



AA283 - Useful Web Sites

This is my web site where the AA 283 notes can be found in pdf format along with the course summary and homework assignments.

<http://www.stanford.edu/~cantwell/>

This Virginia Tech web site has a useful app for calculating the properties of a one-dimensional compressible flow. The app is not downloadable as far as I can tell.

<http://www.aoe.vt.edu/~devenpor/aoe3114/calc.html>

This web site has a downloadable app for calculating the properties of a one-dimensional compressible flow. It works on Mac system 9 but not OSX.

http://www.aoe.vt.edu/~mason/Mason_f/MRsoft.html

This MIT site has the Fluid Mechanics Films produced for the National Science Foundation in the 1960's available in streaming video. You need Real Player to view the films. Highly recommended.

<http://web.mit.edu/fluids/www/Shapiro/ncfmf.html>



Useful Web Sites – Software for Combustion Calculations

<http://www.grc.nasa.gov/WWW/CEAWeb/ceaHome.htm>

This is a NASA Glenn web site where you can download free software for the application CEA (CHEMICAL EQUILIBRIUM WITH APPLICATIONS). Click on the “request form” button and follow the instructions. The pc and linux object files should execute with no problem. The software for MacOSX requires that your Mac be equipped with the software developer tools “Xcode tools” that came with your system software CD and it requires the latest version of the free fortran compiler g77. The Glenn site provides instructions for getting the software running on the Mac and the website where g77 can be obtained. If your Mac is PowerPC based then the g77 for PowerPC compiler will work. The data used by CEA is the data compiled in the report by McBride et al. If you have an intel based Mac, the g77 for intel compiler will not compile the CEA fortran source codes. There are instructions developed by Jonah Zimmermann on my web site for installing CEA on an Intel-based Mac.

<http://cearun.grc.nasa.gov>

This is a web-based interface for running CEA. You need a browser with cookies enabled. The cookies go away when you close your browser. In addition you need two passwords both six letters, both lower case. The first is ‘rocket’, the second is ‘combus’. Any problems with this site should be reported to michael.j.zehe@nasa.gov.

<http://cea.grc.nasa.gov>

This link takes you to a site with an application called ThermoBuild which is an interactive tool that allows you to access the NASA Glenn thermodynamic database to select species and to obtain tables of thermodynamic properties and data sets for use in CEA, or any other computer program.

<http://software.lpre.de/index.htm>

This link takes you to a site with a downloadable application called RPA - Tool for Rocket Propulsion Analysis. The capabilities are very similar to CEA. Downloads are available for a variety of Windows, Linux and Intel-based Mac based operating systems.



Useful Web Sites - short video lectures

One of the most interesting developments in recent years has been the creation of new, free websites dedicated to online teaching. Perhaps the best of these is the amazingly extensive set of lectures put up by Sal Khan who lives in Los Altos just south of Stanford. While there are really no lectures on the site directly connected to compressible flow or propulsion, there are several on thermodynamics and chemistry that might be useful. For example have a look at

Carnot Cycle

<http://www.khanacademy.org/video/carnot-cycle-and-carnot-engine?playlist=Chemistry>

Enthalpy

<http://www.khanacademy.org/video/enthalpy?playlist=Chemistry>

Thermodynamic Entropy Definition, Clarification

<http://www.khanacademy.org/video/thermodynamic-entropy-definition-clarification?playlist=Chemistry>

Gibbs free energy and spontaneous change

<http://www.khanacademy.org/video/gibbs-free-energy-and-spontaneity?playlist=Chemistry>

I would really like to hear your thoughts as to how useful you think these lectures are.