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**POSITION PAPER FOR DEFINING THE CHARACTERISTICS OF A
RELATED DEGREE AS STATED IN s. 443.06 (2) (am) (bm) OF THE
WISCONSIN STATUTES CONCERNING THE EDUCATION REQUIREMENTS
FOR THE REGISTRATION OF A LAND SURVEYOR**

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The education requirements for land surveyors are stated in s. 443.06, Registration requirements for Land Surveyors, in paragraph (2) (am) and (bm) with the following statements: “(am) Evidence satisfactory to the land surveyor section that he or she has received a bachelor’s degree in a course in land surveying or a related field that has a duration of not less than 4 years and is approved by the land surveyor section” and “(bm) Evidence satisfactory to the land surveyor section that he or she has received an associate degree in a course in land surveying or a related field that has a duration of not less than 2 years and is approved by the land surveyor section”..... These statements define the education requirements necessary to achieve a license as a registered land surveyor in Wisconsin.

This item in the state statutes is further clarified in the Wisconsin Administrative Code under A-E 6.04 Education requirements for land surveyors in paragraphs (1) and (2) and stated as follows: Paragraph (1): “To meet the educational requirements of s. 443.06 (2)

(a) and (bm), Stats., an applicant for registration as a land surveyor shall have satisfactorily completed at least 60 semester credits in a civil engineering or land surveying curriculum including no less than 12 semester credits in land surveying which shall be in the following categories of study:”Paragraph (2): “To meet the educational requirements of s. 443.06 (2) (am), Stats., an applicant for registration as a land surveyor shall have done either of the following: (a) Received a bachelor’s degree in a course of study in land surveying of not less than 4 years duration from a college or university accredited by a regional accrediting agency approved by the state where the college or university is located; or (b) Received a bachelor’s degree in civil engineering of not less than 4 years duration from a college or university accredited by a regional accrediting agency approved by the state where the college or university is located. The curriculum shall include no less than 24 semester credits in courses concentrating on the legal principles of land surveying and the technical aspects of land surveying.”

To sum up, the state statutes and the administrative codes for the educational requirements of a land surveyor state that the applicant can have either:

1. An Associate Degree in Land Surveying, Civil Engineering or a related field, having at least 60 semester credits and 12 semester credits in surveying course work as defined in A-E 6.04 (1) (a) and (b).

Or

2. A Bachelor’s Degree in Land Surveying, Civil Engineering or related field of not less than 4 year’s duration, accredited by a regional accrediting agency, with no less than 24 semester credits in land surveying course work as defined in A-E 6.04 (2) (b).

No where in the State Statutes or the Administrative Code does it define the requirements of a related degree to meet the educational requirements, thus the purpose of this paper.

The dictionary defines related as being connected or associated, so in order to define a related degree we must look at the current degrees that are accepted by the board in order to clarify the characteristics of a related degree.

The current degrees that are being accepted by the land surveyor's registration board on the associate degree level are:

1. Northeast Wisconsin Technical College – Civil Engineering Technology
2. Milwaukee Area Technical College – Civil Engineering Technology
3. Madison Area Technical College – Civil Engineering Technology
4. Nicolet Area Technical College – Land Surveying Technician

Even though these degrees have different makeup for their courses they do have some common characteristics that we can build from. They all have common areas in certain subject areas with a range of credits as follows:

1. Mathematics: 9-10 credits
2. Science (Physics): 4 credits
3. General Education: 12-15 credits
4. Drafting–CAD-Computer-Geographic Information Systems-Engineering Graphics courses: 5-7 credits
5. Civil Engineering courses: 0-18 credits
6. Surveying: 15-33 credits

In items 5 and 6 there is a noticeable difference in that Nicolet Area Technical College does not have any engineering courses but has considerably more land surveying courses

because of their degree being in land surveying instead of civil engineering. We can conclude that if we combine the two areas of surveying and engineering course work there is a range of 32 to 36 credits. Because there is a history and close association of civil engineering and land surveying, only civil engineering courses should be used to evaluate a related degree. However we should allow computer, CAD, drafting, Engineering Graphics and Geographic Information Systems courses to be used as civil engineering courses to make up any deficiency here.

In conclusion if we look at the association of the subject areas, a related degree should have the following minimum characteristics:

1. Mathematics – 9 credits
2. Science (Physics) – 4 credits
3. General Education - 12 credits
4. Drafting-CAD-Computer-Geographic Information Systems-Engineering Graphics – 5 credits
5. Surveying: By administrative code only 12 credits are required.
6. Civil Engineering- 17 credits

To get the total of 17 credits, other courses can be substituted with the civil engineering courses such as additional Land Surveying, CAD, Drafting, Computer, Engineering Graphics and Geographic Information Systems courses.

Other courses that could be allowed here would be Cartography, Photogrammetry, Planning, Geology, Geography, Astronomy, Dendrology, Soils, additional Mathematics or Science courses or other Civil Engineering courses.

Summary of Education: Related Associate Degree. An official transcript along with course descriptions must accompany this list.

Title of Degree: _____

Subject Area 1 – Mathematics – minimum requirement 9 credits.

