

# A National On-line Surveying Education

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# Why on-line?

- (1) Approximately 26 states require a 4 yr. degree for land survey licensure.
- (2) Not all states currently have an in-state 4 yr. degree in surveying.
- (3) Many current 4 yr. surveying degree programs are considered under-enrolled by their respective universities.

## Why on-line?

- (4) Relocation out-of-state is difficult for many high school graduates.
- (5) Working surveyors seeking licensure usually cannot quit work and go to school due to economic reasons.
- (6) There is usually a cost savings due to no re-location to the university.
- (7) An on-line certificate (18 cr.) of all surveying classes could help those with “other” undergraduate degrees attain licensure in some states.

## Forms of on-line

- (1) Hybrid – students log in via products like Adobe Connect or Zoom to watch a live lecture that is being taped for potential replay – close in format to a Go To Meeting..
- (2) True on-line – Lectures are compiled as usually mp4 files before class starts and available at any time for a student to play. Similar to YouTube.

Note a stored lecture can be replayed any number of times.

A live traditional lecture is not re-playable.

Professors are available during office hours via technology like Skype, Zoom, or Go To Meeting (or a phone call).

## Is On-line needed to be a remote student?

Lectures, handouts, homeworks, etc. could be provided on a USB memory stick and the need for on-line access to these products would be eliminated.

Interaction with a remote student could be by smart phone and not a traditional computer.

**BUT** on-line has become a standard as it works!

# Why University of Maine?

- (1) 4 year degrees in surveying since 1980. Currently 65 undergraduates seeking an undergraduate surveying degree exist. 273 BS degrees in surveying have been granted.
- (2) An on-line masters degree in surveying engineering already exists with 22 current graduate students.
- (3) Digital lectures already exist for 90% of the undergraduate surveying courses. These are currently used as review of live classes or as the lecture due to absence for brick and mortar students
- (4) On-line course options currently exist for 90% of required electives in the undergraduate surveying curriculum. The remainder could be taken at a local community college for transfer (physics for example).

# Why University of Maine?

- (5) University of Maine E tuition – out of state students enrolled in an on-line degree pay in-state tuition \* 1.25 (affordability for all)
- (6) Existing undergraduate program is ABET-ETAC accredited
- (7) ETAC accreditation has been granted for some on-line degrees (none in surveying yet – maybe soon!).
- (8) New England state land survey societies support the current surveying program financially.
- (9) The Industrial Advisory Committee of the surveying program supports the on-line education option.
- (10) 37% of graduates in the last ten years have not been residents of Maine.

# Why University of Maine?

(11) All surveying students are required to take the NCEES Fundamentals of Surveying (FS) exam as a prerequisite for graduation.

(12) The advantages of seeking professional licensure is part of the University of Maine experience.

(13) SVT graduates of the last 10 years have become licensed in Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, Texas, and Oregon.

(14) All faculty associated with SVT have been awarded the National Society of Professional Surveyors Earle J. Fennell award for their contributions to surveying education.



## **What about survey field labs?**

Mentor – The student will be responsible for coordinating with a local surveyor to access field equipment and provide assistance when necessary.

The University of Maine will provide all assistance materials so that the mentor will feel comfortable with their efforts.

## **Part of a mentor letter**

Dear supporter of surveying education at the University of Maine:

To support students who cannot come to Orono, we are offering our courses on-line. With that said it is obvious we need your help with the field component of our courses. This request from the student supplying you with this letter is for CET 101 Plane Surveying and would consist of 4 small exercises. If you feel you know the student and they have performed work of this type simply e mail me and I will waive the exercise for them.

## **How can NCEES help?**

(1) Advertising

(2) Communication

(3) A strong belief that this can work

## **Communicating with state survey societies already exists!**

Each year the University of Maine uses the 50 state societies to promote its on-line masters program.

Of the 22 current on-line masters students only three are from Maine!

The same communication can exist with the on-line degree.

## **NCEES model law surveyor**

**One requirement is a bachelors degree in surveying from an ABET accredited program.**

**Accreditation can begin when the first degree is awarded.**

**Eventually the on-line and “brick and mortar” degree will be accredited during one visit.**

**The recognition of a national on-line degree fits the model law as it provides a degree independent of the location of the student.**

2 + 2

The University of Maine surveying program currently has 42 transfer agreements with various community colleges across the Northeast.

The University of Maine efficiently supports transfer from all schools.

Thus a student can take courses elsewhere and transfer to the on-line program when appropriate.

## **Let's fix an existing dilemma.**

The average age of the licensed land surveyor in the United States is approximately 50.

The profession is in need of young educated professionals.

Surveying is a relatively small profession which cannot support 4 year degree programs in every state.

Currently approximately 20 BS degrees in surveying are accredited by ABET (2 states have 2 accredited programs).

Bring surveying education to the student.

## **Be careful with age dilemmas.**

- (1) Working older people should be considered positive!
- (2) Doctors in the U.S. have an average age of 52 (2014) and in two years the % of practicing 60+ doctors increased from 26 to 31%.
- (3) In Maine assume an average age of licensed surveyors of 55 and 524 PLS's. If 10 surveyors at age 70 drop their license and are replaced by 10 surveyors of age 30 the average age drops by 0.8 years (only if I do not increase everyone's age by one)!
- (4) Thus lowering average age of a population will take a long time to occur.



## **Thinking out of the box.**

Can on-line educational resources at University of XYZ be shared with a smaller struggling program at ABC state university?

Yes in a non-political world.

But can the economics of public education allow this to happen?

The \$25000 2017 and \$10000 2016 NCEES awards for surveying education to the University of Maine are being used to create this on-line surveying degree.

Thanks NCEES for your support.

The University of Maine has hired a consultant to verify the need for on-line education in surveying exists.

If you want input to the study via questions from the consultant e mail [ray.hintz@maine.edu](mailto:ray.hintz@maine.edu) and you will be added to the list of potential “commenters”.