



# FIG WORKING WEEK 2017

Surveying the world of tomorrow -  
From digitalisation to augmented reality

May 29 - June 2 Helsinki Finland



Presented at the FIG Working Week 2017,  
May 29 - June 2, 2017 in Helsinki, Finland

# ***TEACHING SURVEYING IN THE DIGITAL WORLD***

Paul F Kenny B.Surv, LS, G.Dip GIS  
Surveying Teacher  
Spatial & Surveying Department  
National Environment Centre  
TAFE NSW RIVERINA INSTITUTE

# ***TEACHING SURVEYING IN THE DIGITAL WORLD***

## **Discussion**

1. Introduction
2. Course structure
3. Online study
4. Is online study for everyone?
5. What can go wrong?
6. Government views on online study
7. Where to from here?
8. Conclusions



# ***TEACHING SURVEYING IN THE DIGITAL WORLD***

## ***1. Introduction***

- Reviewing the teaching of surveying.
- What can we learn from the “Old Days”
- Can traditional surveying be taught in a digital world?
  - Online
  - Face to face
- What can TAFE (Technical and Further Education) offer in this outside environment?
- Who is the audience?



# ***TEACHING SURVEYING IN THE DIGITAL WORLD***

## ***1. Introduction (cont.)***

- Advantages of online study



# ***TEACHING SURVEYING IN THE DIGITAL WORLD***

## **2. Course Structure**

### **Core units**

**Store and retrieve spatial data**

**Collect basic GNSS data**

**Read and interpret image data**

**Operate surveying equipment**

**Perform surveying computations**

**Produce computer aided drawings**



# ***TEACHING SURVEYING IN THE DIGITAL WORLD***

## ***2. Course Structure (cont.)***

### **Elective Units**

- **Develop** teams and individuals
- **Manage** projects
- **Promote** team effectiveness
- **Implement** and monitor environmentally sustainable work practices.
- **Facilitate** effective teamwork
- **Facilitate** effective workplace relationships.



# ***TEACHING SURVEYING IN THE DIGITAL WORLD***

## ***2. Course Structure (cont.)***

### **Elective Units**

- **Maintain** workplace safety in the property industry.
- **Organise** field services.
- **Organise** equipment and supplies.
- **Plan** and conduct survey expeditions.
- **Participate** in spatial process improvement.





# ***TEACHING SURVEYING IN THE DIGITAL WORLD***

## ***2. Course Structure (cont.)***

### **Elective Units**

- **O**perate spatial software applications.
- **P**repare and present GIS data.
- **D**esign a database.
- **A**pply site risk management system.





# ***TEACHING SURVEYING IN THE DIGITAL WORLD***

## ***2. Course Structure (cont.)***

How can this be achieved?

- Skilled teachers



# ***TEACHING SURVEYING IN THE DIGITAL WORLD***

## ***2. Course Structure (cont.)***

How can this be achieved?

- Committed students



# ***TEACHING SURVEYING IN THE DIGITAL WORLD***

## ***2. Course Structure (cont.)***

How can this be achieved?

- Embracing employers



# ***TEACHING SURVEYING IN THE DIGITAL WORLD***

## ***2. Course Structure (cont.)***

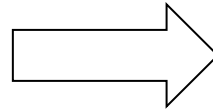
How can this be achieved?

- Reliable IT infrastructure



# ***TEACHING SURVEYING IN THE DIGITAL WORLD***

## ***3. Online study***



**Have I made the right decision?**

**Do I have the time?**

**What do I have to give up?**

**How long will it take?**

**Do I have the necessary skills?**

# ***TEACHING SURVEYING IN THE DIGITAL WORLD***

## ***3. Online study (cont.)***

### **Advantages**

- **Do not have to attend classes.**
- **Can continue to work and earn money.**



# ***TEACHING SURVEYING IN THE DIGITAL WORLD***

## ***3. Online study (cont.)***

### **Advantages**

- **Continue to learn on the job.**
- **Attend survey camps as required.**
- **Continuous training**





# ***TEACHING SURVEYING IN THE DIGITAL WORLD***

## ***4. Is online study for everyone?***

**Short answer – No.**

- Online is undertaken at home or workplace. In the workplace mentors are available.
- Online is not restricted to certain hours as many students arrange online chats for different times of the day.



# ***TEACHING SURVEYING IN THE DIGITAL WORLD***

## ***4. Is online study for everyone? (cont.)***

**Short answer – No.**

- Teachers can be available on a wider time frame.
- Assignments can be checked, marked and potentially back to the student much quicker.



