Appendix C

Video Project Assignment and Rubric for Earth-Space Science Course

**Assignment Sheet & Checklist**

**Assignment Objective:** The Engineering Project is a way for students to creatively demonstrate their understanding and application of the engineering design process (EDP) and what counts as technology. It also pushes you to learn how to create video presentations.

**Project Options:** Students may opt to create one of the following types of presentations:

* A short video that you create
* A digital presentation (e.g., PowerPoint, Prezi, or KeyNote) saved as a video with voice

For any of these options, the presentation must be:

* Stand-alone, meaning that it can be viewed, interpreted, and evaluated fully without the student present. The presentation should run automatically, only requiring that the instructor click the play button or a button to begin the presentation.
* Less than 10 minutes in length. (9 minutes 30 seconds is fine; 10 minutes 0 seconds is fine; 8 minutes 47 seconds is fine; anything above 10 minutes 0 seconds will result in a deduction of points).
* Include original work only (no borrowed clips or images from the Internet or elsewhere)! You may include pictures that you took during your EDP and your own sketches drawings. If you represent the EDP pictorially, that must be your own representation (not a picture of the EiE steps, for example).

 **Content Focus:** The project must convey the following:

* The overall meaning and purpose of the EDP, and how it relates to technology.
* What counts as technology, and at least one example of something that counts as technology and why.
* The steps of the EiE EDP.
* How the steps of the EDP relate to one another.
* A discussion of how and your team you moved through each step of the EDP when you engaged in one of the science-integrated engineering design challenges that we completed in this course.

**Final Due Date and Time:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Submission**: This is an **electronic submission** to Blackboard. Details provided on Blackboard.

**See checklist on next page!**

**Checklist:**

* **By \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**: Read the assignment sheet and checklist (this document) and rubric (separate document) for the project.
* **Each time we do a major science-integrated engineering design challenge**: Take pictures and/or video clips of your progress for use in your presentation. (Just ask me if you can take your phone out to do this!)
* **By \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**: We will be done all major science-integrated engineering challenges. Pick one to do for your engineering project.
* **Between \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** **(or earlier!) and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**: Put your project together gradually! Make an overall plan and then break up the task into smaller parts, doing a bit at a time. Don’t wait until the last minute! Leave time to learn how to create the video! Seek assistance from the Office of Technology if necessary. Leave time for editing and review, and re-check the assignment sheet and rubric.
* **By \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**: Submit the project to Blackboard by sharing a link with me to your OneDrive account where you have stored a copy of your video file.

**Rubric**

There are six levels of performance in this rubric: 0, 1, 2, 3, 4, and 5. Specific descriptions of each level are provided for each trait related to the project. Level numbers related to the extent to which standards have been addressed as follows:

* Level 5 = Exceeds Standard
* Level 4 = Meets Standard
* Level 3 = Approaching Standard
* Level 1 or 2 = Below Standard (instructor discretion for 1 or 2)
* Level 0 = Not Included or Well Below Standard

**Traits**:

1. Meaning and Purpose of the EDP (5 points)
2. Meaning of Technology and Relationship to the EDP (5 points)
3. Engineering Design Process Step Descriptions and Examples
	1. Ask (5 points)
	2. Imagine (5 points)
	3. Plan (5 points)
	4. Create (5 points)
	5. Improve (5 points)
4. Relationship among the EDP Steps (5 points)
5. Meets Time Constraints (5 points)
6. Runs Automatically (5 points)
7. Creativity, Originality and Engagement (5 points)
8. Neatness and Professional Appearance (5 points)

