

Tentative Syllabus

EDUC 2000 K-12 Educator Summer 2019 Externship
2 Professional Development Credits
Summer, 2019 [June 3 – 28, 2019]

Instructor: Teresa Shume
Office: EML 155H
Phone: (701) 231-8748
E-mail: teresa.shume@ndsu.edu
Office Hours: By appointment

Important Notice

The educator is responsible to make sure their school district accepts Distance and Continuing Education credit from NDSU towards their licensure renewal.

Registration Also Required for

EDUC 2000 K-12 Educator Externship Action Research in Fall 2019 (1 credit)

Course Description

This course places K-12 educators in a corporate work environment for a four-week externship that provides the educator with a firsthand look at how the engineering design process and 21st century skills are currently being used in an industry environment. Along with regular Friday meetings for reflection and discussion with other participating educators, this experience prepares the educator to translate knowledge gained through the externship experience into classroom practice.

Course Textbook

There is no required course textbook. Readings and resource materials will be distributed by the instructor as needed.

Purpose

This course gives educators the opportunity to develop an understanding and appreciation of design-based problem solving processes and 21st century competencies through practical work experience. By working with interdisciplinary teams, educators will gain in-depth knowledge of teamwork, collaboration, communication, and other critical components of the engineering design process and 21st century skills. Educators gain a deeper understanding of how industry addresses a variety of technological challenges and will prepare to use that knowledge to help students improve their ability to undertake problem solving processes in a 21st century classroom. Participation in this course will strengthen the educator's ability to make curriculum content more relevant and applicable when returning to the classroom. The educator will understand how lessons that target 21st century skills and engineering design process can increase student engagement, increase content relevance, and align with the goals of engineering and STEM education and/or state and national standards in other subject areas.

Course Objectives

Through course participation, the educator will:

1. Develop an in-depth understanding and appreciation of how iterative problem-solving processes such as engineering design are collaboratively utilized in a technological corporate environment.
2. Understand the role of 21st century competencies and how these skills are integrated to prepare students for lifelong learning. These include, but are not limited to, critical thinking, effective communication, collaboration, creativity, problem solving, technological literacy, team diversity, leadership roles, and personal accountability.
3. Engage in team-oriented design problems and learn how team diversity contributes to the overall success of the project.
4. Understand the importance of education-industry partnerships.
5. Understand the importance of reflective practice and its role in professional development
6. Plan for implementing active learning strategies in the classroom that have real world application, such as project-based learning.
7. Develop curriculum that incorporates an iterative design process for problem solving and infuses 21st century skills into learning activities.
8. Develop an increased awareness of career options for 21st century students.
9. Display dispositions required of a professional in the workplace. These include, but are not limited to:
 - Attendance and punctuality
 - Professionalism in appearance, language, and personal interactions
 - Commitment to excellence in one's products

Course Structure

This course will involve an externship placement in a corporate work environment, consisting of a minimum of 30 hours, Monday to Thursday each week. Each Friday during the externship, all the educators involved will meet for a half-day on Friday morning to reflect on the previous week and to develop lesson plans. These discussions will be with fellow externship participants, the professor of record, an externship coordinator, and/or a guest speaker. The purpose of these sessions is to foster deeper understanding of the experience and to discuss situations to more depth than could be documented in a written reflection. This will give the educators opportunities to reflect on how the experience may improve teaching strategies in the classroom through lesson plan development.

National Board for Professional Teaching Standards

The externship program is designed to provide professional development for educators to expand and enhance their knowledge and understanding of student learning in the classroom and therefore provides opportunities aligned with the National Board for Professional Teaching Standards.

Proposition 1: Teachers are Committed to Students and Learning

- NBCTs are dedicated to making knowledge accessible to all students. They believe all students can learn.
- They treat students equitably. They recognize the individual differences that distinguish their students from one another and they take account for these differences in their practice.
- NBCTs understand how students develop and learn.
- They respect the cultural and family differences students bring to their classroom.
- They are concerned with their students' self-concept, their motivation and the effects of learning on peer relationships.
- NBCTs are also concerned with the development of character and civic responsibility.

