

# The "New" Licensure Paths For Surveying and Mapping Under Ch 472 FS.

David W. Gibson  
Founding Geomatics Program Director  
University of Florida  
Gainesville

**Short Bio:** David W. Gibson, Ph.D. is a licensed Professional Surveyor and Mapper in Florida, #2836. Mr. Gibson earned his Bachelors Degree from the University of Cincinnati in 1967, a Masters Degree from the University of Miami in 1970, and a Ph.D. from the University of Alabama in 2002. He was first licensed as a Professional Land Surveyor since 1974. He developed and taught the first two-year surveying program at Palm Beach Junior College from 1970 to 1974 and has been at Gainesville since 1974 developing and teaching in the University of Florida surveying program. His expertise generally includes GIS, boundary surveying, photogrammetry, route geometrics, and land development. Mr. Gibson is a member of the American Congress on Surveying and Mapping (ACSM) and has been a member and Chair of the Florida Board of Professional Surveyors Mappers.

Course Description: This course relates to interpretation of the educational-related sections of Chapter 472 F.S. and 61 G 17 FAC and instructs and informs the attendee regarding the methods of meeting the current educational requirements of statute and rule for the "new" path to licensure in Florida as a Professional Surveyor and Mapper. Since there's a considerable amount of uncertainty in the practicing community as to the various paths available, this course will focus on making a concise presentation of the licensure path for a new person interested in becoming licensed in Florida. The instructor will present how successful students have "navigated" the new path to licensure with other practical examples and case studies.

## Course Objectives:

- To understand the interpretation of statute and rules related to educational requirements for licensure.
- After attending this course, the attendee will have a basic understanding of the different concepts and terms related to educational programs: national accreditation, programmatic accreditation, acceptable degree names, and a national view of educational requirements.
- To be informed of the licensure path through an accepted surveying and mapping degree program, including dominant programs and curricula available.

--- To be aware of procedures for licensure with a related degree, evaluation of the required core program of related courses, and Board procedures for approval of schools and courses.

### Introduction

How and why the educational requirement was put in place in Florida and why it is important to understand the "new" paths toward licensure.

#### WHY HAVE A FOUR-YEAR DEGREE REQUIREMENT?

1. Surveying began its own national educational identity in the 1960's when ASCE dropped surveying as one of the specialty professional areas of Civil Engineering. The first four-year surveying degrees were initiated at Fresno and Oregon Tech in the late 1960's. This emergence of surveying as a distinct profession was evidenced earlier in Florida with the founding of the Florida Society of Professional Land Surveyors in 1955.
2. The Palm Beach area profession convinced Palm Beach Junior College to start a two-year program in 1970. The program grew and thrived during the early 1970's.
3. With development of the PBJC surveying program, the profession's leadership of the 1970's preferred that the "goal standard" of the surveying profession be a four-year degree, not a two-year degree.
4. It is generally recognized that a four-year degree is the minimum academic preparation to attain true professional standing. The Florida Supreme Court eventually confirmed this in 1992 when it ruled that surveying at that time was NOT a profession because the large majority of new licensees lacked a four-year degree.
5. In 1972, the Florida surveying professional leadership chose the University of Florida as the best place to begin a four-year degree in Florida, because that campus was the traditional home of most professional academic programs: medicine, law, accounting, business, engineering, architecture, etc. The thinking was that surveying should develop its education at the same place in order to gain general professional recognition. At the request of the profession, UF began the program in 1973, producing the first three graduates in 1974.

#### HOW DID THE FOUR-YEAR DEGREE REQUIREMENT HAPPEN?

1. Beginning at about 1980, with the UF program well established, the profession began debating the benefits of establishing a four-year degree requirement.
2. The "four-year degree requirement" was perhaps the biggest issue in the profession during the 1980's. Proponents and opponents debated in many forums.

3. The discussion culminated at the FSPLS Annual Meeting of 1987 with an overwhelmingly positive vote at the General Membership meeting to push for a degree requirement in Ch 472.

