

## Media Assignment #2

**Media Title:** To Engineer Is Human (VHS) or When Engineering Fails (DVD)

**Length:** 50 minutes

**Location:** LRC, Bayside Building, TCC - Virginia Beach Campus.

**Online Access:** See the link in the course Blackboard site (in the same folder as the media assignment).

### Assignment:

View the video listed above and complete the assignment below and submit it to the instructor by the assigned due date.

1. An early pyramid showed signs of a structural failure. That pyramid was modified and later pyramids were designed to rise at a \_\_\_\_\_ angle.
2. In order to design safe structures, engineering must know how the structures might fail. They particularly need to know the \_\_\_\_\_ of failure.
3. Partly due to the desire for new, innovative designs, engineers often modify existing designs until they \_\_\_\_\_.
4. "Bending" is a combination of a \_\_\_\_\_ and a \_\_\_\_\_.
5. The Tacoma Narrows Bridge failed because it was made resistant to bending, but not resistant to \_\_\_\_\_.
6. United States President \_\_\_\_\_ was a mining engineer.
7. A \_\_\_\_\_ test is sometimes used to test structures after they have been built. An example of this type of test was shown in the video where cars full of steel were moved across a bridge to show that it could support the designed load.
8. Some structures can support a load safely once or perhaps a few times, but may fail after many applications of the load. The phenomenon is referred to as \_\_\_\_\_.
9. A factor of safety of \_\_\_\_\_ is generally considered to be adequate for most structural designs.
10. After the collapse of the skywalks in Kansas city, it was determined that they had a factor of safety of just over \_\_\_\_\_.
11. The chiming mechanism in Big Ben failed explosively after over 100 years of service. The catastrophe was due to failure of the main shaft due to \_\_\_\_\_.
12. Aerodynamic properties of structures are often tested by constructing models and testing them in \_\_\_\_\_.
13. The roof of the Hartford Civic Center collapsed when some girders buckled in a way that was not anticipated in their complicated computer design. The narrator of the video referred to this as a new type of failure called the "\_\_\_\_\_ - \_\_\_\_\_ catastrophe."
14. Testing is particularly important when public safety is involved. The video features a container for spent nuclear fuel that was designed to survive the impact of a \_\_\_\_\_. The dramatic test in the movie showed that the contained survived as designed.
15. Write 1 or 2 paragraphs discussing whether you agree or disagree to **one** of the following claims. Please site examples defending your position.  
    "Failures lead to success. Success leads to failure."  
    ---Or---  
    "Design integrity can never be fully proven, but it can be disproven."