

PART II: EXPECTED LEARNING OUTCOME OF THE TRAINING PROGRAM

1. Knowledge

1.1. General knowledge

- Being able to apply Marxist-Leninism methodologies and ethics required by the Communist Party into personal life and professional careers.
- Being able to use information technology in daily life and in science research.
- Being able to apply the knowledge of foreign languages in daily communication and in science research.
- Being able to review and analyze the issues of national security and defense.

1.2. Knowledge of INSIGHTS

- Students will have the ability of analyzing the driver and pressure from environmental situation, detecting and defining problems concerning environment sustainability.
- Then they will be able to monitor and observe the environmental status and to evaluate/calculate the socio-economic, public health and natural impacts. Finally, they will propose appropriate solutions, innovative technologies and/or policies based on spatial integrated technology.
- Being able to analyze and use the laws of physical/chemical and socio-economics factors to apply them into interpreting causes and characteristics of changes and impacts for the sustainability;
- Being able to understand and use innovative big data processing, survey methods, simulation technologies, mapping skills of real world, things and phenomenon on the earth's surface depending of human activities;
- Being able to select and apply innovative technologies of Big Data, Artificial Intelligence and Cloud Computing applied to massive remote sensing data and geographical information system, Internet of Things real time network and data visualization processes for smart sustainable environment solutions;

2. Skills

2.1. Hard skills

2.1.1. Professional skills

- Professional style skill;
- Independent working skill;
- Goal setting skill;
- Plan making and organization skill;
- Learning to learn and information update skill;
- Motivation making skill;
- Personal and career development skill;
- Professional partnership skill;

- Self-learning and performance improvement skill;
- Specialized English skill;
- Time and human resource management skill.

2.1.2. Creative thinking and problem-solving skills

- Problem identification and analysis skill;
- Problem summarizing skill;
- Logical thinking and multi-dimension analysis skill;
- Qualitative assessment and analysis skill;
- Quantitative analysis skill;
- Problem solving skill;
- Solution proposal and recommendation skill.
- Multidisciplinary competences to elaborate synthetic operational solutions.

2.1.3. Competence for study and exploitation of knowledge

- Document searching and synthesizing skill;
- Experiment implementation skill;
- Hypothesis tests skill;
- Information collection, analysis and processing skill.
- Redactional skill to produce synthetic and elaborate report.

2.1.4. Competence of systematic thought

- Problem summarizing skill;
- Logical thinking and multi-dimension analysis skill;
- Qualitative assessment and analysis skill;
- Quantitative analysis skill.

2.1.5. Social and external context

- Presenting the social role and responsibility of a master in IT applied to world sustainability;
- Understanding clearly impacts of global change and sustainability on the human communities and its future;
- Understanding global context of natural resources, environmental situation, climate change, human activities health impact and relating effects on sustainability.

2.1.6. Organizational context

- Having skills to enquire about strategy, objectives and plans of a company/social organization;
- Having ability to find out the relationship between activities of company/social organization with IT applied to environmental sustainability.

2.1.7. Ability to apply knowledge and skills into practice

- Having competence to use BigData/Artificial Intelligence/CloudComputing technologies in spatial integrated technology to address the job;
- Having ability to develop individual knowledge and skills;
- Having ability to plan and organize innovative solutions to help management of world crisis using IT and geographical data in a context of global change: high temporal frequency epidemiological crisis (COVID19, MERS, SARS...); air and industrial pollution crisis; climate change impact on agriculture and fishery...

2.1.8. Innovation skills, career development and change

- Having ability to be conscious and update information in an IT domain and environmental sustainability context in a quick change;
- Having competence to build personal goal, motivation, personal and career development.

2.2. Soft skills

2.2.1. Personal skills

- Learning and self-study skill;
- Self-management skill;
- High level skills in the domain of data scientist with specialization in the geographical information;
- Document searching and summarizing skill;
- Experimental implementation skill;
- Hypothesis testing skill;
- Data collection, analysis and processing skill;
- Risk-coping skill.

2.2.2. Working group skills

- Working group and problems addressing skill.

2.2.3. Management and leadership skills

- Team effectiveness building, teamwork promoting and team development skill;
- Team leading and operating skill;
- Team development ability.

2.2.4. Communication skills

- Good presentation skill;
- Communication skill.

2.2.5. Communication skills using foreign language

- Listening, speaking, reading, writing skills using foreign language achieve the equivalent level of 4/6 according to the 6-level foreign language ability framework for Vietnam.

2.2.6. Other additional skills

- Setting goals and effective time management, organizing the work properly.
- Creative skills at work.
- Confident, active, sociable, capable of making decisions based on professional knowledge and personal competence.

3. Attitude

3.1. Personal morality

- Patience;
- Confidence, activeness and flexibility;
- Hardworking, enthusiasm and passion;
- Creative thinking;
- Critical thinking;
- Life-long exploration and learning.

3.2. Professional morality

- Persistence and professional responsibility;
- Enthusiasm and passion about the work;
- Confidence, activeness and flexibility;
- Easy adaptation to the complexities of reality;
- Honesty, responsibility and reliability;
- Professional style;
- Understanding and analyzing the knowledge, skills, qualities of professional partners;
- Life-long exploration and learning.

3.3. Social morality

- Understanding of the Vietnamese culture and tradition;
- Understanding of national spirit, security and defense;
- Having citizen commitment and obeying the law.