4. The four-year degree law passed in the 1988 legislative session, becoming law on October 1, 1988. The two-year degree path was eliminated and the “grandfather” period was eventually extended to July 1, 1999 for those to apply for licensure based on experience only.

#### WHY IS IT IMPORTANT TO UNDERSTAND THE “NEW PATHS”?

1. The “apprenticeship” system was (and still is) deeply seated as a feature of the surveying profession. Most licensed surveyors did not choose surveying, but began by finding a surveying job “off the street.” The OLD PATH is well known – chainman/rod operator, instrument, junior party chief, senior party chief, office drafting, office calculations, legal principles, project surveyor in training, examination, examination, examination.

2. The NEW path is clearly different. The profession must understand that it must CREATE the new path so that it is well known. Unfortunately, many practitioners still are following the OLD path, still thinking that apprenticeship and work experience are viable options. However, even with the Certified Survey Technician (CST) program, the old path generally leads not to licensure, but to a life-long career in a technical position.

3. WHAT’S WRONG WITH THAT? Absolutely nothing. Many of today’s licensed surveyors who came through by experience would still prefer a field position, as opposed to an office/business one. The robust field way of life is what captured the attention of many practitioners, and that life is a good one, however, it does not lead to general professional recognition for the group as a whole.

#### **CH 472 and 61G17 Educational Provisions**

#### **TWO CATEGORIES:**

Category (a) --- applicants with a surveying and mapping degree, and  
Category (b) --- applicants with a related four-year degree.

The 2004 Florida Statutes

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### **CHAPTER 472**

## LAND SURVEYING AND MAPPING

### 472.013 Examinations, prerequisites.--

(1) A person desiring to be licensed as a surveyor and mapper shall apply to the department for licensure.

(2) An applicant shall be entitled to take the licensure examination to practice in this state as a surveyor and mapper if the applicant is of good moral character and has satisfied one of the following requirements:

(a) The applicant is a graduate of an approved course of study in surveying and mapping from a college or university recognized by the board and has a specific experience record of 4 or more years as a subordinate to a professional surveyor and mapper in the active practice of surveying and mapping, which experience is of a nature indicating that the applicant was in responsible charge of the accuracy and correctness of the surveying and mapping work performed. The course of study in surveying and mapping must have included not fewer than 32 semester hours of study, or its academic equivalent, in the science of surveying and mapping or in board-approved surveying-and-mapping-related courses. Work experience acquired as a part of the education requirement shall not be construed as experience in responsible charge.

(b) The applicant is a graduate of a 4-year course of study, other than in surveying and mapping, at an accredited college or university and has a specific experience record of 6 or more years as a subordinate to a registered surveyor and mapper in the active practice of surveying and mapping, 5 years of which shall be of a nature indicating that the applicant was in responsible charge of the accuracy and correctness of the surveying and mapping work performed. The course of study in disciplines other than surveying and mapping must have included not fewer than 32 semester hours of study or its academic equivalent, 25 semester hours of which shall be in surveying and mapping subjects or in any combination of courses in civil engineering, surveying, mapping, mathematics, photogrammetry, forestry, or land law and the physical sciences. Work experience acquired as a part of the education requirement shall not be construed as experience in responsible charge.

(NOTE: The 2005 legislature modified Category (b) to make it clear that the 25 semester hours do not have to be “in” the degree program, but can be taken in addition to the degree program.)

(b) The applicant is a graduate of a 4-year course of study, other than in surveying and mapping, at an accredited college or university and has a specific experience record of 6 or more years as a subordinate to a registered surveyor and mapper in the active practice of surveying and mapping, 5 years of which shall be of a

nature indicating that the applicant was in responsible charge of the accuracy and correctness of the surveying and mapping work performed. The course of study in disciplines other than surveying and mapping must have included not fewer than 32 semester hours of study or its academic equivalent. The applicant must have completed a minimum of 25 semester hours from a college or university approved by the board of which shall be in surveying and mapping subjects or in any combination of courses in civil engineering, surveying, mapping, mathematics, photogrammetry, forestry, or land law and the physical sciences. Any of the required 25 semester hours of study completed not as a part of the 4-year course of study shall be approved at the discretion of the board. Work experience acquired as a part of the education requirement shall not be construed as experience in responsible charge.