# ***TEACHING SURVEYING IN THE DIGITAL WORLD***

## ***4. Is online study for everyone? (cont.)***

**Short answer – No.**

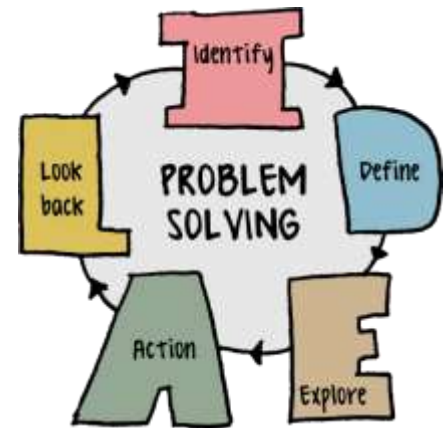
- Material can/ is being updated on line on a regular basis and referred to students quickly.
- Online is available anywhere provided you have Internet access and a computer.



# TEACHING SURVEYING IN THE DIGITAL WORLD

## 5. What can go wrong?

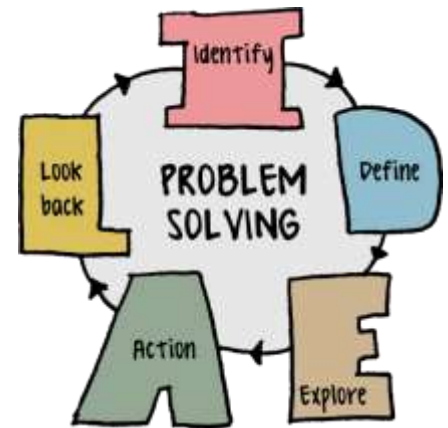
- Students asking other people to do their assignments. Tough one to monitor in an online program.
- Students not being able to attend training camps because they cannot afford to travel to the site, their employers will not allow time to attend or they think they know it all.
- Students not being able to enrol quickly and effectively.
- Students not being able to access assignments, materials, etc.



# TEACHING SURVEYING IN THE DIGITAL WORLD

## 5. What can go wrong? (cont.)

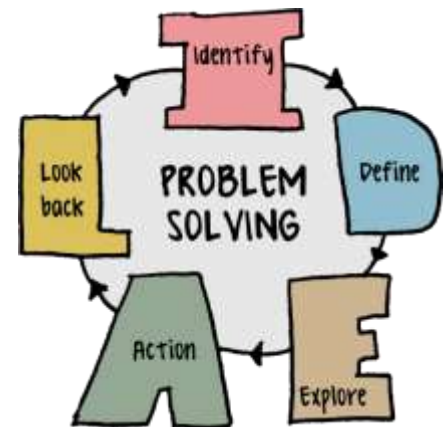
- Equipment failures during training camps.
- Lack of equipment for training camps. Funding issue.
- Part time teachers; not their quality but having commitments elsewhere.
- Small numbers of teachers is an issue in that they need to take leave, unable to attend due to illness.
- Having to cover a wider part of the course than they have experience or qualifications in.



# ***TEACHING SURVEYING IN THE DIGITAL WORLD***

## ***5. What can go wrong? (cont.)***

- Students wanting to start a course at times other than at enrollment time. If they are willing to study then it is the writer's belief that they should be taken aboard.



# ***TEACHING SURVEYING IN THE DIGITAL WORLD***

## ***6. Government views on online study.***

The players in this show are:

- Government management and funding.
- Teaching staff skilled in professional areas.
- Students willing to commit to online study.
- Employers willing to commit to mentoring and funding training.





# ***TEACHING SURVEYING IN THE DIGITAL WORLD***

## ***7. Where to from here?***

***Riverina TAFE has made a clear commitment to  
delivering online studies in a variety of areas***

Areas of improvement

- Continually updating material as new concepts are developed in various professions.
- Developing short courses to meet industry needs, and value-add the full qualifications that are on offer.

# ***TEACHING SURVEYING IN THE DIGITAL WORLD***

## ***7. Where to from here? (cont.)***

- Ensuring industry is involved in the development and validation of training.
- Improvements in communication through IT solutions.
- Site visits as required to meet students and employers in order to gain ongoing knowledge into the various industries.

# ***TEACHING SURVEYING IN THE DIGITAL WORLD***

## **7. Where to from here? (cont.)**

- Running face to face sessions to enhance online training.
- Teachers maintain skill sets through professional training and application.
- Adequate funding provided to maintain necessary equipment for face to face training sessions.

# ***TEACHING SURVEYING IN THE DIGITAL WORLD***

## **7. Where to from here? (cont.)**

- Improved online registration of students.
- Ongoing improvement of websites for promoting online courses.
- Industry participation in promoting online courses.
- Management buy in of courses.



***“Failure is not an option”***

# ***TEACHING SURVEYING IN THE DIGITAL WORLD***

## ***8. Conclusion***



**“Develop a passion for learning. If you do, you will never cease to grow”**

**Anthony J D'angelo**

TAFE NSW TEACHING SURVEYING IN THE  
DIGITAL WORLD