For graduation, students must obtain a grade of ñCò or better in each mathematics course, each physics course, and each Geomatics Engineering core course. Students must obtain a 2.0 GPA in all Geomatics Engineering courses attempted.

The department maintains a flow chart that lists all of the coursework required in the program which is reviewed with the student on a regular basis by the Undergraduate advisor. The students are required to meet with their advisor each semester before registration for classes. Failure to maintain satisfactory progress in the program will initiate review by the Geomatics Engineering faculty.

For students participating in the Cooperative Education Program, industry supervisors will evaluate students on content knowledge, communication skills, and critical thinking skills. Possible outcomes for a student who receives an unsatisfactory evaluation include repeating an industrial placement or portion of the placement, tutoring, additional coursework, or removal from the Cooperative Education Program with no credit given.

CONTENT KNOWLEDGE (Technical Skills, Research Skills) and CRITICAL THINKING (Analytical Skills): Students will recognize and apply concepts, principles and theories in core Geomatics Engineering courses (surveying, geographic information systems, remote sensing, photogrammetry, and legal and business practices.)

In the required senior design sequence (SUR 4670 Geomatics Engineering Design I and SUR 4672 Geomatics Engineering Design II) teams of students will select and design a project solicited from a local surveying firm. Projects will normally involve application of the principles and concepts presented in several of the core Geomatics Engineering courses. The project to be evaluated by the faculty member in charge of the course and the professional surveying mentor assigned to the project. The faculty member and the professional mentor evaluate the students for their technical and critical thinking skills using an evaluation instrument developed for this purpose. This is done for both courses in the design sequence. Students receiving an unsatisfactory evaluation in SUR 4670 Geomatics Engineering Design I will not be allowed to continue into SUR 4672 Geomatics Engineering Design II and will be required to restart the sequence in a following semester.

COMMUNICATION (Written Communication, Oral Communication, Team/Collaborative Communication): Students will communicate effectively in writing, convey technical material through oral presentations and function effectively in multidisciplinary teams.

In EGN 1002 Fundamentals of Engineering (freshman level), students are required write reports, make oral presentations and function in teams to perform design projects which are

evaluated by the faculty member in charge of the course. In the laboratory sequence SUR 2120 Plane Surveying, SUR 3530 Photogrammetry, SUR 3205 Engineering and Construction Surveying, SUR 3462 Land Subdivision and Platting, and SUR 4536 Positioning with GPS, students work in teams to perform experiments and prepare individual technical reports. In the required senior design sequence (SUR 4670 Geomatics Engineering Design I and SUR 4672 Geomatics Engineering Design II) student teams will prepare a technical report documenting the performance of the design project. This project will be presented to the faculty member in charge of the course, the professional surveying mentor, invited guests, and their class peers in an oral presentation. Evaluations of the written report and the oral presentation will be performed by the faculty. Each student is the design team will complete a Peer Evaluation Report evaluating the contribution of the other team members to the project using an evaluation instrument developed for this purpose.

CRITICAL THINKING (Analytical Skills, Creative Skills, and Practical Skills): Students will:

- **Use modern engineering techniques, skills, and tools, including computer based tools for analysis and design of geomatics engineering systems**
- **Identify, formulate and solve geomatics engineering problems**
- **Design and conduct engineering experiments including analysis and interpretation of data.**
- **Deliver engineering results that meet performance standards for cost, safety, and quality.**
- **Describe the ethical and professional responsibilities of the geomatics engineer.**
- **Make and defend ethical judgments in keeping with professional standards.**

In the required senior design sequence (SUR 4670 Geomatics Engineering Design I and SUR 4672 Geomatics Engineering Design II) student teams will perform design projects which will incorporate the above criteria. The faculty member in charge of the course and the professional surveying mentor will evaluate these Capstone Design Project reports and oral presentations to these criteria. In performing the evaluations, the faculty member and the mentor use their professional judgment and an assessment instrument developed for this purpose to evaluate communication skills and critical thinking skills, with respect to both individual students and student teams. Students receiving an unsatisfactory evaluation in SUR 4670 Geomatics Engineering Design I will not be allowed to continue into SUR 4672 Geomatics Engineering Design II and will be required to restart the sequence in a following semester.