Proposition 2: Teachers Know the Subjects They Teach and How to Teach Those Subjects to Students

- NBCTs have mastery over the subject(s) they teach. They have a deep understanding of the history, structure and real-world applications of the subject.
- They have skill and experience in teaching it, and they are very familiar with the skills gaps and preconceptions students may bring to the subject.
- They are able to use diverse instructional strategies to teach for understanding.

Proposition 3: Teachers are Responsible for Managing and Monitoring Student Learning

- NBCTs deliver effective instruction. They move fluently through a range of instructional techniques, keeping students motivated, engaged and focused.
- They know how to engage students to ensure a disciplined learning environment, and how to organize instruction to meet instructional goals.
- NBCTs know how to assess the progress of individual students as well as the class as a whole.
- They use multiple methods for measuring student growth and understanding, and they can clearly explain student performance to parents.

Proposition 4: Teachers Think Systematically about Their Practice and Learn from Experience

- NBCTs model what it means to be an educated person – they read, they question, they create and they are willing to try new things.
- They are familiar with learning theories and instructional strategies and stay abreast of current issues in American education.
- They critically examine their practice on a regular basis to deepen knowledge, expand their repertoire of skills, and incorporate new findings into their practice.

Proposition 5: Teachers are Members of Learning Communities

- NBCTs collaborate with others to improve student learning.
- They are leaders and actively know how to seek and build partnerships with community groups and businesses.
- They work with other professionals on instructional policy, curriculum development and staff development. They can evaluate school progress and the allocation of resources in order to meet state and local education objectives.
- They know how to work collaboratively with parents to engage them productively in the work of the school.

Engineering Design Process

This course will use the concepts of the engineering design process to offer a comprehensive experience for educator professional development. The engineering design process that defines the conceptual framework of the educator externship experience is described below.

Define the Problem: Clearly defining the problem is the key step of the design process. This includes the problem itself, along with the criteria and constraints under which the solution needs to be developed.

Research the Problem: Understanding appropriate research methods is critical to gaining the background information needed to approach the problem in a practical manner.

Brainstorm Possible Solutions: Every opportunity solutions should be explored through open-ended discussion without limiting the usefulness of each option.

Choose the Best Solution: Formally critiquing which components of each solution are viable based on parameters and criteria discovered through problem definition and research

Build a Prototype: Creating a visual model of the solution so the feasibility of the solution can be monitored and adjusted as needed.

Test Your Solution: Exposing the solution to the parameters of the problem through an iterative process to gain knowledge about the solutions performance.

Communicate Your Solution: Clearly documenting and presenting all results discovered during the designing and testing of the solution. This component of the design process is critical so this information is disseminated accurately and effectively to the design team and others having a stakehold in the outcome.

Redesign as Needed: Closing the loop of the design process is a critical component to developing optimal solutions. This step allows for multiple iterations of the design process which will create the opportunity for the best possible solution.

Special Needs

Any student with disabilities or other special needs who needs accommodation in this course is encouraged to speak with the instructor as soon as possible to make appropriate arrangements for these accommodations.

Academic Dishonesty or Misconduct

All work in this course must be completed in a manner consistent with NDSU Senate Policy, Section 335: Code of Academic Responsibility and Conduct which states:

The academic community is operated on the basis of honesty, integrity, and fair play. Occasionally, this trust is violated when cheating occurs, either inadvertently or deliberately. Faculty members may fail the student for the particular assignment, test, or course involved, or they may recommend that the student drop the course in question, or these penalties may be varied with the gravity of the offense and the circumstances of the particular case.

*Please see <http://www.ndsu.nodak.edu/policy/335.htm>

Professional Conduct

Educators who are participating in a professional development program need to exhibit the behaviors and dispositions that are consistent with those required by practitioners. Specifically, this means conducting yourself in a professional manner by showing up to your assigned position on time, being engaged in the work environment, taking initiative as appropriate, completing job duty tasks as determined, turning in work on time, and treating all individuals respectfully. If you are going to be absent, you need to inform your place of work and the instructor, in advance if possible, just as you are expected to do as a full time educator. If for some reason an assignment will not be completed on time, prior approval for submitting late work needs to be approved by the instructor.

