**PART 1**

***Place a check mark next to the correct number.[[1]](#footnote-2)***

***Please return the survey to the MAE Department Office after completing the course.***

1. Students showed the knowledge expected from the prerequisites

1\_\_ 2\_\_ 3\_X 4\_\_ 5\_\_

1. The prerequisites to the course were sufficient and appropriate

1\_\_ 2\_\_ 3\_X\_ 4\_\_ 5\_\_

1. All the topics specified in the course outline handed out were taught

1\_\_ 2\_\_ 3\_\_ 4\_X\_ 5\_\_

1. The course learning objectives were the same as when last taught

1\_\_ 2\_X\_ 3\_\_ 4\_\_ 5\_\_

1. The classroom and laboratory facilities were adequate

1\_\_ 2\_\_ 3\_\_ 4\_\_ 5\_X\_

1. The students were actively engaged in the class (they asked questions, etc.)

1\_\_ 2\_\_ 3\_X\_ 4\_\_ 5\_\_

1. What was the average attendance?

(0-20%) 1\_\_ 2\_\_ 3\_\_ 4\_\_ 5\_X\_ (80-100%)

***For answers with a score of 3 or below, please provide the question number and an explanation below:***

1. Students had difficult with the programming portion of the course. First students do not learn the necessary skills in scientific programming prior to this course. Furthermore, the programming skills they do learn are not applicable to an engineering course. Students were unable to do the following before arriving in this course:

* Simulate a differential equation representing a dynamical system
* Plot the response of a dynamical system
* Move beyond simple “calculator” level programming into a program of moderate complexity
* Plot the motion of a mechanical system in three dimensions

2. The department should add a 1 credit “scientific programming” course that is required for all MAE majors. This class should ideally be taken as a sophomore or as soon as a student has declared their major in the department. This course should be focused on a scientific programming language, Python or Matlab, and teach the basic skills needed to be successful. Things such as loops, arrays, plotting, simulating ODEs etc.

3. The course was significantly altered from the previous semesters. There is a much larger focus on programming in this semester. Also the content was also changed to facilitate this.

**PART 2**

A) Please complete Table 1, providing:

* in the first column the CLO (as it appears in the student online course evaluation)
* in the second column your direct assessment of each CLO (from exam question or project report)
* in the third column indirect assessment (from student online course evaluation)

**Table 1. Summary of course learning objectives assessment[[2]](#footnote-3)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | CLO (Course Learning Objective) | Direct Assessment (instructor) | Indirect Assessment (student) | Student Outcome  a-k |
| 1 | Explain the Newtonian Gravitational force and gravitational potential between particles | 4.52 | 4.6 |  |
| 2 | Analyze the characteristics of circular, elliptical, parabolic, and hyperbolic orbits in a two dimensional plane | 3.15 | 4.6 |  |
| 3 | Describe the geometry of an orbit in a three-dimensional space from orbital elements | 4.16 | 4.3 |  |
| 4 | Apply numerical/analytical techniques to propagate orbits | 4.55 | 4.3 |  |
| 5 | Choose and apply the appropriate orbital manuevering method to move the spacecraft between orbits | 4.54 | 4.2 |  |
| 6 | Develop personal software tools to solve practical astrodynamic problems | 4.52 | 3.6 |  |
| 7 |  |  |  |  |
| 8 |  |  |  |  |
| 9 |  |  |  |  |
| 10 |  |  |  |  |

B) Please provide recommendations for course improvement (if any).

The learning objectives given to the students are different than the ones I had listed on my syllabus.

As a result, the last CLO, software programming, was listed as “Matlab STK”, which was not covered in my class.

Students should also have programming experience prior to becoming a junior. The programming should focus on skills required as an engineer, making larger programs, plotting, simulating differential equations, etc. An example of what such a course should cover is given [here](https://github.com/fdcl-gwu/scientific_python).

CLO2 is low since I chose a single data point (HW3) to compute the average. The score can be modified at will be averaging over several homework assignments.

My course was very difficult, and the course load seemed to have been too high. This level of coursework was standard throughout my undergrad experience, but it seems to be out of the norm for George Washington university. The department should set some standard/expectations for students. Will every course be a straightforward A, or will it be difficult?

C) Please provide status of prior recommendations (if applicable)

1. Please provide assessment on a scale for from 1 to 5, where, in response to the statement given, 1=strongly disagree, 2= disagree, 3=neither, 4= agree, 5= strongly agree. [↑](#footnote-ref-2)
2. Please provide assessment on a scale for from 1 to 5, where, in response to the statement “the course learning objective was accomplished”, 1=strongly disagree, 2= disagree, 3=neither, 4= agree, 5= strongly agree. [↑](#footnote-ref-3)