NOTICE OF
UNIVERSITY ORAL

GEODESY AND GEOMATICS ENGINEERING

Master of Science in Engineering

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Thursday, November 5, 2015 @ 9:30 am

Head Hall – Room E-13

Board of Examiners: **Supervisor:** **Dr. Yun Zhang, Geodesy & Geomatics Eng.**

Examining Board: **Dr. Emmanuel Stefanakis, Geodesy & Geomatics Eng.**
Prof. Glen Jordan, Forestry & Environmental Mgmt.

Chair: **TBA**

Rasterizing Map Vector Data from Various Databases for 3D Visualization

ABSTRACT

The current pace of technological innovation in online mapping offers new opportunities and creates new challenges for experts in this area including web cartographers. The continual development of 3D mapping applications and solutions produces a fundamental tension: the more widespread 3D mapping options become the more essential it is to advance visualization techniques of geospatial data. Currently, variety of software is capable of handling a wide range of spatial problems, beginning with approaches for describing spatial objects to quite complex analysis and 3D visualization. Among all types of systems dealing with spatial information, GIS has proven to be the most sophisticated system that operates with the largest scope of objects (spatial and semantic), relationships and provide means to analyze them. However, an increasing number of applications need more advanced tools for representing and visualizing the 3D world. To address this absence a software package capable of visualizing satellite images is developed at University of New Brunswick. The project aim is to design and implement a methodology for 3D visualizing of contextual GIS layer on top of the existing EarthView3D platform which can visualize satellite images in 3D using combination different layers of geospatial data. This project investigates different options for visualization, investigates different tools and techniques for rasterizing vector data and implements a processing procedure for making the data 3D ready. In addition, the cartographic considerations for 3D visualization were discussed and an algorithm for improving the 3D distortion is proposed. The developed solution is then used for 2 large and small scale case studies which are visualized in 2D in this document.

Faculty Members and Graduate Students are invited to attend this presentation.