ETEC 541, Spring 19-20, Dr. Chen
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Module 4, Course Design Project Analysis

3. With your group or individually develop a list of topics and questions to be addressed. This list of topics and questions is due at the end of this week (the primary contact of the group will submit using the Assignment link in this module in the Blackboard – “Course design project analysis”).

Finding Surface Area and Volume in Solids

Topics:

-Types of solids: Prisms, cylinders, pyramids, cones, and spheres.
-Surface area formulas of solids.
-Volume formulas of solids.
-Finding and using the surface area of the five solids.
-Finding and using the volume of the five solids.
-Real-world and mathematical problems involving surface area and volume.

Questions:

-What would be the most efficient way to deliver the content to the learner?
-What are viable modes of interaction between the students and the teachers?
-How do we facilitate learner-learner interactions with the content online?
-How should we assess the students?
-How often should we be assessing the students?
-How do we maintain student involvement with a no-grade drop approach?

*11 step instructional design process as presented in the text:

1. Identify your underlying goal

-Students will be able to identify and calculate the surface area and volume of five types of solids.

2. Analyze learners needs and abilities (Add an analysis of content and instructor needs/abilities/preferences.)

-Suddenly being thrust into distance learning, our students (as well as the teachers) are trying to navigate and become competent with online resources. Our students are familiar with G Suite,

specifically Google Classroom, as the medium we mainly communicate with each other. A challenge will be introducing our students to new online resources such as Flipgrid, Zoom and Google Meet in order to facilitate learner to learner interactions. Students will need resources such as the online textbook, annotated notes, instructional videos, practice problems/activities, and collaborative activities. Additional supports to the students include student to teacher online conferencing hours and online tutoring. Content will be pretty straightforward in that students will mainly identify solids and then use formulas to calculate surface area and volume of them.

3. Identify what to teach

-We will need to teach and provide the online resources towards the stated goal. We will also need to teach our students how to help each other out and work collaboratively in the online environment.

4. Set learning objectives

Students will be able to:

-identify and classify solids as prisms, cylinders, pyramids, cones, spheres, and polyhedra.
-describe cross sections in solids.
-calculate the surface area of the five solids.
-calculate the volume of the five solids.
-use surface area and volume to calculate lengths and heights of solids.
-calculate and use surface area and volume to solve real-world problems.

5. Identify prerequisites

Incoming students should be able to:

-identify various 2-dimensional figures such as rectangles, triangles, etc.
-find area of various 2-dimensional figures such as rectangles, triangles, etc.
-find perimeter of various 2-dimensional figures such as rectangles, triangles, etc.
-recall the solids learned in middle school.
-input necessary values in formulas.
-calculate formulas.
-use a calculator properly.
-access various online technologies such as Google Classroom, online text, Flipgrid, etc.

6. Pick the approach to meet each objective

-Objectives will be met with through the online learning environment. Content information will mainly happen through Google Classroom, including posted notes, instructional videos, and instructions and examples of the collaborative work that is expected. Mini tutorials and examples of expectations of learner-learner interactions will have to be developed. Online

conferencing hours with teachers and tutors will be available to students who need extra help. Students may also email or comment on Google Classroom. A mini project will be developed as a final assessment that involves real-world applications to what was learned throughout.

7. Decide the teaching sequence of your objectives

-Each individual topic will begin with notes and instructional videos (YouTube, Edpuzzle) posted on Google Classroom. Practice problems and quiz checks will be assigned through their online textbook. Depending on which collaborative activity is chosen by the teacher, students will then either post a mini tutorial video (on Flipgrid) and comment to fellow student videos, create a discussion thread posting how a problem was solved, or be part of an online conferencing breakout room (Zoom) where the students help each other with their practice. A formative real-world assessment/mini project will be developed to check that objectives were met.

8. Create objects to accomplish objectives

-Printable PDF annotated notes on the objectives/topics.
-Found (YouTube, Edpuzzle) or self-produced instructional videos for each objective/topic.
-Assigned practice problems, quiz checks and assessments.
-Preparing applicable grids through Flipgrid, discussion boards, Zoom meeting hours, and/or collaborations through GSuite.
-Formative real-world assessment/mini project will be developed to check that objectives were met.

9. Create tests (Add other methods to determine whether or not objectives are met as appropriate.)

-Quiz checks can be developed through the online textbook.
-Formative real-world assessment/mini project will be developed to check that objectives were met.

10. Select learning activities

-Instructional videos from YouTube, Edpuzzle, self-produced.
-PDF printable notes. Annotated.
-Practice problems through online textbook.
-Learner-learner interactions through Flipgrid, discussion boards, Zoom, GSuite, etc.
-Teacher conferencing hours and tutoring online.
-Real-world assessment/mini-project.

11. Choose Media (Add a discussion of activity structures and interactions.)

Possible media might include, but is not limited to…

Learner-Content Media: Google Classroom, YouTube, Edpuzzle, self-produced videos, PDF printable notes, online textbook…

-Watch videos, take notes, annotate printable notes, work problems online…

Learner-Instructor Media: Zoom online office hours, email, Google Classroom discussion/comment, online tutoring…

-If additional help is necessary for the student...online office hours and tutoring allow for one on one help. Email and discussion/comments are an easy way to get quick responses from the instructors.

Learner-Learner Media: Flipgrid, Zoom, GSuite (Docs/Slides), discussion boards, Google Classroom…

-Students create a mini-tutorial on selected problems and post on Flipgrid, comment on fellow students' videos, create a discussion thread posting how a problem was solved, be a part of an online conferencing breakout room (Zoom) where the students help each other with their practice problems, collaborate on selected problems through Docs or Slides...