Key Licensure Assessment #6: Technology Lesson Plan
Adolescent to Young Adult (AYA) Integrated Mathematics: EDUC 504

Overview
Advanced Teacher Preparation Program
Educator Preparation Unit
Muskingum University

1. **Description of the Assessment and Its Use in the Program**

The purpose of Key Licensure Assessment #6 is to have candidates demonstrate their abilities to plan instruction that applies and/or uses the technology tools and other technology-related proficiencies called for in the National Council for Teachers of Mathematics (NCTM) Standards. This assessment occurs within EDUC 504: Adolescent/Young Adult Mathematics Seminar and is assessed by the course instructor. Specifically, candidates are expected to develop five lesson plans. Each plan involves a different area of mathematics. The five plans are to be designed to teach: (1) an algebraic idea, (2) a geometric idea and its application in real-world contexts, (3) a fundamental calculus concept, (4) problem-solving that involves the use of discrete structures and the application of algorithms, and (5) an application using appropriate techniques, tools, and formulas to determine measurements and their applications in a variety of contexts. The plan designed to teach a geometric idea needs to also attend to building and manipulating representations of two- and three-dimensional objects and visual objects from different perspectives. In addition, one lesson is expected to include the use of appropriate statistical methods and technological tools to describe shape and analyze spread and center.

To be admitted into clinical practice at Gateway 2, a candidate must complete Key Licensure Assessment #6 (*Technology Lesson Plan*) with at least 80% of the NCTM indicators on the assessment rated at *meets indicator* and no indicator rated *unacceptable*.

2. **Description of How the Assessment Specifically Aligns with the National Council for Teachers of Mathematics (NCTM) Standards (2003)**

The following indicators of the NCTM standards are evaluated through this key licensure assessment.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
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<tbody>
<tr>
<td>Indicator 10.5:</td>
<td>Use technological tools to explore algebraic ideas and representations of information and in solving problems (<em>Algebraic Idea Lesson Plan</em>)</td>
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<td>Indicator 11.7:</td>
<td>Use concrete models, drawings, and dynamic geometric software to explore geometric ideas and their applications in real-world contexts (<em>Geometric Idea and Its Application in Real-World Contexts Lesson Plan</em>)</td>
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<td>Indicator 11.4:</td>
<td>Build and manipulate representations of two- and three-dimensional objects and visual objects from different perspectives (<em>Geometric Idea and Its Application in Real-World Contexts Lesson Plan</em>)</td>
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<td>Indicator 12.4:</td>
<td>Use technological tools to explore and represent fundamental concepts of calculus (<em>Fundamental Calculus Concept Lesson Plan</em>)</td>
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<td>Indicator 13.3:</td>
<td>Use technological tools to solve problems involving the use of discrete structures and application of algorithms (<em>Problem-Solving that involves the Use of Discrete Structures and the Application of Algorithms Lesson Plan</em>)</td>
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<td>Indicator 15.2:</td>
<td>Apply appropriate techniques, tools, and formulas to determine measurements and their application in a variety of contexts (<em>Application Using Appropriate Techniques, Tools, and Formulas to Determine Measurements and Their Applications in a Variety of Contexts Lesson Plan</em>)</td>
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<tr>
<td>Indicator 14.3:</td>
<td>Use appropriate statistical methods and technological tools to describe shape and analyze spread and center (one of the five lesson plans)</td>
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<td>Indicator 7.6:</td>
<td>Use various teaching tools, including technology (all five lesson plans)</td>
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<td>Indicator 8.9:</td>
<td>Develop lessons that use technology’s potential for building understanding of mathematical concepts and developing important mathematical ideas technology (all five lesson plans)</td>
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<td>Indicator 6.1:</td>
<td>Use knowledge of mathematics to select and use appropriate technological tools technology (all five lesson plans)</td>
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3. **Assessment Instrument**

**Technology Lesson Plans Assignment Guidelines**

*As you complete the following, refer to the scoring guide for Key Licensure Assessment #6 to ensure that you include all expectations for this assessment.*

**Purpose of the Assignment:** To provide documentation of the candidate’s abilities to plan instruction that applies and/or uses the technology tools and other technology-related proficiencies called for in the NCTM Standards.

**Directions:**

A. Use the Muskingum University Lesson Plan format.

B. Write five different lesson plans. The respective plans are to be designed to teach:
   
   (1) an algebraic idea,
   
   (2) a geometric idea and its application in real-world contexts (this plan needs to also attend to building and manipulating representations of two- and three-dimensional objects and visual objects from different perspectives),
   
   (3) a fundamental calculus concept,
   
   (4) problem-solving that involves the use of discrete structures and the application of algorithms, and
   
   (5) an application using appropriate techniques, tools, and formulas to determine measurements and their applications in a variety of contexts.

**NOTE:** one lesson plan is expected to include the use of appropriate statistical methods and technological tools to describe shape and analyze spread and center.

Furthermore, the candidate is expected to:

(1) create lesson plans with clear purposes, procedures and resources utilizing technology as a main focus of instruction;

(2) ensure the technology identified aligns with the intent of the grade-level indicator(s);

(3) use higher-order thinking skills and student-centered technological activities; and
(4) allow students to make critical decisions that affect the outcomes of the mathematics of each lesson.

C. Muskingum University Lesson Plan Format

I. Learning Goals

(a) Ohio Academic Content Standard(s)
(b) Benchmark(s)
(c) Indicator(s)
(d) What students should know and be able to do at the end of this lesson

II. Student Background Knowledge and Experience

(a) What prior knowledge and skills do students need in order to be successful in reaching the goals of this lesson?
(b) How do you know if students have the knowledge and skills they need in order to be successful?
(c) How will you use or accommodate the diverse experiences that your students bring to class (gender, race/ethnicity, English language proficiency, economic status, exceptionalities, skill level, learning styles)?

III. Instructional Procedures

(a) Content summary, including concepts and essential understandings
(b) Teaching methods
(c) Student grouping

IV. Resources and Materials

V. Instructional Activities (note lesson sequence, including important questions to ask students)

(a) Time Allotted
(b) Opening
(c) Main Activities
(d) Closing

VI. Assessment/Evaluation

(a) Identify how you will know if each student has met the learning goals.
(b) Attach assessments and assessment criteria.