Course Assessment

The final grade for this course will be determined from the following assignments:

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| 1. Readings and Written Reflections | 8 hours |
| 2. Weekly Face-to-Face Group Discussions | 12 hours |
| 3. On-line discussions and blogs | 6 hours |
| 4. Lesson Plan Portfolio | 4 hours |
| | <hr/> |
| | 30 hours |

<u>Assignments</u>	<u>Points Possible</u>
Weekly Reflection Papers (4 @ 10 points)	40
Lesson Plan Portfolio Preparation: Understanding by Design Assignment	60
Total	100

Grading Scale: A = 90% – 100% B = 80%– 89% C = 70% – 79% D = 60% – 69% F < 60

Note: The professor of record has the right to revised or modify any of these assignments and dates based on current circumstances of the externship experience.

Assignment Descriptions

1. Weekly Reflection Papers

The purpose of weekly reflection papers is for educators to reflect on their externship experience in relationship to their classroom work as educators. Focus questions will be provided each week. The target length for reflection papers is approximately 3 pages, though papers will be graded based on substance rather than length.

Grading Criteria for Reflection Papers:

- (a) Responds to the focus questions.
- (b) Demonstrates reflective thinking by making connections between externship placement and work as an educator.
- (c) Develops ideas to a sufficient level of specificity given a target length of 3 pages of text.
- (d) Writing Conventions Requirements:
 - Organization: The text is cohesively organized, flows logically, and makes effective use transitions as appropriate.
 - Clarity: Sentences or other syntactical structures are clear and comprehensible. Very few, if any, misspellings, grammar errors, or punctuation errors.

Scoring Rubric for Reflection Paper:

Score Earned	Criterion #1 Responds to focus questions	Criterion #2 Evidence of reflection	Criterion #3 Sufficient development & specificity	Writing Conventions Requirements
10/10	Exceeds in all 3 criteria			Meets or Exceeds
9/10	Combination of Meets and Exceeds			
8/10	Meets clearly in all 3 criteria			
7/10	Meets minimally in 1 or more criteria			
Not Yet*	Does not meet 1 or more criteria and/or writing conventions			

*A reflection that is scored as “Not Yet” can be revised and resubmitted for up to 1 week after receiving instructor feedback. Beyond that, the score will be entered as zero.

2. Lesson Plan Portfolio Preparation: Understanding by Design Assignment

This assignment involves using an *Understanding by Design* approach to prepare an overview of the lessons that will be taught in fall demonstrating clear connections to what was learned at your summer externship placement, particularly in relationship to 21st century skills. Short answer questions related to each *Understanding by Design* stage as well as reflection prompts will be provided.

Scoring Rubric for Understanding by Design Assignment:

Grade Earned	UbD Stages Addressed <small>Weight: 20% of points</small>	Clarity and Detail <small>Weight: 20% of points</small>	Connections to Externship (especially 21 st century skills) <small>Weight: 20% of points</small>	Overall Quality of Planning <small>Weight: 40% of points</small>
A 54-60 pts.	Answers are provided for every item of each UbD stage.	Answers provide an exceptional level of clarity and detail.	Extensive and insightful externship-to-classroom connections are evident in the planning and reflection.	Overall, the UbD Overview describes a powerful and meaningful learning experience for students.
B 48-53 pts.	Answers are provided for all items in Stages 1 & 2, and at least 4 items for Stage 3.	Answers provide a solid level of clarity and detail.	Solid externship-to-classroom connections are evident in the planning and reflection.	Overall, the UbD Overview describes an effective and useful learning experience for students.
C 42-47 pts.	One of the stages requires additional attention.	Some additional attention is needed to increase clarity or detail.	Externship-to-classroom connections are somewhat unclear and require additional attention.	As currently documented, the UbD Overview leaves open questions about the effectiveness of student learning experiences.
D 36-41 pts.	Two or more stages require additional attention.	Clarity and/or detail are insufficient.	Externship-to-classroom connections are missing or insufficient.	As currently documented, the UbD Overview describes ineffective student learning experiences.
F < 36 pts.	Minimal or no work submitted			