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What is the *Subject Diagnosis Tool*?

The *Subject Diagnosis Tool* is designed for educators to assess their own subjects, whether they have spent enough time on what they deem to be important in the subject and if there is a specific requirement or adjustment focus on their subjects. It helps in narrowing focus of subject and reducing possibly unnecessary resources spent on topics that may not be beneficial towards the development of student's knowledge

Expected desirable outcomes

For Educators:

- ❖ To assess the condition of their own subject
- ❖ To be able to compare with other educators regarding the conditions of their subjects
- ❖ To have a better understanding of the distribution of time and effort placed on various topics of their subjects

Design of the *Subject Diagnosis Tool*

The *Subject Diagnosis Tool* is designed as a self-assessment tool, a tool for profiling the subject/course/programme in order to have a better understanding of the allocation of time and the Educator's perception within a chosen subject/course/programme. It can be used for a single subject, a course (specialism) or a programme. There are currently 2 versions of the *Subject Diagnosis Tool*:

Fixed Version: Enables Educators to compare their course with the characteristics and elements identified to be important in Geospatial Education. Users of this version can interact with the tool via the input of Level of Understanding required for the particular topic/ subject/ course/ programme, Perceived Importance and amount of Allocated Hours (including lectures, lab times, and tutorials) per week.

Topic, Subject, Course or Programme information.

Pre-set descriptors, cannot be changed.

To CLEAR all input in the particular column or CLEAR ALL input within the file.

Input details of study then *Diagnose* its status.

Expected Level of understanding Students can achieve.

Perceived Importance of a particular skill/knowledge.

Amount of total Contact Hours the Student receives (including, but not limited to, tutorials, lectures, student appointments).

Level of Understanding	Describe, analyze, hypothesize & justify (new) knowledge	Perceived Importance	Allocated Hours (per week)
3	Analyze, theorize, hypothesize & justify (new) knowledge	3 High	3
2	Compare & explain theories	2 Medium	2
1	Demonstrate comprehension & application of knowledge	1 Low	1
0	Recall knowledge, do simple procedures & calculations	0 Not Applicable	0
Not Applicable	Not Applicable	Not Applicable	Not Applicable

Course/Subject: Please Select

Item	Description	Level	Perceived Importance	Allocated Hours
DGMSkill02	How data is gathered and technologies involved	CLEAR	CLEAR	CLEAR
DGMSkill03	Plan for and the execution of processes to gather data	CLEAR	CLEAR	CLEAR
DGMSkill04	Manipulate and transform the data to fit the needs of the scope of work	CLEAR	CLEAR	CLEAR
IMSkill01	Concepts related to image/map reading and production	CLEAR	CLEAR	CLEAR
IMSkill02	Symbology, terms, colours and its effect on visualization and interpretation of maps and images	CLEAR	CLEAR	CLEAR

Buttons: CLEAR, CLEAR ALL

Input: Diagnose

Customizable Version: Enables Educators input their own descriptors, allowing higher levels of customization, but still allows Educators to compare how their course/subject/topic/programme is performing. Though it has higher flexibility, it requires higher amounts of user input.

Subject/Course information

Expected Level of Understanding (L1-L4)
Students can achieve.

Perceived Importance (0-3)
of a particular skill/knowledge.

Amount of total Contact Hours
the Student receives (including, but not limited to, tutorials, lectures, student appointments).

Identify the type of Knowledge
(Foundation, Core, Specialised) categories based on the Geospatial Curriculum

Input details of study then Diagnose
its status.

Descriptor for the item.

Identify how the topic is taught and/or learnt
by students

Indicate the types of skills
the particular topic is attempting to cultivate in students

Foundation/ Core/ Specialized	Area	Topic	Description (e.g., Key Concepts, Key Messages, Intentions, Outcomes)	Mode of Teaching/ Learning	Skill Set	Expected Level of Understanding	Level of Perceived Importance	Allocated Hours (Per Week)

Expected Level of Understanding:

- L4 Analyze, theorize, hypothesize & justify (new) knowledge
- L3 Compare & explain theories
- L2 Demonstrate comprehension & application of knowledge
- L1 Recall knowledge, do simple procedures & calculations

Perceived Importance:

- 3 High
- 2 Medium
- 1 Low
- 0 N/A

Allocated Hours (per week):

- 3 >= 5 Hours allocated contact hours
- 2 = 4 Hours allocated contact hours
- 1 <= 3 Hours allocated contact hours
- 0 No hours allocated

