



American International University- Bangladesh (AIUB)

Faculty of Engineering (EEE & COE)

Course Name:	Engineering Ethics	Course Code:	EEE 3107
Semester:	Summer 2019	Section:	F
Faculty:	DR. M. TANSEER ALI		

Case No:	1
Case Title:	Ethical Theory

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Marking Rubrics (to be filled by Faculty)

Category	Proficient [4]	Good [3]	Acceptable [2]	Unacceptable [1]	Secured Marks
Explanation of issues	Issue/problem to be considered critically is stated clearly and described comprehensively, delivering relevant information necessary for full understanding.	Issue/problem to be considered critically is stated, described, and clarified so that understanding is not seriously impeded by omissions.	Issue/problem to be considered critically is stated, but description leaves some terms undefined, ambiguities unexplored, boundaries undetermined,	Issue/problem to be considered critically is stated without clarification or description.	
Influence of context and assumptions	Thoroughly (systematically and methodically) analyzes own and others' assumptions and carefully evaluates the relevance of contexts when presenting a position.	Identifies own and others' assumptions and several relevant contexts when presenting a position.	Questions some assumptions. Identifies several relevant contexts when presenting a position. May be more aware of others' assumptions than one's own (or vice versa).	Shows an emerging awareness of present assumptions (sometimes labels assertions as assumptions). Begins to identify some contexts when presenting a position.	
Student's position (perspective, thesis/ hypothesis)	Specific position (perspective, hypothesis) is imaginative, considering the complexities of an issue. Limits of position (perspective, hypothesis) are acknowledged. Others' points of view and assumptions are synthesized within position (perspective, hypothesis).	Specific position (perspective, thesis/hypothesis) considers the complexities of an issue. Others' points of view and assumptions are acknowledged within position (perspective, hypothesis).	Specific position (perspective, hypothesis) acknowledges different sides of an issue.	Specific position (perspective, hypothesis) is stated, but is simplistic and obvious.	
Innovative Thinking or uniqueness (of idea, claim, question etc.)	Extends a novel or unique idea, question, format, or product to create new knowledge or knowledge that crosses boundaries.	Creates a novel or unique idea, question, format, or product.	Experiments with creating a novel or unique idea, question, format, or product.	Reformulates a collection of available ideas.	
Conclusions and related outcomes (implications and consequences)	Conclusions and related outcomes (consequences and implications) are logical and reflect student's informed evaluation and ability to place evidence.	Conclusion is logically tied to a range of information, including opposing viewpoints; related outcomes (consequences and implications) are identified clearly.	Conclusion is logically tied to information (because information is chosen to fit the desired conclusion); some related outcomes (consequences and implications) are not clear.	Conclusion is inconsistently tied to some of the information discussed; related outcomes (consequences and implications) are oversimplified.	
Comments:			Total Marks (Out of 30):		

Several years ago, a TV station in Houston decided to strengthen its signal by erecting a new, taller (1,000-foot) transmission antenna in Missouri City, Texas. The station contracted with a TV antenna design firm to design the tower. The resulting design employed twenty 50-foot segments that would have to be lifted into place sequentially by a jib crane that moved up with the tower. Each segment required a lifting lug to permit that segment to be hoisted off the flatbed delivery truck and then lifted into place by the crane. The actual construction of the tower was done by a separate rigging firm that specialized in such tasks.

When the rigging company received the 20th and last tower segment, it faced a new problem. Although the lifting lug was satisfactory for lifting the segment horizontally off the delivery truck, it would not enable the segment to be lifted vertically. The jib crane cable interfered with the antenna baskets at the top of the segment. The riggers asked permission from the design company to temporarily remove the antenna baskets and were refused. Officials at the design firm said that the last time they gave permission to make similar changes; they had to pay tens of thousands of dollars to repair the antenna baskets (which had been damaged on removal) and to remount and realign them correctly.