Course	Credits
_____	_____

Course	Credits
_____	_____

Course	Credits
_____	_____

Course	Credits
_____	_____

Total Credits _____

Subject area 2: Science (Physics) – minimum requirement 4 credits.

Course	Credits
_____	_____

Course	Credits
_____	_____

Course	Credits
_____	_____

Total Credits _____

Subject area 3 – General Education – Minimum requirement 12 credits.

Course	Credits
_____	_____
Course	Credits
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Course	Credits
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Course	Credits
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Course	Credits
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Total Credits _____	

**Subject area 4 – Drafting – CAD – Computer – Geographic Information Systems-
Engineering Graphics**, minimum requirement 5 credits.

Course	Credits
_____	_____
Course	Credits
_____	_____
Course	Credits
_____	_____
Course	Credits
_____	_____
Total Credits _____	

Subject area 5 – Land Surveying – minimum requirement 12 credits. Coursework must comply with the requirements in A-E 6.04 (1) (a) (b).

Course	Credits
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Course	Credits
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Course	Credits
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Course	Credits
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Total Credits	_____
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Subject area 6: Civil Engineering- minimum requirement 17 credits. To get the total of 17 credits other courses can be substituted with the civil engineering courses such as additional Surveying, CAD, Drafting, Computer and Geographic Information Systems courses. Other courses that could be allowed here would be Cartography, Photogrammetry, Planning, Geology, Geography, Astronomy, Dendrology, additional Mathematics or Science courses or other Civil Engineering courses.

Course	Credits
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Course	Credits
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Course	Credits
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Course	Credits
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Course	Credits
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Course	Credits
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Course	Credits
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Course	Credits
_____	_____
Total Credits	_____

To come up with a comparison for a BS related degree we must look over the current BS degrees that are accepted as BS degrees in Surveying and Civil Engineering. For the purpose of this paper the following degrees and schools were used for comparison.

1. University of Wisconsin Madison – Civil Engineering
2. University of Wisconsin Milwaukee – Civil Engineering
3. University of Wisconsin Platteville – Civil Engineering
4. Michigan Technological University – Surveying Engineering
5. Ferris State University - Survey Engineering
6. St. Cloud State University – Land Surveying and Mapping Science

Even though these degrees have different makeup for their courses they do have some common characteristics that we can build from. They all have common areas in certain subject areas with a range of credits as follows:

1. Mathematics: 13-21 credits
2. Science (Physics): 24-28 credits
3. General Education: 12-15 credits
4. Drafting–CAD-Computer-Geographic Information Systems-Engineering Graphics courses: 5-7 credits
5. Civil Engineering courses: 10-60 credits
6. Surveying: 3-48 credits

In items 5 and 6 there is a noticeable difference in that the Civil Engineering programs only have one 3 credit class in land surveying and that the surveying programs only have 10-15 credits of civil engineering classes. Most Civil Engineering programs do not offer

many land surveying courses anymore creating a problem for graduates to comply with the 24 credits of surveying coursework. The only way the 24 credits in land surveying can be achieved would be to take up the extra classes at a technical college.

In conclusion if we look at the association of the subject areas, a related degree should have the following minimum characteristics:

1. Mathematics – 13 credits
2. Science (Physics) – 14 credits
3. General Education - 24 credits
4. Drafting-CAD-Computer-Geographic Information Systems-Engineering Graphics – 5 credits
5. Surveying: By administrative code 24 credits are required.
6. Civil Engineering- 25 credits

To get the total of 25 credits in civil engineering, other courses can be substituted with the civil engineering courses such as additional Land Surveying, CAD, Drafting, Computer, Engineering Graphics and Geographic Information Systems courses.

Other courses that could be allowed here would be Cartography, Photogrammetry, Planning, Geology, Geography, Astronomy, Dendrology, Soils, additional Mathematics or Science courses or other Civil Engineering courses.

Summary of Education: Related Bachelor's Degree. An official transcript along with course descriptions must accompany this list.

Title of Degree: _____

Subject Area 1 – Mathematics – minimum requirement 13 credits.

Course	Credits
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Course	Credits
_____	_____
Course	Credits
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Course	Credits
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Course	Credits
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Total Credits _____	

Subject area 2: Science – minimum requirement 14 credits.

Course	Credits
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Course	Credits
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Course	Credits
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Course	Credits
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Total Credits _____	

Subject area 3 – General Education – Minimum requirement 24 credits.

Course _____ Credits _____

Total Credits _____

Subject area 4 – Drafting – CAD – Computer – Geographic Information Systems-

Engineering Graphics minimum requirement 5 credits.

Course	Credits
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Course	Credits
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Course	Credits
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Course	Credits
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Course	Credits
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Course	Credits
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Total Credits _____

Subject area 6: Civil Engineering- minimum requirement 25 credits. To get the total of 25 credits other courses can be substituted with the civil engineering courses such as additional Land Surveying, CAD, Drafting, Computer, Engineering Graphics and Geographic Information Systems courses.

Other courses that could be allowed here would be Cartography, Photogrammetry, Planning, Geology, Geography, Astronomy, Dendrology, additional Mathematics or Science courses or other Civil Engineering courses.

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Course	Credits
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Total Credits	_____
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