretion of the teachers and applying school to determine the scope of work for Honors Algebra 2 that extends beyond the defined Algebra 2 content, but it is likely that the removal of some of these unnecessary items may allow for a more in-depth study of the Algebra 2 content.

AP Biology

- **Findings for AP Biology:** The AP Biology course outline provides Sufficient Evidence regarding the coverage of necessary and appropriate content found in the new Oklahoma Academic Standards for Science.
- **Possible Revisions for AP Biology:** To increase supporting evidence of alignment to the Oklahoma Academic Standards for Science, the AP Biology course labs and activities should address alignment to the performance expectations in the Oklahoma Academic Standards for Science and not process standards from the Priority Academic State Standards for Science. Alignment of labs and activities solely to process standards indicates a likelihood that the content of science is taught separately from the practice of science. To ensure the intent of the Oklahoma Academic Standards for Science is met, science content should be integrated with science practices.

AP Chemistry

- **Findings for AP Chemistry:** The Kiamichi Technology Center has submitted an AP Chemistry syllabus for approval from College Board and the properly certified teacher is undergoing Advanced Placement training this summer. Based on these expected outcomes, Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students has been provided.

Honors Chemistry

- **Findings for Honors Chemistry:** The Honors Chemistry course outline provides Sufficient Evidence regarding the coverage of necessary and appropriate Oklahoma Academic Standards for Chemistry.
- **Possible Revisions for AP Chemistry:** As submitted, the AP Chemistry course excludes four of the thirteen Oklahoma Academic Standards for Chemistry. Some of the four standards can be aligned to the existing.

Consideration 2: Rigorous Instruction and High Level of Expectations

Honors Geometry

- **Findings for Honors Geometry:** The Geometry course syllabus and certification provides Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students. The proposed instructor for Honors Algebra 2 is not identified, but two valid Teaching Certificates were provided. One instructor is certified as an Advanced Mathematics (5550) teacher in the state of Oklahoma. The other is certified as Geometry (5502). Both are allowable.
- **Possible Revisions for Honors Geometry:** Provide a course syllabus that identifies the certified staff who will teach the course.

Honors Algebra 2

- **Findings for Honors Algebra 2:** The Algebra 2 course syllabus and certification provides Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students. The proposed instructor for Honors Algebra 2 is not identified, but two valid Teaching Certificates were provided. One instructor is certified as an Advanced Mathematics (5550) teacher in the state of Oklahoma. The other is certified as Algebra (5501). Both are allowable.
- **Possible Revisions for Honors Algebra 2:** Provide a course syllabus that identifies the certified staff who will teach the course.

AP Calculus

- **Findings for AP Calculus:** The Kiamichi Technology Center has submitted the AP Calculus syllabus for approval from College Board and the properly certified teacher is undergoing Advanced Placement training this summer. Based on these expected outcomes, Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students has been provided.
- **Possible Revisions for AP Calculus:** If it is determined that the course is not approved by College Board, Kiamichi Technology Center should immediately discontinue this course and communicate such a decision to the Oklahoma State Board of Education.

AP Biology

- **Findings for AP Biology:** The AP Biology course syllabus and certification provides Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students. The proposed instructor for AP Biology is certified as a Biological Sciences (6050) teacher in the state of Oklahoma. A copy of the instructor's valid Teaching Certificate was provided within the application.

AP Chemistry

- **Findings for AP Chemistry:** The AP Chemistry course syllabus and certification provides Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students. The proposed instructor for AP Chemistry is certified as a Chemistry (6006) teacher in the state of Oklahoma. A copy of the instructor's valid Teaching Certificate was provided within the application.

Honors Chemistry:

- **Findings for Honors Chemistry:** The Honors Chemistry course has Insufficient Evidence regarding the expectation of rigorous instruction and ensuring a high level of expectation for students. The evidence submitted lacked a course syllabus. Instructors included in the field of study submission are certified in Chemistry (6006) for the state of Oklahoma. A copy of the instructor's valid Teaching Certificate was provided within the application. However, without a syllabus for the course, it isn't clear which teacher will be teaching the Honors Chemistry course.

Consideration 3: Application of Learning

- **Findings for Kiamichi Technology Center:** The copies of the Joint Program Agreements provide Sufficient Evidence regarding the expectation of application of learning. Signed agreements were provided from Achille, Arkoma, Bennington, Bokoshe, Caddo, Calera, Calvin, Cameron, Canadian, Colbert, Crowder, Durant, Eufaula, Haileyville, Hartshorne, Heavener, Howe, Indianola, Kiowa, LeFlore, McAlester, Panama, Panola, Pittsburg, Pocola, Poteau, Quinton, Red Oak, Rock Creek, Savanna, Silo, Spiro, Stuart, Wilburton, and Wister Public Schools indicating that the Kiamichi Technology Center will "provide hands-on, project and problem-based teaching that adds rigor to technical learning and relevance to traditional academics" and "link demanding mathematics and science courses with quality academic/technical courses." Further documentation of the Plan of Study was provided to support these claims.

