

Student Academic Qualifications Summary for UB Department of Civil, Structural and Environmental Engineering

Will have completed, when finished with Junior Year

Key Courses:

- Calculus, Differential Equations, Probability and Statistics
- Engineering Mechanics
- Numerical Methods
- Fluid Mechanics
- Engineering Drawing, Geodesy/GIS/GPS
- Hydraulics
- Engineering Materials
- Structural Analysis and Design
- Soil Mechanics
- Introduction to Environmental Engineering

Computer skills:

- Word processing and spreadsheets
- Mathcad (6.0), Maple, Matlab, Microstation/CAD
- Internet familiarity
- Engineering graphics
- Numerical modeling

Other areas:

- Analysis and design of basic structures (beams, columns, slabs)
- Understanding of soil behavior as well as lab and field soil tests
- Knowledge of surveying techniques, GPS and GIS
- Understanding of basic environmental engineering
- Technical communication skills

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

Additional Knowledge Areas:

- Planning and Management

Three technical elective courses in such fields as:

- Advanced Structural Design
- Steel Design
- Water Quality System Design
- Groundwater Engineering
- Water Resources Engineering
- Design & Construction of Earth Retaining Structures
- Technical Communications for Engineers

