

ME 522 References and Review Material

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Background and Review Material - This is general information that the student is expected to know. This material will not be covered in class. Brief learning modules are provided at the following links for your review.

- [Dimensions, Units, and Significant Digits](#) - A general review of dimensions and units, and the different unit systems (English vs. Metric). Also a discussion about the importance of significant digits.
- [Solutions of Ordinary Differential Equations](#) - A general review of how to solve simple ordinary differential equations.
- [Review of Complex Variables](#) - A general review of complex variables, along with some definitions.
- [Runge-Kutta Marching Technique](#) – Explanation of how the popular fourth-order Runge-Kutta marching technique works, along with the appropriate equations.
- [Cross-Integration of a Function of Two Variables](#) – How to integrate when you have a function of *two* variables (partial integration) instead of only *one* variable (total integration). A video is also available on YouTube at <https://www.youtube.com/watch?v=sdrSsMkm9VM>.
- [Equation sheet from ME 521](#), Fall 2017 – for quick reference to many useful equations.

M E 521 and 522 Engineering Library Reserve List Fall Semester 2018 and Spring Semester 2019

Call number	Year	Author(s)	Title
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Required Textbook:

QA901.K86	2016	P. K. Kundu, I. M. Cohen, and D. R. Dowling	<i>Fluid Mechanics, 6th edition</i> (5 th and 4 th editions are also acceptable)
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General fluid mechanics texts: [later versions may be available; these are the ones I own]

QA911.B33	1967	George K. Batchelor	<i>An Introduction to Fluid Dynamics</i>
TA357.V35	1982	Milton D. Van Dyke	<i>An Album of Fluid Motion</i>
QC145.2	1987	L. D. Landau and E. M. Lifshitz	<i>Fluid Mechanics, 2nd edition</i>
TA357.S453	1990	F. S. Sherman	<i>Viscous Flow</i>
QA929.W48	1991	Frank M. White	<i>Viscous Fluid Flow, 2nd edition</i>
QA901.C8	1993	I. G. Currie	<i>Fundamental Mechanics of Fluids</i>
TA357.P29	2013	Ronald L. Panton	<i>Incompressible Flow, 4th edition</i>

Boundary layer texts: [later versions may be available; these are the ones I own]

TL574.B6S283	1979	Schlichting, Herman	<i>Boundary-Layer Theory, 7th edition</i>
TA357.5.T87S34	2011	Schetz, Joseph A.	<i>Boundary Layer Analysis, 2nd edition</i>

Stability texts: [later versions may be available; these are the ones I own]

QC151.C4	1961	Subrahmanyan Chandrasekhar	<i>Hydrodynamic and Hydromagnetic Stability</i>
QA911.D72	2004	P. G. Drazin and W. H. Reid	<i>Hydrodynamic Stability, 2nd edition</i>

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Turbulence texts: [later versions may be available; these are the ones I own]

TL574.T8B3	1953	George K. Batchelor	<i>The Theory of Homogeneous Turbulence</i>
QA911.M6313	1971-75	A. S. Monin and A. M. Yaglom	<i>Statistical Fluid Mechanics, Mechanics of Turbulence</i>
QA913.T44	1972	H. Tennekes and J. L. Lumley	<i>A First Course in Turbulence</i>
QA913.H5	1975	J. O. Hinze	<i>Turbulence</i>
TA357.5.T87 W542	2006	David C. Wilcox	<i>Turbulence Modeling for CFD, 3rd edition</i>

Mathematics texts: [later versions may be available; these are the ones I own]

QA911.A69	1962	R. Aris	<i>Vectors, Tensors, and the Basic Equations of Fluid Mechanics</i>
QA221.N38	1973	A. Nayfeh	<i>Perturbation Methods</i>
QA303.H55	1976	F. B. Hildebrand	<i>Advanced Calculus for Applications</i>
QA401.K7		E. Kreyszig	<i>Advanced Engineering Mathematics, 10th edition</i>
QA331.C524	1996	R. V. Churchill, <i>et al.</i>	<i>Complex Variables and Their Applications</i>
QA433.S28	2005	H. M. Schey	<i>Div., Grad., Curl, and all that: An Informal Text on Vector Calculus, 4th edition</i>