

Student Academic Qualifications Summary for UB Department of Mechanical and Aerospace Engineering

Will have completed, when finished with Junior Year

Key Courses:

- Engineering drawing (CAD)
- Thermodynamics
- Fluid Mechanics
- Heat Transfer
- Materials Properties and Processing
- Machine design
- Digital data acquisition systems, basic electronics

Computer skills:

- FORTRAN or C++
- Maple, Matlab, BASIC, spreadsheets and other software
- Internet familiarity

Other areas:

- Engineering graphics
- Computer skills, numerical modeling
- Experiment design: instrumentation, diagnostics and interpretation of fluid/thermal/mechanical systems
- Technical communication skills

Will have completed, when finished with First Semester of Senior Year

Additional Knowledge Areas:

- Energy systems (high pressure, high temperature phenomena, combustion, HVAC)
- Kinematics of machine elements
- Design methodology

Possible technical elective courses in such fields as:

- Biomechanics
- Vehicle dynamics
- CAD/CAM processes
- Finite element modeling
- Feedback control
- Further programming skills (e.g., Visual Basic)
- Oral and written communication skills