**Total Points for the Assignment: 60**

**Trait 1: Meaning and Purpose of the EDP**

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| --- | --- |
| Level | Description |
| 5 | **Informs the viewer in a clear and engaging way about the meaning and purpose of the EDP.**Details: Introduces the project by sharing the meaning and purpose of the EDP, and describing its users and who it serves. Does so with accuracy, detail, and clarity, and in an engaging way. |
| 4 | **Informs the reader about the meaning and purpose of the EDP**.Details: Introduces the project by sharing the meaning and purpose of the EDP, and describing its users and who it serves. Does so with accuracy and clarity. May be not be as engaging as for a score of 4, or may be overly general. |
| 3 | **Shares some information about the meaning and purpose of the EDP**.Details: Introduces the project by sharing the meaning and purpose of the EDP, and describing its users and who it serves. However, there are some issues of accuracy or clarity. |
| 1 or 2 | **Shares little information about the meaning and purpose of the EDP.**Details: Provides minimal discussion about the meaning and purpose of the EDP; however, does not provide details regarding the purpose and (1) /or (2) users/beneficiaries of the EDP. – OR – There are extensive issues with regard to accuracy or clarity (1 or 2; instructor judgment). |
| 0 | **Not included.** |

**Trait 2: Meaning of Technology and Relationship to the EDP**

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| Level | Description |
| 5 | **Informs the viewer in a clear and engaging way about what counts as technology and how it relates to the EDP.**Details: Introduces the viewer to the term, “technology,” and what it means for engineering. Describes how technology is related to the EDP. The word, technology, is used in the discussion of how the student moved through the EDP in the Quadrant/Smiley/TarPul challenge. Does so with accuracy, detail, and clarity, and in an engaging way. |
| 4 | **Informs the reader about what counts as technology and how it relates to the EDP.**Details: Introduces the viewer to the term, “technology,” and what it means for engineering. Describes how technology is related to the EDP. The word, technology, is used in the discussion of how the student moved through the EDP in the Quadrant/Smiley/TarPul challenge. Does so with accuracy and clarity. May be not be as engaging as for a score of 4, or may be overly general. |
| 3 | **Shares some information about what counts as technology and how it relates to the EDP.**Details: Introduces the viewer to the term, “technology,” and what it means for engineering and the EDP. The word, technology is not used in the discussion of how the student moved through the EDP in the Quadrant/Smiley/TarPul challenge – OR – there are some issues of accuracy or clarity when addressing technology in the project. |
| 1 or 2 | **Shares little information about what counts as technology and how it relates to the EDP.**Details: Provides minimal discussion about technology and its relationship to the EDP. Does not connect it generally to the EDP and (1) /or (2) does not use/identify technology during the discussion of the EDP for the Quadrant/Smiley/TarPul challenge. – OR – There are extensive issues with regard to accuracy or clarity (1 or 2; instructor judgment). |
| 0 | **Not included.** |

**Trait 3: EDP Step Descriptions and Examples**

Trait 3a. Ask

Trait 3b. Imagine

Trait 3c. Plan

Trait 3d. Create

Trait 3e. Improve

Each of the above traits will be evaluated based upon the following rubric:

|  |  |
| --- | --- |
| Level | Description |
| 5 | **Provides a strong description of this EDP step and a thorough description of how s/he engaged in the EDP step.**Details: Provides a strong general description of this EDP step and its purpose in the EDP. Thoroughly describes how s/he engaged in this step in the Quadrant/Smiley/TarPul challenge, supporting the “big idea” of this step through the Quadrant/Smiley/TarPul challenge example. Does so with accuracy, detail, and clarity, and in an engaging way. |
| 4 | **Describes the EDP step and provides good description of how s/he engaged in this EDP step.**Details: Provides a strong general description of this EDP step and its purpose in the EDP. Thoroughly describes how s/he engaged in this step in the Quadrant/Smiley/TarPul challenge, supporting the “big idea” of this step through the Quadrant/Smiley/TarPul challenge example. Does so with accuracy and clarity. May be not be as engaging as for a score of 4, or may be overly general. |
| 3 | **Shares some information about this EDP step and how s/he engaged in this EDP step.**Details: Describes this EDP step and how s/he engaged in it. However, there are some issues of accuracy or clarity. It may be unclear if the student fully understands the step and how it is employed. |
| 1 or 2 | **Shares little information regarding this EDP step and how s/he engaged in this EDP step.**Details: Provides an incomplete or inaccurate description of the EDP step and (1) / or (2) how s/he engaged in the step. |
| 0 | **Not included.** |