### Features of Category (a) person:

1. **“graduate of”** – must hold degree
2. **“course of study in surveying and mapping.”** Accredited surveying degree programs across the county have many names: land surveying, surveying and mapping, geomatics, surveying engineering, land surveying engineering, geomatics engineering, civil engineering technology (surveying option). Even though the statute quotes “surveying and mapping,” the Board has traditionally accepted a variety of program titles, as long as the program has the surveying focus and content.
3. **“approved course of study”** The Board must approve each degree program. ABET, the Accreditation Board for Engineering and Technology, is the national accreditation body for surveying programs. Currently 19 programs have ABET surveying accreditation. This ABET accreditation is relied on by the Board as meeting approval. International and other U.S. surveying programs that have not yet achieved national accreditation must be approved by the Board on a one-by-one basis.
4. **“from a college or university recognized by the board”** This means that the Board must recognize and approve two things – (1) the university that houses the program and (2) the course of study at that university. Theoretically, a degree could fail approval if it were a poor degree from a great university, or visa versa.
5. **“must have included not fewer than 32 semester hours of study, or its academic equivalent, in the science of surveying and mapping”** The curriculum of most four-year programs have about 128 hours required to graduate. Of these about ¼ are “general education” courses of communications, social sciences, etc, another ¼ are of “foundation technical courses” such as math, computers, science, and ¼ are in the specialty (32 hours in surveying and mapping), and the remaining ¼ are in elective options of business. law, environment, further math/science. National ABET accreditation standards have backed off of a set number of hours, but Florida Law still specifies this minimum.
6. **“or in board-approved surveying-and-mapping-related courses”** The board is authorized to count other courses in the minimum, however, this is very infrequently done. The 32 hours is a basic standard.
7. **“a specific experience record of 4 or more years”** The four-year surveying grad must gain four years of experience, all of a responsible charge nature under a licensee.

Features of a Category (b) person:

1. **“graduate of a 4-year course of study, other than in surveying and mapping at an accredited college or university ”** This section is designed for “related degrees,” those close and related to surveying programs such as civil engineering, forestry, law, science, math, computer science.

The college must be accredited (not merely Board approved). A college is deemed accredited when a regional accreditation council recognizes it. In our area of the U.S., schools gain regional accreditation through the Southern Association of Colleges and Schools, SACS. Once accredited, transcript credits earned at one school will generally be accepted by another. This accreditation does not look at individual degree programs, but at the school admissions and administration in general.

2. **“The applicant must have completed a minimum of, 25 semester hours from a college or university approved by the board of which shall be in surveying and mapping subjects or in any combination of courses in civil engineering, surveying, mapping, mathematics, photogrammetry, forestry, or land law and the physical sciences. Any of the required 25 semester hours of study completed not as a part of the 4-year course of study shall be approved at the discretion of the board.”**

This has been one of the more difficult sections to administer. It basically states that a degree with at least 25 semester credits in the listed topics is termed “related.” Of course it does not need to have any surveying courses, since all 25 hours could be in law, or math, or forestry, or engineering, However, these fields are related to surveying in practice and therefore these graduates should be allowed to proceed toward licensure.

Since many of these have no surveying academic preparation, it is presumed that many will get their entire knowledge of surveying “on the job.” Therefore, the apprentice system is alive and well for these grads.

When the law was passed, this section was viewed as the “safety valve,” to bring larger numbers of people into licensure at the time when dedicated surveying programs were still developing.

3. **“a specific experience record of 6 or more years as a subordinate to a registered surveyor and mapper in the active practice of surveying and mapping, 5 years of which shall be of a nature indicating that the applicant was in responsible charge”**  
The additional experience requirement of two years covers the on-the-job learning that must take place.

Since all six years must be under the direction of a surveyor, this has virtually eliminated the concept of a dual engineer/surveyor licensee that was so prominent in the past. A graduate engineer must have four years of “pre design experience” under an engineer and

must also have six years of surveying experience to get both licenses. Very few graduate engineers will do this.