Review of Meridian Technology Center's Academy Application

Date: June 20, 2016

Reviewed By: Levi Patrick, Director of Secondary Mathematics, and Tiffany Neill, Director of Science Education

Summary of Findings

The reviewed courses listed below were identified in the Application for Focused Field of Career Study in Bio-Medical Sciences as required or available to students at the Meridian Technology Center.

The application has provided sufficient evidence to satisfy all considerations and is approved to provide the mathematics and science content required by the identified Focus Field of Study to sophomores, juniors, and seniors of the cooperating partner schools.

Course Identified in Field of Study	Alignment Study	Syllabus [1]	College Board Approval Letter [2]	Result
Algebra 2	Sufficient	Sufficient	Not Required	Sufficient
Trigonometry	Not Required	Sufficient	Not Required	Sufficient
Pre-AP Pre-Calculus	Not Required	Sufficient	Not Required	Sufficient
AP Calculus AB	Not Required	Sufficient	Sufficient	Sufficient
AP Calculus BC	Not Required	Sufficient	Sufficient	Sufficient
AP Statistics	Not Required	Sufficient	Sufficient	Sufficient
AP Biology	Sufficient	Sufficient	Sufficient	Sufficient
Pre-AP Chemistry	Sufficient	Sufficient	Not Required	Sufficient
AP Chemistry	Sufficient	Sufficient	Sufficient	Sufficient
AP Physics	Sufficient	Sufficient	Sufficient	Sufficient

Process

Based on Title 70 §11-103.6.G.1, the State Board of Education shall "*ensure that rigor is maintained in the content, teaching methodology, level of expectations for student achievement, and application of learning in all the courses taught to meet the graduation requirements.*" The submitted application for Meridian Technology Center was reviewed based on three primary considerations to address this mandate:

1) the extent to which the course addresses the **necessary and appropriate content**

[1] Course syllabi should indicate assigned staff holding appropriate teacher certifications. If no staff is currently identified, job descriptions may be submitted instead.

[2] Applicable for College Board Advanced Placement courses only.

a) Evidence Reviewed: Alignment Study

2) the extent to which the instructor is certified to provide **rigorous instruction** and ensures a **high level of expectations** for students
    a) Evidence Reviewed: Course Description, Syllabus and Identification of Certified Instructor
3) the extent to which there is **application of learning**
    a) Evidence Reviewed: Joint Program Agreements

Courses not providing necessary documentation are not reviewed and considered to be not presently approved. Upon submission of all required documents, these courses will be re-evaluated.

For courses that provided all necessary documentation, each component was reviewed based on the submitted materials and has been rated as demonstrating either Insufficient Evidence or Sufficient Evidence. Where possible and appropriate, recommendations are provided to increase supporting evidence. Otherwise, an account of the provided evidence is summarized.

Consideration 1: Necessary and Appropriate Content[3]

Algebra 2

- **Findings for Algebra 2:** The Algebra 2 course outline provides Sufficient Evidence regarding the coverage of necessary and appropriate content found in the new Oklahoma Academic Standards for Mathematics.
- **Possible Revisions for Algebra 2:** The inclusion of Chapters 8, 9, and 10 largely covers content found either in Geometry or that has been designated as appropriate content for Pre-Calculus. The exclusion of these standards/chapters is not required, but it should be noted that some of the content is below grade level and removing the advanced content may allow for a greater emphasis on grade-level appropriate content. The applicant should realign the Algebra 2 course to the new Oklahoma Academic Standards for Mathematics and resubmit their application.

AP Biology

- **Findings for AP Biology:** The AP Biology course outline provides Sufficient Evidence regarding the coverage of necessary and appropriate content found in the new Oklahoma Academic Standards for Science.
- **Possible Revisions for AP Biology:** To increase supporting evidence of alignment to the Oklahoma Academic Standards for Science, the AP Biology course labs and activities should address alignment to the performance expectations in the Oklahoma Academic Standards for Science and not process standards from the Priority Academic State Standards for Science. Alignment of labs and activities solely to process standards indicates a likelihood that the content of science is taught separately from the practice of science. To ensure the intent of the Oklahoma Academic Standards for Science is met, science content should be integrated with science practices.

