SGHG3583 GIS SOFTWARE SYSTEM
MGHG1544 GIS APPLICATION DEVELOPMENT

Lecture #1: Introduction

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Synopsis of the Course

- This course is designed **to introduce the concept and architecture of GIS software system**.
- This course will cover from the **intermediate knowledge to advance usage of the GIS software** for the purpose of GIS analysis and application.
- **Several commercial and non-commercial GIS software and software vendors** will be discussed.
- This course will offer knowledge in **developing small scale of GIS software/application** in handling some related GIS project.

Synopsis of the Course *(cont.)*

- This course will put **a greater emphasis on the exercise, handling and managing spatial GIS data using various GIS software**.
- Hence, students are expected to gain:
  - An understanding of the **technologies**, **architecture** and **development** of the GIS software;
  - Ways of **processing** the spatial data by utilizing the GIS software and
  - To demonstrate **abilities of spatial thinking to solve spatial problems** by utilizing the GIS software system and development.

Course Outcome

CO	Course Outcome (CO)	PO	TAXONOMI TYPE (Cognitive, Affective, Psychomotor)	Active Verb	Level	Assessment	KPI
01	Able to identify and describe the architecture of major (selected) GIS software product	PO1	COGNITIVE	Identify & Describe	Knowledge & Comprehension	Test & final exam	0.65
02	Able to carry out the capability of GIS software (operation and analysis)	PO2	COGNITIVE	Carry out	Application	Test & final exam	0.65
03	Capable to operate (under supervision) and demonstrate the main functions of GIS software (data input; data storage & management; data manipulation & analysis; data output) and developing a GIS software application and extension	PO3	PSYCHOMOTOR	Operate & Demonstrate	Guided response & Mechanism	Laboratories & projects & final exam	0.65
04	Ability to analyze and construct solution to any given problem related to geospatial data utilizing GIS software – handling skill	PO5	COGNITIVE	Analyze & Construct	Analysis & Synthesis	Problem base exercises, test & final exam	0.65
05	Able to become lifelong learner to seek new knowledge and continuously developed information management skills in GIS Software Systems	PO7	AFFECTIVE	Adopt	Valuing	Assignments	0.65

Lecture Schedule

Lecture	Content
1	Introduction to the course
2 - 4	The evolution of GIS software Architecture of GIS software Building GIS software systems Types of GIS software systems
5	GIS Software Vendors
6	GIS Software Development Kit
7 - 8	Free and Open Source GIS (FOSS4G)
9	GIS Software Extensions
10	Low-Cost GIS
11	Mobile GIS
12	Revision and Future Trends of GIS Software

Laboratory Schedule

Lab Session	Contents
1	ArcGIS 10.2.1 installations & ESRI Virtual Campus
2	Digital Generalisation and VB6
3	VB6 Tutorial and Exercises
4	Review of Proprietary GIS Software
5	FOSS4G & OSGeo
6	Quantum GIS
7	ArcGIS Extensions using Visual Studio 2010
8	ArcGIS Online
9	Mobile GIS

Workload and Grading

No.	Assessment	Number	% each	% total	Dates
1	Assignment	2	5	**10**	
2	Project	2	10	**20**	
3	Laboratory	4	2.5	**10**	
4	Test	2	10	**20**	
5	Final Exam	1	40	**40**	
	Overall Total			**100**	

Student Learning Time

Teaching and Learning Activities		Student Learning Time (hours)
1.	Face-to-Face Learning	
a.	Lecture-Centered Learning	
i.	Lecture	20
b.	Student-Centered Learning (SCL)	
i.	Laboratory/Tutorial.	28
ii.	Student-centered learning activities – Active Learning, Project Based Learning.	8
2.	Self-Directed Learning	
a.	Non-face-to-face learning or student-centered learning (SCL) such as manual, assignment, module, e-Learning	35
b.	Revision	16
c.	Assessment Preparations	6
3.	Formal Assessment	
a.	Continuous Assessment	4
b.	Final Exam	3
Total (SLT)		120

Teaching Methodology

- Lecture and Discussion
- Laboratory Tutorial/Exercise
- Co-operative Learning
- Independent Study
- Group Project
- Group Presentation

