

**National BILT Meeting – GIS – March 4, 2015**  
**Meeting Minutes**

**Student Learning Outcomes**

JJ Nelson – The first item has to do with the student learning outcomes. We were looking at bringing in 5-6 student learning outcomes that would be specifically geared towards the 5-7 GIS classes. Geospatial technology encompasses so many different areas: GIS, GPS, GNSS, all the different analysis aspects, applications, and so on. But the early classes (primarily GST 101-105) deal with the basics. We are going to incorporate that within our program and on our website. We took a great deal of information in regards to the KSAs and the different specifics that are covered in the SLOs for each of the courses (the GST 101-105). These follow the GTCM course outline and guidelines established by GeoTech and NISGTC. We had to glean from that a version that would be broad but concise. If you want to take a look at it and send us your thoughts that would be great. Any questions?

Demetrio Zourarakis – So #1-6, right?

JJ Nelson – Yes, we wanted to keep it at 5 but decided to expand to 6 because we thought we needed some of the soft skills and also areas of ethics and professionalism within the field. I know they've outlined those specifically in the GISCI.

Demetrio Zourarakis – Looks good.

JJ Nelson – Originally, when coming up with this, I whittled it down to 15, then to 9. We worked on what we could get rid of, what we could add, and a descriptor that would cover a wider area. This covers the basic intro courses: Introduction to GIS, Introduction to Rasters & Remote Sensing, Intermediate GIS, Data Acquisition and Analysis, Principles of Cartography and so on. This is an overall program level of learning outcomes. Each of the courses will have SLOs either in the syllabi or the course descriptors that we have online.

Christina Titus – JJ, this is Christina. Can you please explain what you are going to use these for so that they can understand better what it is you are asking them to do?

JJ Nelson – We were tasked by our college and our department with looking at the particular program paths we have and coming up with overall student learning outcomes (6 or fewer) that would be an overall capture of the program. These courses would be at least 2 MSAs, maybe even a certificate. Of course additional courses would come into play when you're talking about degrees and such.

We wanted to make sure that the student learning outcomes would be an overall assessment of the skills and knowledge the students acquired. This was what we produced in reference to making student learning outcomes for different paths within our computer science department. Any questions on that?

Demetrio Zourarakis – JJ, do we have a link to the correspondence for GSC 101?

JJ Nelson – Yes, you should have access to that from our previous meetings, but I'd be more than happy to send the link to the NISGTC NTER site.

Christina Titus – I've been writing a summary of what you said and what you would like them to do. I will put all that together with this attachment and the link and send to all the BILT members for their responses.

### **Take Flight with High Tech Power Point presentation**

JJ Nelson – This is basically an overall compendium in the simplest terms.

### **The Potential Addition of UAS to Geospatial Technology Programs**

JJ Nelson – Del Mar College, via the NSF and GeoTech, developed the GTCN model. Then through the NISGTC grant, we utilized the GTCM course guidelines and produced the GIST courses 101-105. Those first courses were developed utilizing commercial software such as ESRI and RGIS. Then we moved into the establishment of the same content and course material but utilizing the labs' open source, the QGIS and the graphs. That's been pushed out to the public and we've had a lot of success with that in our online courses. We're seeing a lot of things change as we move toward the future. Geospatial technologies incorporate GIS, remote sensing, and global network satellite systems. But now with the advent of UAS and some of the new regulations, that area needs to be reviewed in regards to course development. It's certainly not going to happen in the next 6 months, but it's something that we are looking at in our GIS courses, our remote sensing courses and our overall geospatial technology NSAs and certificates.

### **GIS Day of Coastal Bend AR Drone**

We've been introducing the public to some of the simpler UAS demonstrations with hobby-oriented craft, strictly for demonstration purposes.

### **Teach the Teacher to Teach Geospatial Technology**

We also want to incorporate what we've been doing with the GIS classes. There are going to be different levels of expertise and different uses whether it's commercial, hobbyist or educational. We want to incorporate some of that within our already existing "Teach the Teacher to Teach Geospatial Technology." We've had good success with that.

### **Seamless Transition, Stackable and Articulated: Current Dual Credit Offerings**

Our concept is a seamless transition with stackable MSAs (Marketable Skills Awards) and also certificates and degrees articulated to programs. This will be offered for students, whether they decide to go into the work force immediately, or go to a 4 year university, or maybe choose to work for a while in the field and acquire workforce experience. A number of our courses have already been utilized as dual credit to develop work force, both as continuing education and as college classes.