AP Chemistry

- **Findings for AP Chemistry:** The AP Chemistry course outline provides Sufficient Evidence regarding the coverage of necessary and appropriate Oklahoma Academic Standards for Chemistry.

[3] Some courses submitted were not included in Consideration 1 because corresponding state standards do not exist at this time. If Oklahoma Academic Standards for Science are developed for said courses, they will be included in future Field of Study Reviews.

- **Possible Revisions for AP Chemistry:** As submitted, the AP Chemistry course excludes four of the thirteen Oklahoma Academic Standards for Chemistry. Some of the four standards can be aligned to the existing curriculum and some of the standards will need to be covered by additional curriculum. The four Oklahoma Academic Standards for Chemistry not covered in the alignment submitted are: HS-PS1-8, HS-PS2-6, HS-PS4-1 and HS-PS4-3.

Pre- AP Chemistry

- **Findings for Pre-AP Chemistry:** The Pre-AP Chemistry course outline provides Sufficient Evidence regarding the coverage of necessary and appropriate Oklahoma Academic Standards for Chemistry.
- **Possible Revisions for Pre-AP Chemistry:** A syllabus for Pre-AP Chemistry was submitted but it provides a lack of strong evidence that the Oklahoma Academic Standards will be met as the syllabus submitted states a chapter title with correlations Oklahoma Academic Standards for Science. The chapter includes titles with language that is more aligned with PASS standards language and PASS standards structure. For example, the new Oklahoma Academic Standards for Science are inclusive of all forms of planning and carrying out scientific investigations rather than limiting students to the Scientific Method. Also, the new Oklahoma Academic Standards integrate scientific practices with science content. Chapter titles indicate that science practices are taught in isolation of content in some cases.

AP Physics

- **Findings for AP Physics:** The AP Physics course outline provides Sufficient Evidence regarding the coverage of necessary and appropriate Oklahoma Academic Standards for Physics.
- **Possible Revisions for AP Physics:** A syllabus for AP Physics with evidence of alignment to the Oklahoma Academic Standards for Physics and a document showing approval of the course by Advanced Placement was submitted.

Consideration 2: Rigorous Instruction and High Level of Expectations

All Math Courses

- **Findings for all Math Courses:** The Algebra 2, Trigonometry, Pre-AP Pre-Calculus, and both Calculus AP AB and BC course descriptions and teacher certificate provide Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students. Copies of valid Teaching Certificates were provided within the application indicating the instructors are likely certified appropriately in Advanced Mathematics (5550).

AP Biology

- **Findings for AP Biology:** The AP Biology course syllabus and certification provides Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students. The proposed instructor for AP Biology is certified as a Biological Sciences (6050) teacher in the state of Oklahoma. A copy of the instructor's valid Teaching Certificate was provided within the application.

AP Chemistry

- **Findings for AP Chemistry:** The AP Chemistry course syllabus and certification provides Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students. The proposed instructor for AP Chemistry is certified as a Chemistry (6006) teacher in the state of Oklahoma. A copy of the instructor's valid Teaching Certificate was provided within the application.

Pre-AP Chemistry:

- **Findings for Pre-AP Chemistry:** The Pre-AP Chemistry course has Sufficient Evidence regarding the expectation of rigorous instruction and ensuring a high level of expectation for students. The proposed instructor for Pre-AP Chemistry is certified as a Chemistry (6006) teacher in the state of Oklahoma. An instructor submitted in the field of study paperwork is certified in Chemistry (6006) in the state of Oklahoma. A copy of the instructor's valid Teaching Certificate was provided within the application.

AP Physics:

- **Findings for AP Physics:** The proposed instructor for AP Physics is certified as a Physics (6006) teacher in the state of Oklahoma. An instructor submitted in the field of study paperwork is certified in Physics (6015) in the state of Oklahoma. A copy of the instructor's valid Teaching Certificate was provided within the application.

Consideration 3: Application of Learning

- **Findings for Meridian Technology Center:** The copies of the Joint Program Agreements provide Sufficient Evidence regarding the expectation of application of learning. Signed agreements were provided from Agra, Carney, Frontier, Glencoe, Guthrie, Morrison, Mulhall-Orlando, Pawnee, Perkins-Tryon, Perry, and Stillwater Public Schools indicating that Meridian Technology Center will "provide hands-on, project and problem-based teaching that adds rigor to technical learning and relevance to traditional academics" and "link demanding mathematics and science courses with quality academic/technical courses." Further documentation of the Plan of Study was provided to support these claims.