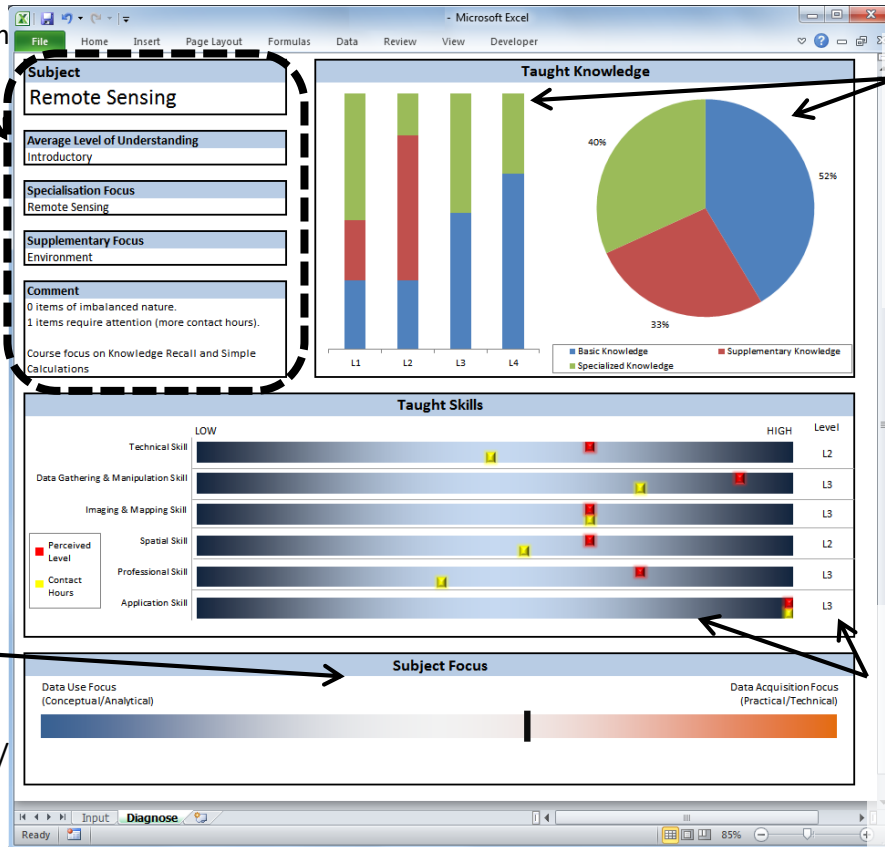
How to use the *Subject Diagnosis Tool*

This tool can help educators visualize how their subjects/course/program is faring and allows educators to compare their own subjects with the status of other subjects with ease regardless of the specialty/discipline.

Fixed Version

NB. Assumes the assessed Topic/Subject/Course/Programme is Goespatial based.

Description from computer diagnosis.



Comparison of level of taught knowledge with the amount of time spent and the composition of knowledge at each level