4. **“Any of the required 25 semester hours of study completed not as a part of the 4-year course of study shall be approved at the discretion of the board.”** For many years, the Board followed the previous statute language to disqualify courses from counting toward the minimum 25 unless they were “within” the degree gained. Therefore, if a person had a geology degree, and then gained part or all the 25 hours after graduation, this person was denied. With this 2005 statute change, the Board has the discretion to accept courses toward the 25 hours regardless of when they are taken in an applicant’s preparation.

Board and staff procedures for application evaluation.

When an application is received the applicant must include all college transcripts. The Board staff then completes a “check list” of requirements. Degree? Any degree awarded must appear on the transcript. Surveying degree? Related Degree from an Accredited College or University? Approved Surveying and Mapping Program? The program and school is checked against a list of approved programs. 25 Related Hours? The staff inspects the transcript to find 25 semester credits earned in the listed subjects.

The Board staff presents a summary of the evaluation to an “Applications Committee” of the Board. This committee then helps the staff to resolve issues in the evaluation. This committee then presents a full list of approved applicants to the full Board for final action.

***Available Educational Institutions and Programs***

1. ABET Accredited programs in the U.S. Check [www.abet.org](http://www.abet.org) for a complete list. ABET accredits surveying in three of its four commissions: the ASAC (Applied Science Accreditation Commission), the EAC (Engineering Accreditation Commissions), and the TAC (Technology Accreditation Commission).

Recently, ABET lists the following 19 accredited surveying programs:

Applied Science Commission: (7 total)

[University of Alaska Anchorage](#) Anchorage, AK Date of Next General Review: 2004 – 05 Geomatics (BS) [1995]

[East Tennessee State University](#) Johnson City, TN Date of Next General Review: 2008 – 09 Surveying and Mapping (BS) [1994]

[University of Florida](#) Gainesville, FL Date of Next General Review: 2006 – 07 Geomatics (BS) [1986]

[Metropolitan State College of Denver](#) Denver, CO Date of Next General Review: 2009 – 10 Surveying and Mapping (BS) [2004]

[Michigan Technological University](#) Houghton, MI Date of Next General Review: 2004 – 05 Surveying (BS) [1987]

[Oregon Institute of Technology](#) Klamath Falls, OR Date of Next General Review: 2006 – 07 Geomatics (BS) [1985]  
Surveying (BS) [1985]

[Texas A & M University at Corpus Christi](#) Corpus Christi, TX Date of Next General Review: 2006 – 07 Geographic Information Science (BS) [2001]

## Engineering Commission (8 programs)

[California State Polytechnic University, Pomona](#) Pomona, CA Date of Next General Review: 2005 – 06 Surveying Option in Civil Engineering (BS) [1994]

[California State University, Fresno](#) Fresno, CA Date of Next General Review: 2006 – 07 Geomatics Engineering (BS) [1979]

[Ferris State University](#) Big Rapids, MI Date of Next General Review: 2005 – 06 Surveying Engineering (BS) [1991]

[University of Maine](#) Orono, ME Date of Next General Review: 2006 – 07 Spatial Information Science and Engineering (BS) [1981]

[New Mexico State University](#) Las Cruces, NM Date of Next General Review: 2006 – 07 Surveying Engineering (BS) [2001]

[The Ohio State University](#) Columbus, OH Date of Next General Review: 2005 – 06 Geomatics Engineering (BS) [2002]

[Pennsylvania State University, Wilkes-Barre Campus, Commonwealth College](#) Wilkes-Barre, PA Date of Next General Review: 2005 – 06 Surveying Engineering (BS) [1999]

[Purdue University at West Lafayette](#) West Lafayette, IN Date of Next General Review: 2007 – 08 Land Surveying Engineering (BS) [1984]

## Technology Commission (4 programs)

[The University of Akron-Community and Technical College](#) Akron, OH Date of Next General Review: 008 – 09 Surveying and Mapping Technology (BS) [2003]