**Trait 4: Relationship among the EDP Steps**

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| Level | Description |
| 5 | **Informs the viewer in a clear and engaging way about how the EDP steps relate to and inform one another.**Details: Before, during and after the discussion of the EDP steps, relates the EDP steps to one another. Demonstrates deep knowledge of relationships – through general discussion of the EDP *and* examples from the Quadrant/Smiley/TarPul challenge – of how the steps inform one another and are part of a whole process. Does so with accuracy, detail, and clarity, and in an engaging way. |
| 4 | **Informs the reader about how the EDP steps relate to and inform one another.**Details: Relates the EDP steps to one another. Demonstrates knowledge – through general discussion of the EDP *and* examples from the Quadrant/Smiley/TarPul challenge – of how the steps inform one another and are part of a whole process. Does so with accuracy and clarity. May be not be as engaging or detailed as for a score of 4. |
| 3 | **Shares some information about how the EDP steps relate to and inform one another.**Details: Relates the EDP steps to one another in a general way and for the Quadrant/Smiley/TarPul challenge. However, there are some issues of accuracy or clarity when discussing these relationships – OR – very few relationships are discussed. |
| 1 or 2 | **Shares little information about how the EDP steps relate to and inform one another.**Details: Provides minimal discussion about how EDP steps relate to one another. However, discussion is limited and (1) /or (2) does not include either a general discussion or examples from the Quadrant/Smiley/TarPul challenge. – OR – There are extensive issues with regard to accuracy or clarity (1 or 2; instructor judgment). |
| 0 | **Not included.** |

**Trait 5: Meets Time Constraints**

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| Level | Description |
| 5 | **Project meets the time constraint.** Details: Project video or presentation is at most 10 minutes in length. |
| 3 | **Project exceeds the time constraints, but within one minute over time.**Details: Project video or presentation is between 10 and 11 minutes in length – OR – meets the time constraint but does so by moving at too fast of a pace, making it somewhat difficult to interpret. |
| 0 | **Project far exceeds the time constraint.**Details: Project video or presentation is 12:01 or more minutes in length – OR – meets the time constraint but does so by moving at such a fast pace that it is very difficult to interpret. |

**Trait 6: Runs Automatically**

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| Level | Description |
| 5 | **Project runs automatically.** Details: Project video or presentation runs by itself at a reasonable pace after the instructor hits play or starts the presentation. |
| 3 | **Project largely, but not completely, runs automatically.**Details: Project video or presentation requires minor additional clicking to operate.  |
| 0 | **Project does not run automatically.**Details: Project video or presentation requires instructor to click or otherwise operate the video/presentation extensively. |

**Trait 7: Creativity, Originality and Engagement**

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| Level | Description |
| 5 | **Provides a project that is extremely creative it its uniqueness and engagement for viewers.**Details: Project not only demonstrates original work by the student, but also utilizes unique elements that set it apart from other projects of the same type. The project is highly engaging to viewers. |
| 4 | **Provides a creative project that is original and engaging.**Details: Project demonstrates original work by the student. The project is engaging to viewers. |
| 3 | **Provides a project that is done by the student and somewhat engaging.**Details: Project demonstrates work done by the student (not gleaned from other sources), and is somewhat engaging.  |
| 0, 1, or 2 | **Uses one or more elements that are not developed by the student.**For example, uses photocopies of the EDP from the EiE curriculum. (If uses three elements from elsewhere, score is 0; if uses two, score is 1; if uses one, score is 2.) |

**Trait 8: Neatness and Professional Appearance**

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| Level | Description |
| 5 | **Project is extremely neat, with a highly professional appearance.** Details: Project is free of grammatical errors, carefully constructed/edited, and put together with care. Although not a “professionally edited” project, is close to that in its presentation. |
| 4 | **Project is neat and professional in appearance.**Details: Project is carefully constructed/edited, and put together with care. May have a grammatical error, or one aspect of the project may be lacking in neatness or care. |
| 3 | **Project is somewhat neat / professional.**Details: Some aspects of the project have been carefully constructed/edited, and put together with care; however, two aspects are lacking in neatness/care or grammatical correctness. |
| 0, 1, or 2 | **Project is not neat or professional.**Details: Many aspects of the project are lacking in neatness/care or grammatical correctness. (0, 1, or 2: Instructor judgment.) |