Mechanical Engineering Mathematics Requirement

For post BS students:
Complete with grade B+ or better one of:

For post MS students:
1. Post BS requirement or
2. Submit evidence of successful completion B+ or better of equivalent course as determined by the ME Graduate Committee.

1. **EK 500 - Probability with Statistical Applications**  Prereq:(CASMA226) A first course in probability and statistics for students with a level of mathematical maturity and experience comparable to that normally found in entering graduate students.

2. **EK 501 - Mathematical Methods I: Linear Algebra and Complex Analysis**
   Introduction to basic applied mathematics for science and engineering, emphasizing practical methods and unifying geometrical concepts.

3. **EC 505 - Stochastic Processes**  Prereq:(ENGEC401 & CASMA142) or equivalent and either ENGEC381 or ENGEK500. Introduction to discrete and continuous-time random processes. Correlation and power spectral density functions. Linear systems driven by random processes.


6. **CAS MA 561 - Methods of Applied Mathematics I**  Prereq:(CASMA226 OR CASMA231) Grad Prereq:(CASMA226 OR CASMA231) *Derivation and analysis of the classical equations of mathematical physics; heat equation, wave equation, and potential equation.

7. **ME 512 - Engineering Analysis**  Prereq:(ENGME400) or equivalent Mathematical methods in aerospace and mechanical engineering; vectors and tensors; partial differential equations of heat and mass transfer, wave motion and potential theory


9. **ME 566 - Advanced Engineering Mathematics**  Prereq:(CASMA225 & CASMA226) Senior standing, and consent of instructor. Introduces students of engineering to various mathematical techniques which are necessary in order to solve practical problems.

10. **CAS PY 501: Mathematical Physics**
   Mathematical Physics (complex variables, residue calculus, asymptotic methods, conformal mapping, integral transforms, ODEs, PDEs, non-linear equations, integral equations)

All Ph.D. students are required to fulfill the Math Requirement no later than the end of their fourth academic semester. The list of courses will be reviewed periodically by the ME Graduate Committee.

*Revised (June 20, 2013)*