[Alfred State College](#) Alfred, NY Date of Next General Review: 2006 – 07 Surveying Engineering Technology (BS)[1994][Back to Top](#)

[New Jersey Institute of Technology](#) Newark, NJ Date of Next General Review: 2005 – 06 Surveying Option in Engineering Technology (BS)[1994]

[Pennsylvania State University, Wilkes-Barre Campus, Commonwealth College](#) Wilkes-Barre, PA Date of Next General Review: 2006 – 07 Surveying Technology (AS)[1962]

## 2. U.S. institutions determined equivalent to an ABET accredited program.

The Board has evaluated other U.S. programs for equivalency to the ABET accredited ones to include: Troy University, Troy, Alabama and Southern Polytechnic University, Marietta, GA.

3. The revised Curriculum at the University of Florida under the College of Agriculture  
The UF surveying program started in 1973 within the College of Engineering, Department of Civil Engineering. There are now close to 400 graduates of the program. Most of these are in active practice in Florida.

The degree was not designed as an engineering degree and the program was accredited as an Applied Science program by ABET in the mid 1980's.

However, as the years progressed, admission standards to the entire University of Florida increased rapidly. Also, admission standards for any program in the College of Engineering increased, so that the surveying program's "front door" slowly closed, requiring several higher math and science courses for admissions. The result was that the program did not grow much in size, even though those who were admitted were very qualified. The program reached 12 graduates per year in 1982, and by 2002 it was still graduating 12 per year. We had about 20 years of no growth, caused mainly by rising admission standards.

To address this issue, the program faculty decided to move its campus affiliation to the College of Agriculture. Four Geomatics faculty, all the students, and all the surveying courses moved to the Department of Forestry, College of Agriculture as of July, 2004. This was a "paper move" only. We are still located on the 3<sup>rd</sup> and 4<sup>th</sup> floor of Reed Lab with the same space, the same faculty, and same students, so very little has outwardly changed, EXCEPT THE CURRICULUM. The hope is that our 2004 curriculum revision will OPEN THE FRONT DOOR, allowing many more students to be accepted.

Here are the posted documents pertaining to the revised program. Access [www.sfrc.ufl.edu](http://www.sfrc.ufl.edu), the website of the School of Forest Resources and Conservation (SFRC), the home of the Department of Forestry in the College of Agricultural and Life Sciences (CALs). Two .pdf documents explain the revised curriculum:

# School of Forest Resources & Conservation

*College of Agricultural and Life Sciences  
University of Florida*

November 2004

## Guide to Admission

### *Geomatics*

The School of Forest Resources & Conservation offers three majors: *Forest Resources and Conservation* (FRC), *Geomatics* (GEM), and *Natural Resource Conservation* (RCN). Students wishing to major in *Geomatics* can be admitted in two ways: as a freshman immediately after completing high school, or as a transfer student after earning 60 or more transferable college credits from a community college, junior college, or other 4-year university (an *Associate of Arts* degree from a Florida institution is encouraged, as it will satisfy all general education requirements).

Students wishing to begin at the University of Florida as a freshman should visit *www.ufl.edu* and select “Admissions” for details on the application process. Be advised that freshman admission is extremely competitive.

### Minimum Requirements

- completion of 60 or more college level (non vocational) credits, usually as part of an Associate of Arts degree
- completion of the UF foreign language requirement
- completion of pre-requisite courses with a 2.5 GPA:

MAC1147 <i>or</i> MAC1114	Precalculus with Trigonometry <i>or</i> Trigonometry	4 credits <i>or</i> 3 credits
SPC2600	Public Speaking	3 credits
PHY2053/L	General Physics 1 with Lab	4 credits
STA2023	Introduction to Statistics	3 credits
	Total	14 credits (or 13)

### Suggested Additional Coursework

Students can be admitted with the minimum requirements above, however they must complete the following courses at the University of Florida as part of their upper-division coursework. Students are advised to complete as many of these additional courses as possible prior to admission in order to minimize time and expense at UF.