### **Stackable Awards and Certificates**

We have two marketable skills awards: GIS Tech I and GIS Tech II. We have our new GITE MSA, the GIS IT Essentials Technician (developed as part of the NISGTC) and some of the NISGTC fast-track IT courses we established as the Intro to Computers, Intro to PC Operating systems, Intro to Database, Intro to Logic and Programming and Intro to GIS classes. These were used as

Technology Bridge Courses, to bring people into immediate employment, further college courses or get them into continuing education courses in other areas. There are also the ITEG certificate, the GISC certificate, the AS degree and the AAS degree; #1-5 feed right into the CSGS AAS, basically our GIS AAS degree. Those are all steps to acquire those awards and certificates. Not only are the students acquiring knowledge and skill sets on the way to employment with 1 MSA or 2 MSAs, they may be adding it to their tool chest when they already have a job. This gives them the ability to build those certificates into an AAS degree. We are developing core substitutions and articulation agreements specifically with our GIS courses and individual GIS programs at some of the local universities. We've already established an understanding in regards to GISC, computer science and IT course substitutions with Texas A&M Corpus Christi. We have developed formal articulation papers for that so we can put that into formal documentation. We are doing the same with Texas A&M Kingsville. Their GIS program is through their Geosciences, whereas Texas A&M Corpus Christi is through their Surveying, Engineering and Computation division. Once we complete that, we will do the same with UTSA, Texas A&M and Texas State San Marcos. We established a path with students that have entered into the GIS programs at these universities from our program or we have students who plan to go shortly. That's why we are moving pretty rapidly towards this.

#### **PEIMS codes: Dual Credit Courses and Articulation**

Many students now have been tasked to take dual credit classes while in high school, and having those GIS courses already as pre-existing PEIMS coded courses assists that a great deal. They will get their high school credit as well as their college credit. We are looking at lobbying the Texas State Board of Education and Workforce Development to not only add coded courses to match our GST 101-105, but then to make the necessary updates to the existing GIS PEIMS coded courses.

#### **UAS Joint Program Development**

One of the things we are looking at doing is teaming up with Texas A&M Corpus Christi and developing our existing marketable skills awards for students that complete the GIS Tech 1 and part of 2. They can then move forward into what will be established and potentially developed UAS courses. This is yet to be produced, but this is something we'd like to move toward in the future. We believe, and I think all the evidence shows, that UAS is going to be utilized not only in surveying and engineering, but in commercial use in regards to structures and infrastructures, borderline security, forestry, cropland, and wildlife management. There are going to be a lot of needs. This is an example of how we are going to adjust our MSAs to potentially meet that need. All we are really looking at doing is making it an "either/or" for Tech-I. It will be the 1421 or 1491 depending on the path the student wants to take. The 1421 is a Remote Sensing Raster course. The 1491 is a Principles of Cartography course.

#### **Proposed NSFGIS – UAS Tech-II MSA**

This is an example of what we may do in regards to a Marketable Skills Award that would be produced next fall, next winter or maybe the following spring. These would be the courses that would be involved in it -- it's important to capture what the needs are in the industry and how to meet those and be ahead of the curve.

### **Proposed DMC UAS Certificate**

This is an example in regards to UAS and Higher Education and how to incorporate it at the university, for instance Texas A&M Corpus Christi, then incorporating those same MSAs as dual credit.

### **UAVs**

This is the EB, the one with the fixed wing UAVs. For the size and the ability, it does extremely well for land cover and land use especially. The high-resolution photos are quite extraordinary and the navigation utilizing GPS in the software is remarkable. That's why we're teaming up with Texas A&M Corpus Christi, which is one of the seven UAS research areas in the United States, and also Lone Star, part of Texas A&M Corpus Christi.

### **UAVs: Quads, Multi and Fixed Wing and Payload Level of Competency**

UAVs include a multitude of different types of craft: quads, multi-wing, octo and fixed wing. Training should cover payload, elevations, speed, and hours in the air. This is going to be an ongoing process and we want to be ahead of the curve on that.

### **Map Your Career with Geospatial Technology**

Other than the student learning outcomes, I wanted to go over some of the ideas we were looking at in regards to workforce development, and articulation agreements for students who want to go further in their education. They are not going to lose any steam, and if they go to a 4 year their courses will transfer over.

Demetrio Zourarakis – A lot of good information. Thank you.

JJ Nelson – Thank you. With the NISGTC grant we have been able to develop not only the continuing education courses but these GIS courses that are now being rolled out both as commercial and open source. Now we're looking ahead at articulation, which is the next step.

Christina Titus – JJ, why don't you move on and have the BILT discuss the new trends that they see? You led the way for that.

JJ Nelson – Okay, that's a great idea, thank you. Would any of my colleagues out there like to express what they see as some of the new trends?

Demetrio Zourarakis – We hear a lot about open source, trends in software in the industry, and ESRI and Google. People are watching all this.

Phil Davis – Demetrio, I got a call the other day from a gentleman up in Austin. He works with Parks and Wildlife and he's looking to train a lot of their field people using QGIS open source. I thought that was interesting.

Demetrio Zourarakis – Yes, we hear that people are using it around here. Today we had a conversation with the Kentucky GIS Conference Planning Committee and that was mentioned as a potential track for conference.

Phil Davis – We started development today on a new set of QGIS courses. We’re going to redevelop the five that we’ve got under the 2.8 that was just released, so those will be ready in about three weeks.