Computer diagnosis of focus of Topic/ Subject/ Course/ Programme

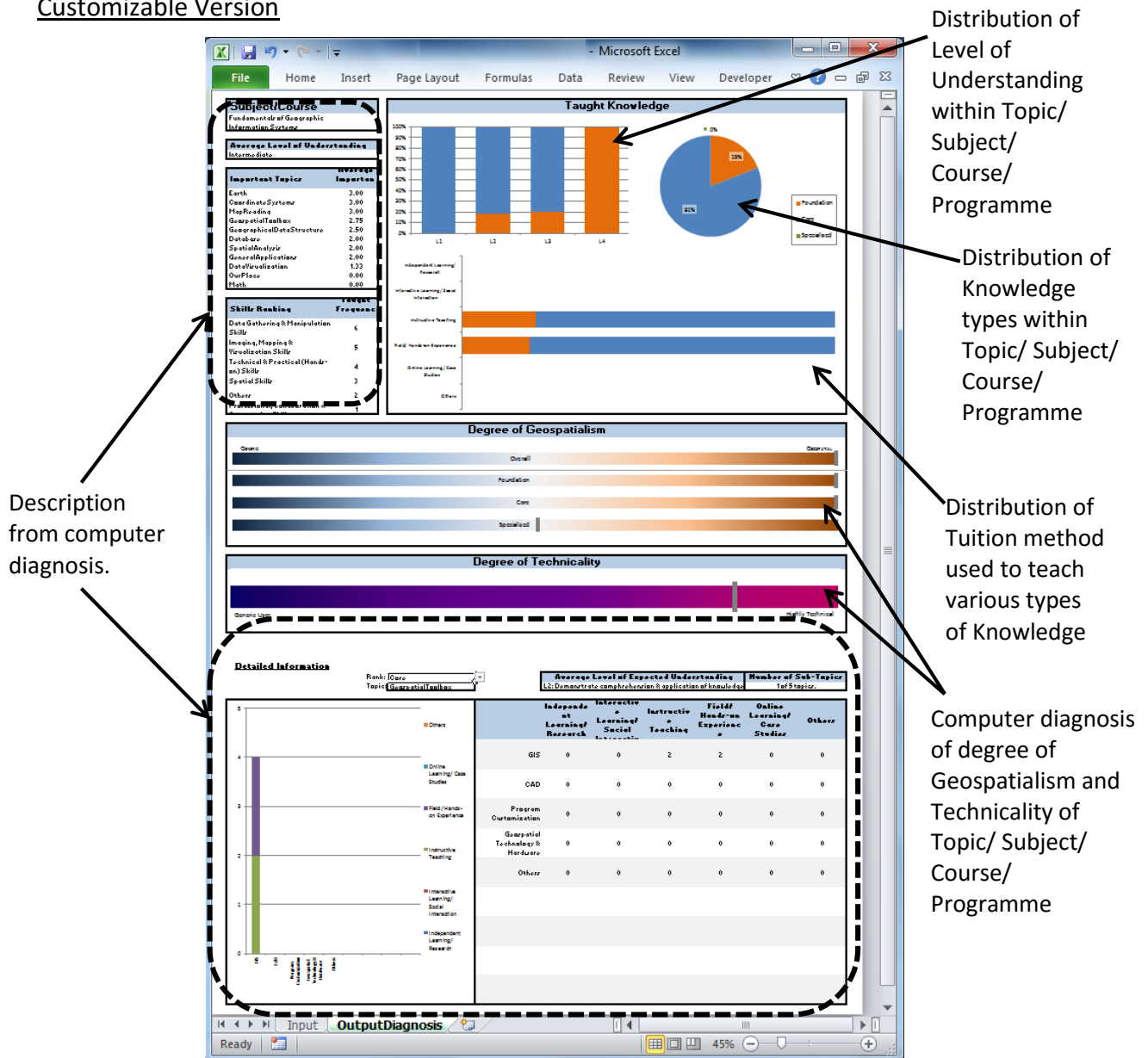
Comparison between the levels of understanding, perceived levels with the amount of contact hours spent

Level of Understanding				
L4	Analyze, theorize, hypothesize & justify (new) knowledge	3	High	3
L3	Compare & explain theories	2	Medium	2
L2	Demonstrate comprehension & application of knowledge	1	Low	1
L1	Recall knowledge, do simple procedures & calculations	0	Not Applicable	0
L0	Not Applicable	0	Not Applicable	0
Course/Subject: Remote Sensing Subject				
Item	Description	Level	Perceived Importance	Allocated Hours
	Process and theory (concepts) involved in the analysis of GIS outcomes	L1	1	1
SSkill03	Concept of 'spatial data'	L3	2	2
	Characteristics of 'spatial data'	L3	2	2
	Conceptual transformation and collection of 'spatial data'	L3	2	2
PSkill01	Scope of work	L4	3	2
	Determining what needs to be done	L4	3	1
	Organization of tasks to enable the production of outcomes related to work scope	L3	3	2
	Risks, and its impact, towards the work	L4	3	2
PSkill02	Communicate, defend and explain reasoning behind use of data/technology/application	L3	2	1
	Logic behind decisions/outcomes	L3	3	2
	How communications could be affected by different styles of visualizations	L2	2	1
	Standards of communication as required by scope of work	L3	2	1
PSkill03	Relationships between different parties and fields within scope of work	L1	2	1
	Different industries/fields of expertise that have contact with Geospatial information	L1	1	1
	How different industries/fields of expertise use/perceive the information (gathered/outcome)	L1	2	1
PSkill04	Best practices as specified by industry	L2	2	1

Highlight of items with High importance

Identifies items with requires **ATTENTION** (mismatch between perceived importance with expected level of understanding and/or contact hours)

Customizable Version



Microsoft Excel - Expected Level of Understanding

Expected Level of Understanding	Expected Importance	Allocated Hours (per week)
L4 Analyse, theorize, hypothesize & justify (new) knowledge	3 High	3 >= 5 Hours allocated contact hours
L3 Compare & explain theories	2 Medium	2 = 4 Hours allocated contact hours
L2 Demonstrate comprehension & application of knowledge	1 Low	1 <= 3 Hours allocated contact hours
L1 Recall knowledge, do simple procedures & calculations	0 N/A	0 No hours allocated