GEO2200 <i>or</i> GLY2010	Physical Geography <i>or</i> Physical Geology	3 credits <i>or</i> 3 credits
CAD course	computer aided drafting course approved by UF advisor	variable
MAC2233	Survey of Calculus 1	3 credits
MAC2234	Survey of Calculus 2	3 credits
PHY2054/L	General Physics 2 with Lab	4 credits
ECO2023	Principles of Microeconomics	3 credits
ENC2210	Technical Writing	3 credits
	Total	19 credits

Note: Grades earned in any of the suggested additional courses will be included in the minimum 2.5 GPA requirement.

Notes about admissions to UF’s new surveying program:

1. **“freshman immediately after completing high school”** Students can still gain admission as a “true freshman” but this is HIGHLY competitive: 3.8 H.S. weighted average, and 1280 SAT.

2. **“transfer student after earning 60 or more transferable college credits from a community college, junior college, or other 4-year university”** This is the preferred route. NOTE that an A.A. degree is NOT required, however 60 hours of “transferable” courses are required. This excluded “technical” courses. All courses at community college

are either labeled as “transfer” or “technical”. Technical courses are taken in Associate of Science (A.S.) programs as terminal degrees, not designed for transfer. Transfer courses are generally taken in Associate of Arts (A.A) programs, which are designed for transfer. If the last three digits of a community college course are “common numbered” with a SUS course, then it will be in the transfer category. For example a GLY 2322 course at community college is judged the same course as a GLY 3322 course at a university, according to the state’s Common Course Numbering System.

After admission to the university in general, for upper division admission a student must have 60 hours of the transfer type courses along with a 2.5 average in the required (14 credits) and suggested course list (19 credits). Note that none of the suggested transfer courses are required for admissions, but if not taken at community college, they will have to be taken at UF. However, if they are taken at community college, the grades will be counted in the 2.5 minimum average for UF admissions.

Therefore the most basic admission standards for the UF surveying program are:

- complete the four (14 hours) required courses with 2.5 (B/C) minimum average.
- complete at least 46 hours in other courses labeled as “transfer” courses, “C” or better

3. **“an Associate of Arts degree from a Florida institution is encouraged, as it will satisfy all general education requirements”** The A.A. degree from a community college is VERY important. It is often called “THE TICKET IN.” According to the statewide Articulation Agreement between the university and community college systems, an A.A. degree from a Florida public Community College will gain admissions to the University of your choice, including UF. However, it WILL NOT gain admissions to your upper division (junior and senior year) program of choice. The above stated Geomatics document gives these entry requirements.

Therefore, admissions to the UF surveying program is a two step process (which can be done simultaneously): (1) admissions to the university (either freshman admission or an A.A. degree) and (2) admissions to the department of choice for an upper division program based on the published Department of Forestry minimum requirements.

4. **Trigonometry, Public Speaking, General Physics, and Statistics** These courses remain as the only required courses for admissions. A person who passes these with a 2.5 (B/C) average has proven that they have the basic ability to continue in the surveying program.

NOTE: This is a VERY SIGNIFICANT change from our former curriculum in the College of Engineering which listed several very difficult courses: CalcI, CalcII, Physics I, Physics II for admissions. Hopefully, the curriculum change will result in more students entering.

#### 4. Distance education programs available.

UF does not at present have distance education available. We attempted to start a program several years back but it was very poorly supported. However, several schools have national distance education available. Perhaps the most prominent is Metropolitan State College of Denver, CO. That program is now ABET accredited and also offers the entire degree off line through correspondence using a DVD of its lectures. Check with Dr. Herb Stoughton at Metro State: [Metropolitan State College of Denver](#)

#### *Paths and Case studies*

**Path #1 Category (a) Middle School Student Path** – for someone who identifies surveying and mapping as a career early in their educational experience.

Steps:

1. take a pre-college high school curriculum with math and science
2. take advanced placement and honors courses to increase the weighted HS average
3. take SAT's
4. gain surveying work experience part time and in summers.
5. gain university admissions as a true freshman

OR

5. go to community college for an A.A program. Build the Required courses into the program as well as many of the Suggested ones.
6. apply to university as a CC transfer student. Begin the surveying program as a junior.