Demetrio Zourarakis – Is WIEN the new 2.8? They labeled it with the name of a city I think. I’m looking forward to that. People are trying to use any tools they can to get the job done without paying a tremendous amount of money. Another thing is, Google’s map engine is going away but Google’s earth engine is staying. That is a platform we can use as an entry point (Google Earth Pro) to help people understand it.

Phil Davis – In the online courses that we are offering right now, I get quite a few people from the Midwest: Kentucky and Tennessee and that area. People are signing up for those QGIS courses.

Demetrio Zourarakis – We had Dr. Matt Zook from University of Kentucky’s Geography Department invite Anthony Robinson from Penn State, the “MOOC Master.” He was showing a presentation on the demographics of global participation on the MOOC maps course he has. I was wondering if you guys have any map that shows who is taking the courses online?

Phil Davis – At present I don’t, but when it’s over here on March 23<sup>rd</sup> I’ll approach the campus and see if they can provide us with that map. Right now we have 4,400 people enrolled in it.

Demetrio Zourarakis – That’s good. From all over the world or just the U.S.?

Phil Davis – All over the world.

Demetrio Zourarakis – The presentation was taped so I’m going to make it available on a link so the group can see it.

JJ Nelson – Mobile GIS and cloud computing are already encompassed within a lot of the GIS instruction. I would like to utilize more of the open source map across NGOs and CVOs. I give my students a little introduction into it but I’m still concentrating on ESRI, AGOL, AGOX, and later some of the open source.

Demetrio Zourarakis – I had a question yesterday regarding Google Map Maker and I had to really dig into that to see the capabilities of what we know and use. That is an increasing problem. A lot of people are using different things and they don’t know how to move from one platform to the next. The person should be proficient in at least the basics of interoperability.

JJ Nelson: That’s a good point, conversion between different platforms.

Demetrio Zourarakis – I'm bringing in services that are generated with OGC compliant or ESRI compliant.

JJ Nelson – Even AutoCAD Micro Station gets conversion to feature classes and CHA files.

Demetrio Zourarakis – If you have all these articulation agreements with the universities in Texas, the engineers will want to know how to consume special data without learning GIS.

JJ Nelson – It's advantageous for students to take a drafting AutoCAD class, either through the drafting or engineering department. I show them the RPIS application they can install on their AutoCAD and also show them the AutoCAD app they can install on their GIS. That way they can go back and forth.

Demetrio Zourarakis – That was my question exactly.

JJ Nelson – A lot of employers like the fact that a student has knowledge in both arenas. Miss Titus has sent you the link to some of that course material so you can look at each of the specific courses and their SLOs. Then you can look again at the list of the general 6 that we made that encompasses all of GST 101-105. If you have any suggestions or ideas, please put it in a document and send it to us.

Christina Titus – The next BILT meeting will be in June. I know Salt Lake is on the phone if they want to give an update of what's going on with their GIS program.

Adam Dastrup – Not much change to our program since the last BILT meeting. We got approval to retroactively recognize the ESRI credentials and certificates that we use. We have been compiling those. We have over twenty-something for this semester and now we're going back and acquiring from previous semesters, so they will also get a certificate from the college recognizing the credential. We are just trying to solidify and strengthen the existing program for now.

JJ Nelson – I always like hearing from you. You do wonderful work out there. I like seeing what you post on the Geospatial Technology site. Thank you.

Adam Dastrup – You're welcome. The only way that we've branched out is that now all of our Geography courses are using RGIS online, so we've basically integrated some form of GIS into every course that we offer here.

JJ Nelson – Well that's great and I hope to do the same. I'm going to bring GIS back to Geography in their department. I think we've done enough work with them, been very open with them and worked together in a number of different capacities.

Demetrio Zourarakis – The type of articulations that you have shown that happen in Texas, are they happening in other states where other colleges are based?

JJ Nelson – I can only attest to the GIST courses that we've produced and some of our partners have utilized, such as Laredo and Austin Community College. Now is my time within my region to start pushing those core substitutions and articulation agreements. If we catch some wind

behind our sails, I am certainly going to make that information available to my partners on other campuses in other states. That way they will see that the GST courses that were developed following the GTCM model maximized the potential for articulation agreements.

Demetrio Zourarakis – When will this PowerPoint presentation be available to us?

Christina Titus – I haven't sent it yet. I will send it after the meeting. You shared a little bit more about the articulations with some of the other colleges. Collin has set an articulation with a 4 year for some of our RGIS. I know Moraine Valley has done so as well with American Centennial, I believe. Salt Lake is working on theirs as well. Other partners in our grant who have GIS have been doing articulations for their programs.

JJ Nelson – It's always a slightly different ballgame in regards to the different four years. A lot of the basics are, of course, the same. Many of those programs don't begin their GIS studies until the 3000 or 4000 level.

Demetrio Zourarakis – Yes, we have that situation.

Christina Titus – If no one has anything else to discuss about current trends or GIS, then we can call the meeting to an end. Once we have a date for June I will send out a save-the-date so that gets on everyone's calendar.

JJ Nelson – All right everybody, thanks for taking time out of your day to work with us.