Subject Course: Fundamentals of Geographic Information Systems

Area	Topic	Description (e.g., Key Concepts, Key Messages, Intentions, Outcomes)	Mode of Teaching/ Learning	Skill Set	Expected Level of Understanding	Perceived Importance	Allocated Hours (Per Week)
Foundation/ Core/ Specialized	Geospatial/Toolbox	GIS	Instructive Teaching	Others	L2	3	2
Core	Geospatial/Toolbox	Basic Functions of GIS	Field/ Hands-on Experience	Imaging, Mapping & Visualization Skills	L2	3	
Core	Geospatial/Toolbox	GIS Vs CAD	Field/ Hands-on Experience	Technical & Practical (Hands-on) Skills	L3	2	2
Foundation	Earth	Model	Instructive Teaching	Data Gathering & Manipulation Skills	L3	3	1
Core	Data Acquisition Concept	Spatial data quality	Instructive Teaching	Data Gathering & Manipulation Skills	L2	3	
Foundation	Coordinate Systems	Scale & Generalization	Field/ Hands-on Experience	Imaging, Mapping & Visualization Skills	L2	3	
Core	Geographical Data Structure	Map Indexing	Field/ Hands-on Experience	Data Gathering & Manipulation Skills	L3	3	2
Core	Spatial Analysis	Spatial Analysis	Field/ Hands-on Experience	Imaging, Mapping & Visualization Skills	L3	2	2
Core	Geospatial/Toolbox	GIS components	Instructive Teaching	Others	L2	3	1

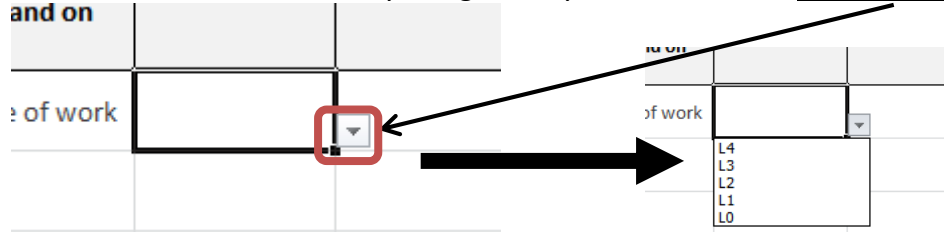
NOTE: 5 highlighted items require attention. Please re-evaluate your expectations/hours.

Makes note and identifies items with requires **ATTENTION** (mismatch between perceived importance with expected level of understanding and/or contact hours)

Troubleshooting

1. Cannot enter values in **Input**

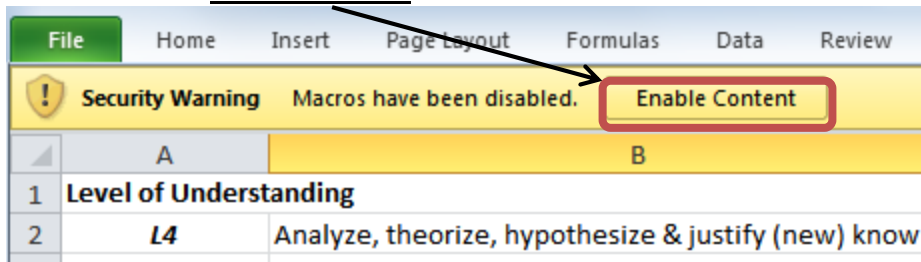
Solution: Do not enter value directly using the keyboard, select via dropdown menu



To access dropdown menu, select the cell first. All entry values (with the exception of Descriptions) have to be entered this way.

2. Security warning displayed

Solution: Click “Enable Content” to allow for macros to run



3. Cannot run file

Solution: Please ensure you are running Windows Office from a desktop computer and not via the Internet (i.e. please download file first onto desktop and not run directly from the browser or using Internet version of Windows Office). If running from an older Windows Office (before Windows Office 2010), you may want to consider using the non-macros version (please note, this is only available for the *Fixed Version*).

4. Want to make notes on the file itself

Solution: Unfortunately, this feature is not available for both versions

5. Will not **Diagnose**

Solution: (a) Save file, close application fully, open file again. (b) Display **Input** again then **Diagnose** to refresh

6. Not enough input lines

Solution: Unfortunately, the current *Customizable Version* can only cater for 240 lines of input.

7. Screen froze during input/reaction is slow

Solution: Please allow some time for calculations to be made, it can take a few minutes depending on the machine and the amount of input.

Suggested applications

This tool can be used for both assessing existing subject plans and for planning a new subject plan. For new subject plans, educators can input the intended number of contact hours to visualize the various aspect. For existing subjects, educators can visualize the amount of time with respect of the level of importance, to help better manage the limited contact hours.

Share your Ideas

Send us your ideas and share with fellow educators on:

[INSERT WEB ADDRESS]