oFreq Deliverables Schedule

~~**4/9/2013** – Planned directory structure for program executable files and libraries. This will be the organization of the actual compiled files. The directory structure should be planned to anticipate future growth and inclusion of the rest of the applications for the OpenSEA suite.~~

~~**4/9/2013** - Planned directory and file structure for single instance of an oFreq workflow. These are the working input files that a user will create to interact with oFreq and the output files generated by the program.~~

~~**4/20/2013** – First Iteration of library designed to support text file input/output with generic parameters. All Input files not complete.~~

~~**4/22/2013** – Second Iteration of library designed to support text file input/output with generic parameters. All besides forces.in is complete.~~

4/24/2013 – Third Iteration of library designed to support text file input/output with generic parameters. All input files will be able to be read in properly.

4/27/2013 – First Iteration of GUI Interface design is complete. Basic Layout is done with options to add bodies and set parameters. Meet with Nick to get feedback on improvements.

4/30/2013 – Second Iteration of GUI Interface complete. Updated layout according to feedback.

5/1/2013 – UML Diagrams first iteration complete for C++ class inputs. Schedule will update if there will be another iteration.

5/3/2013 – Third iteration of GUI allows for creation of at least two types of input files.

5/5/ 2013 – Definition of a class for a body will be implemented. This will include all user defined forces, hydro forces, and body momentum contained in the class definitions.

5/7/2013 - Library to define a generic set of equations of motion. This library may be pre-compiled and utilize some form of user input, or it may require user to compile a custom executable. Developer shall provide recommendation on the best method to achieve this goal.

5/9/2013 – Fourth iteration of GUI allows for creation of all input files. User Interface must be finished.

5/18/2013 - Library to construct linear matrix from equations of motion and solve the equations by taking inverse of matrix and pre-multiplying to matrix of constants. This produces a solution to the equations of motion and describes the vessel motions.

5/20/2013 – Final Iteration of library designed to support text file input/output with generic parameters. All input files will be able to be read in properly and have been tested against errors. Runtime updates and errors will be logged in files located in the directory.

5/21/2013 - Library to perform parametric interpolation between data sets and between individual data points within a set. Output of interpolations will be with the library to construct linear matrix equations of motion.

5/25/2013 - Library to create derived set of outputs from basic output of object motions calculated from the library to construct linear matrix equations.

5/29/2013 – Completed Doxygen documentation for future developers for this open source project.

5/29/2013 – Testing of final deliverables to ensure minimum errors.

6/3/2013 – Final Deliverables will be uploaded to sponsor website and other open source websites such as source forge and github.

Possible Add-On features if time permits (Not required to this project)

- Library to construct linear matrix from equations of motion and solve for resonant frequencies. This requires the construction and solution of an Eigen-value problem. Output of Eigen-values and Eigen vectors is necessary.
- Library to construct derived input forces based on general user options and normal assumptions for marine vessels. Rather than the user explicitly defining how a force relates to the equations of motion, the application derives this relationship from more generic information.
- Support for the Windows OS.
- Multithread or Multiprocessor support if computation speed becomes an issue