YouTube Problem Creation

a reverse engineering homework assignment

Name:
Affiliation:

Getting started: Videos related to (insert type) engineering are used in class and actions in the videos are reverse engineered through student-written problems. The objective of this worksheet is to write an assignment or project for your students to create new problems based on and inspired by part or all of an online video. Many entertaining and educational videos have been used in recent years and are compiled on our YouTube channel: Reverse Engineering YouTube Videos.

What course are you using this for? For what academic level or age group?
What is your topic or what standard are you aligning this with?
What are your learning objectives?
How or when do you plan to incorporate this assignment into the semester? Summative or Formative assessment? Individual or group assignment? How long will students have to complete their problem?

The Final Product: The student will submit their work in one of many formats, so providing some guidance without limiting creativity is a tricky balance. An example template breaks the problem into three parts: a summary, the problem statement, and final solution.

Are the resources required for each student to find a video available and developmentally appropriate? Ex: Access to YouTube.
Written submission or presented as slides? Typed or handwritten? Other expected formatting?
How will submission work? On paper or through a learning management system? Is the submitted form easy to grade and provide feedback?

Grading: A rubric helps students see what parts of the project have the most value. Points are the currency in most engineering courses. An example rubric: YouTube Problem Creation Rubric.

What criteria are important for your course, learning objectives, or just the assignment?
What skills do you want to see in the submitted assignment?
Consider the weighting of your grades, does your rubric & learning objective align with your weighted score?
Optional: If done in groups, does everyone receive the same grade?

Peer Evaluation (Optional): Evaluating each student's & teammates' efforts & participation on the assignment could be done with surveys of similar tools. An example peer evaluation: YouTube Problem Creation Peer Evaluation.

How many times did the group meet? What were the responsibilities of each group member? What is one aspect they liked? One concern they had? A concrete suggestion to address the concern?

Workshop Hour 2 Wrap Up: During Hour 3, we will ask all participants to share 2 - 3 main points about the assignment they created.

How will you use the student-written YouTube problems in the future? In class, homework, exams?

More Example Assignments:

1. Chemical Engineering - Material and Energy Balances (end of semester)
2. Chemical Engineering - Separations (middle of semester)
3. Chemical Engineering - Graduate fluid mechanics (beginning of semester)
4. Chemical Engineering - Undergraduate fluid mechanics
5. K12 science - Newtons Laws Grades 6-8
6. K12 science - Balancing Equations Grade 7