Website References

- http://www.esri.com (ESRI software)
- http://webhelp.esri.com (ArcGIS Desktop Help)
- http://arcscripts.esri.com (ESRI ArcScript download)
- http://www.rsandgis.com (ArcView GIS)
- http://extranet.mapinfo.com (MapInfo)
- http://tutorials.mapinfo.com (MapInfo)
- http://www.goldensoftware.com/supportvideo.shtml (Surfer Software)
- http://www.oceanteacher.org (list of GIS software)

Tools

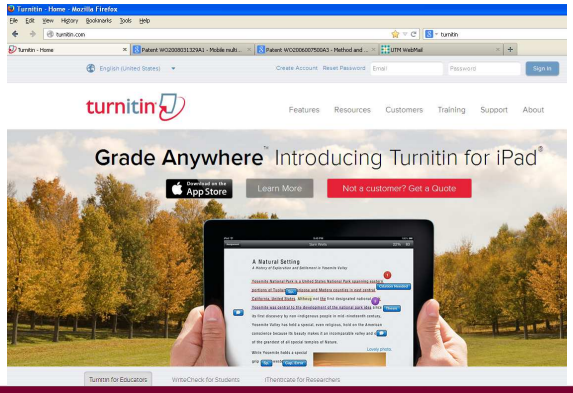
- ESRI ArcGIS V10.2.1 or latest (http://www.esri.com/software/arcgis)
- QGIS V2.4 (http://www.qgis.org)
- Microsoft Visual Basic V6 + MSDN V6.0a
- Microsoft Visual Studio 2010
- Good and fast PC/Notebook/Laptop – Win/Mac
- Fast and stable Internet connection
- Good friends and project partner
- Time management

Rules

- Regular and punctual **class attendance** is required of all students in this course. Attendance sign-in sheets shall be used, and students have the responsibility for making sure that they sign the sheet.
- No student may miss more than twenty percent (20%) of the **class meetings** in this course.
- For all **late work** submitted with no prior formal approval, or insufficiently acceptable reason for lateness, then **a penalty of 20% on the mark actually achieved** will be imposed for each day the assignment is late until 0% is reached.

Rules *(cont.)*

- **Self plagiarism check** on report/assignment
  - Should not more than **20% of similarity index**
  - Using **turnitin** website



To do (1):

Read an article about **Information Services, Geography** by Bin Li, Department of Geography, Central Michigan University.

Download from this link:
https://dl.dropboxusercontent.com/u/176829/SGHG3583-MGG1544-InformationServices.pdf

To do (2):

Read an article in a blog titled **Spatial Career Guide – 5 Key Skills for Future GIS Software Developers.**

Visit this link:
http://www.justinholman.com/2012/03/29/spatial-career-guide-5-key-skills-for-future-gis-software-developers/

Resources

- **UTM e-learning website**
  - to download lecture notes, laboratory instructions, etc.
- **fght.utm.my/shahabuddin**
  - tips
  - extra knowledge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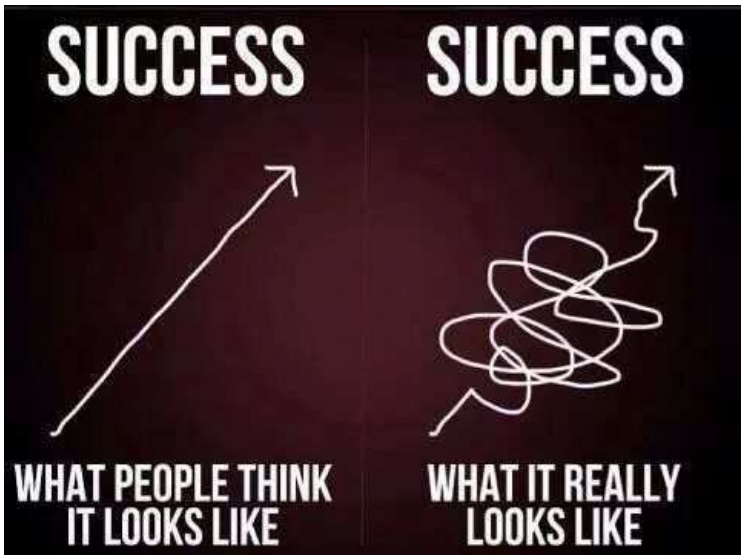
SUCCESS
SUCCESS
WHAT PEOPLE THINK IT LOOKS LIKE
WHAT IT REALLY LOOKS LIKE


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TROLL PANTAI TIMUR
AKHIR SEM
SEM DEPAN JE LA WAK SUNGGUH2

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