**Path #2 Category (a) High School Student Path** – the path for someone who becomes interested in surveying and mapping in high school.

1. transfer into a pre college track with math and science at the earliest
2. complete 2 thru 6 of the above steps in #1.

**Path #3 Category (b) High School or Middle School Student Path** – for a middle school student who chooses the related degree approach.

1. take a pre-college high school curriculum with math and science
2. take advanced placement and honors courses to increase the weighted HS average
3. take SAT's
4. gain surveying work experience part time and in summers.
5. gain admissions in a local community college and then university in a related discipline.
6. complete seminars and self study to learn surveying subjects to pass the national Fundamentals exam.

**Path #4. Category (a) Survey Technician Path** – for someone who first gets a job in surveying and mapping and then decides to attend a surveying program to become licensed.

1. work in surveying field or office technical positions to gain a desire to be licensed. This may take three or more years until a career goal is recognized for licensure.
2. gain the CST designations to “cement” in credentials as a survey technician.
3. go to your local community college at night to obtain the A.A. degree covering the Required courses for admission.
4. apply for financial aid for upper division studies.
5. apply to the university as a CC transfer student.

**Path #5. Category (b) Survey Technician Path** – for a survey technician who decides to attend a related university degree program to become licensed.

1. work in surveying field or office technical positions to gain a desire to be licensed. This may take three or more years until a career goal is recognized for licensure.
2. gain the CST designations to “cement” in credentials as a survey technician.
3. go to your local community college at night to obtain the A.A. degree covering the Required courses for admission to a related university degree.
4. go to a local university for a four-year related degree covering the 25 statutory hours.
5. complete seminars and self study to learn surveying subjects to pass the national Fundamentals exam.

**Path #6 Category (a) University Student Path** – for someone who has completed some university work and then decides to be licensed as a surveyor and mapper.

1. if at UF, change majors into surveying while at college. If not at UF, apply to UF as an undergraduate transfer.
2. it may help admissions to obtain an A.A. degree from a local community college. This gains university admission more easily than being an undergraduate transfer student from another university.

**Path #7 Category (b) University Student Path** – for someone already in college/university who decides to take a related degree for licensure.

1. change majors if necessary and complete a four year degree in a related degree field that has the 25 statutory hours met.
2. OR complete a four-year degree program and then achieve the 25 statutory hours of survey-related course work.
3. complete seminars and self-study to learn surveying subjects to pass the national Fundamentals exam.

**Path #8 Category (a) College Grad Path** – for someone who has a four-year degree in some subject before deciding to pursue a surveying and mapping degree for licensure.

1. apply to the university as a “post-baccalaureate” student ( a second degree student).

2. NOTE: The university system is discouraging second bachelor's degree students. The thinking is that it's poor use of the student's and university's time. Most universities prefer to admit those who know where they are going, whereas a second degree student is admitting a big change in career direction. Also, the university says that that person's time is better spent pursuing a Graduate Degree, rather than a second bachelor's degree.
3. consider applying to Graduate School for a 30 hour master's program in geomatics.

**Path #9 Category (b) College Grad Path** -- for someone who has a four-year degree in some subject before deciding to pursue surveying licensure.

1. evaluate the degree to determine whether the 25 hour statutory requirement is met.
2. if not, take additional survey-related courses.
3. complete seminars and self-study to learn surveying subjects to pass the national Fundamentals exam.

**Path #10 Category (a) Master's Degree Graduate** – for someone who may or may not have an undergraduate surveying degree, but who enters a master's program in geomatics.

1. apply to graduate school for a 30 hour master's degree in geomatics.
2. complete the degree, while taking the “core program” of undergraduate surveying courses most related to practice: computations, legal principles, subdivisions, route geometrics, surveying and mapping practice. The total surveying/geomatics course load must be 32 hours.
3. apply for licensure requesting the Board to accept the master's degree under Category (a).

### *Summary*

The surveying profession has a BIG challenge. To find the quality pre-college type students that will form the basis of the future profession. The NEW paths must be identified and made to work. We've come a long way already!!