The riggers devised a solution that was seriously flawed. They bolted an extension arm to the tower section and calculated the size of the required bolts based on a mistaken model. A sophomore-level engineering student who had taken a course in statics could have detected the flaw, but the riggers had no engineers on their staff. The riggers, knowing they lacked engineering expertise, asked the antenna design company engineers to review their proposed solution. The engineers again refused, having been ordered by company management not only not to look at the drawings but also not to visit the construction site during the lifting of the last segment. Management of the design firm feared that they would be held liable if there were an accident. The designers also failed to suggest to the riggers that they should hire an engineering consultant to examine their lifting plans.

When the riggers attempted to lift the top section of the tower with the microwave baskets, the tower fell, killing seven men. The TV company was taping the lift of the last segment for future TV promotions, and the videotape shows the riggers falling to their death.

Consider how you would react to watching that tape if you were the design engineer who refused to look at the lifting plans or if you were the company executive who ordered the design engineer not to examine the plans.

To take an analogy, consider a physician who examines a patient and finds something suspicious in an area outside her specialty. When asking advice from a specialist, the physician is rebuffed on the grounds that the specialist might incur a liability. Furthermore, the specialist does not suggest that the patient should see a specialist.

What conceptions of responsibility seemed most prevalent in this case? Can you suggest other conceptions that might have helped avoid this tragedy? Explain the ethical roles of all the concerned stake holders. What professional codes of ethics are not properly followed by the rigging company and design company?

Answer:

Moral questions that comes in mind after reading this case is that:

1. Is all the rules they thought was correct is actually a right decision?
2. Could the engineers check the design of this construction before this incident happens?
3. Will the riggers can think anything about any situation of any incident earlier if no people died on that day?
4. In any construction works how it can be possible to do this without any engineer? Does it seems like a wrong advancement?
5. Why all the people of that construction think before the problem of the segment upholding. Why not they measure it earlier before?

Case Study Basics:

1. A TV station in Moscow wanted to strength its signal by constructing transmission antenna.
2. They started to lift their segments towers one by one by rigging.
3. Riggers faced problems while rigging the last fragments for the antenna baskets.
4. They have no engineers in their team for tackling such situations.
5. Management applied rules that no one can change the design.
6. Riggers took risks and the incident occurred.
7. Unfortunately they broadcasted their incident which was very painful maybe.

In this regards some of the ethics in the construction can be discussed.

Accountability: This means provide appropriate information so effective action can be taken where necessary. They (riggers) broke that rules and took some risks and for that they had no options to protect those men who died on that day.

Reliability: It means only provide service and skills in the work. Engineers who detected the flawed could help them or could make any suggestions earlier. But they did not do that, they refused to help in the construction for no reason. It was also a point that management of this project was said earlier not to change any design of that.

Beside that some of the faults that should be discussed. Like one major thing is why the riggers does not think about the antenna basket before? Why they were not measured it earlier? If they measure it earlier then this problem can be solved in another way, not by taking risks through this way. Another thing is that, should in any construction activities engineers are not necessary? Because they are planner or designer and they can find the mistakes at any time. Normally people think that normal workers are expert then the engineers because they know their activities by learning by own. But that is not enough. Now after this incidents one have to realize the facts or ethical issues. Engineers can find any small problems at any situations where big problems can happen later. Normal workers if they find any small problems they tried to overlook this, they think it cannot create any problems. They take risks like this case stated above. But theoretical basics are much more important thing which can save many lives in many times. Through this case study it can clearly be identified the technical and

non-technical persons. Technical personalities are the engineers and riggers are may be the non-technical persons. Engineers can know the consequence of any works before it comes in work but non-technical persons mostly learn by mistakes after the work has been done.

The responsibility that need to be taken to resolve these types of tragedy are:

1. Assigning of engineer to any kind of construction works.
2. No risk should not be taken unethically in this field because it can take lives of people.
3. Measurement policies have to be followed very carefully because every inch matters here.
4. Engineers should be active always and if they find any difficulties they should inform to all and try to solve those problems.
5. Management of the construction should not be strict about the things like: changing plans, adding or removing any input material. They should be liberal in these cases.