THE STANDARD GRADUATE PROGRAM

Disciplines: **INnovative Spatial InteGrate techNology for environmenTal Sustainability (INSIGHTS)**

EXPECTED LEARNING OUTCOMES

K1	<p>General knowledge: Being able to use a foreign language and information technology in daily communication and in scientific research, applying Marxist-Leninism methodologies and ethics required by the Communist Party into their own personal life and profession, evaluating, analyzing all the matters of national security and defense in order to protect the country.</p>
K2	<p>Knowledge of INSIGHTS: Being able to explain the IT technologies applied to environmental sustainability and apply them into interpreting causes and characteristics of changes in both biophysical and human domains in time and space. Being able to select and apply survey research methods, geographic information techniques of cartography, remote sensing and GIS techniques into global study, resources, environment and health monitor.</p>
S1	<p>Professional skills: Having skills to evaluate and synthesis knowledge of environment sustainability as well as modern and advanced techniques and technologies in order to handle a scientific and realistic matter, being able to apply in-depth knowledge Artificial Intelligence and cloud computing solutions in different spatial/social references.</p>
S2	<p>Scientific skills: Having critical thinking skills, being able to do research, explore and solve complex and critical environmental challenges by proposing mutlidisciplinary solutions based on massive environmental data and geographical information analysis.</p>
S3	<p>Integrated analysis skills: Having higher-order thinking skills and distinguishing social context, organization and external circumstances. Being able to see matter in connection with other components for a global approach of territories, understanding the relationship between organizations' working domains and the geographical matters, and being able to present the role of IT applied to environmental data in the global context using integrated analysis methodology.</p>
S4	<p>Innovative skills: Being able to apply news IT in the domain of environment sustainability with high potential of innovative solutions related to the fast evolution of technologies in that domain. And that also to answer very quickly to majors earth crisis as epidemiologic, hazards and pollutions.</p>

S5	<p>Personal skills: Having study and self-study skills, organizing and conducting tasks in a flexible and effective manner, being able to confront with any possible risks, adapt to practical case-to-case situations.</p>
S6	<p>Teamwork skills: Management and leadership skills: Building effective working teams, being able to manage, develop and lead teams; developing working skills in different and various working teams.</p>
S7	<p>Communication skills: Having interpersonal communication skills, science report presentation skills and good capabilities of redaction. Being able to use foreign languages in communicating, searching and presenting faculty-related matters at B2 level according to CEFR.</p>
A1	<p>General attitude: Being ethical and having good personal morality: willing to face with possible risks, persistent, flexible, self-confident, and industrious.</p>
A2	<p>Professional attitude: Having good professional qualifications: being truthful, reliable, active, and always staying professionally updated.</p>
A3	<p>Personal attitude: Having citizen commitment and obeying the law, being aware of the country protection, introducing initiatives, proposing solutions and encouraging authorities and people to take part in protecting the country.</p>

Tab. 1. Expected learning outcome matrix of INSIGHTS program

No		K1	K2	S1	S2	S3	S4	S5	S6	S7	A1	A2	A3
	EXPECTED MAXIMUM LEVEL	4	5	5	5	5	5	5	5	5	5	4	5
I	GENERAL KNOWLEDGE												
1	Philosophy (45h)	4					3	2			4	4	5
2	Foreign Language (60h) - English		5	4	4	4	4	4	4	5			
II	KNOWLEDGE OF INSIGHT												
A	Academic year-1												
3	GIS & Remote Sensing Fundamentals	3		2	3		3	3					
4	Introduction to Environmental Data Analysis (R)	3		2			3		2				
5	Python programming in GeoScience	3			3		3	2					
6	Human - Earth System & Sustainability	3					3		2				
7	Field Excursion					2	3		2	3	3	3	3
8	Spatial DataBases & WebGIS					2	3		2	3			
9	Practice Project					3	3		2	3	3	3	3
10	Urbanization & Urban Management	3			3		3	2					
11	Integrated Water & Soil Management	3			3		3	2					
12	Air Pollution Management	3			3	3	3	2					
13	Environmental Economics	3			3	3	3	2					
B	Academic year-2												
14	Advanced GIS & Remote Sensing	3		2	3		3	3					
15	AI for Environmental Issues	3		2			3		2				
16	Cloud Computing in GeoSciences	3			3		3	2					
17	Spatial Database Infrastructure	3					3		2				
18	Environment Policy and Sustainable Management					2	3		2	3			
19	Field Excursion					2	3		2	3	3	3	3
20	Master Thesis					3	3		2	3	4	5	5
21	Internship	3			3		3	2			5	5	5
22	Land Cover & Land Use Change	3			3		3	2					
23	Large Scale GeoData Computation	3			3	3	3	2					
24	Agriculture and Environment Sustainability	3			3	3	3	2					

No		K1	K2	S1	S2	S3	S4	S5	S6	S7	A1	A2	A3
	EXPECTED MAXIMUM LEVEL	4	5	5	5	5	5	5	5	5	5	4	5
25	Advanced Environmental Data Analysis	3		2	3		3	3				3	
26	Public Health and Environment	3		2			3		2		2	3	
27	Cloud Platform in GeoScience	3			3		3	2			2	3	3
28	IoT for Environmental Monitoring	3					3		2		2	3	

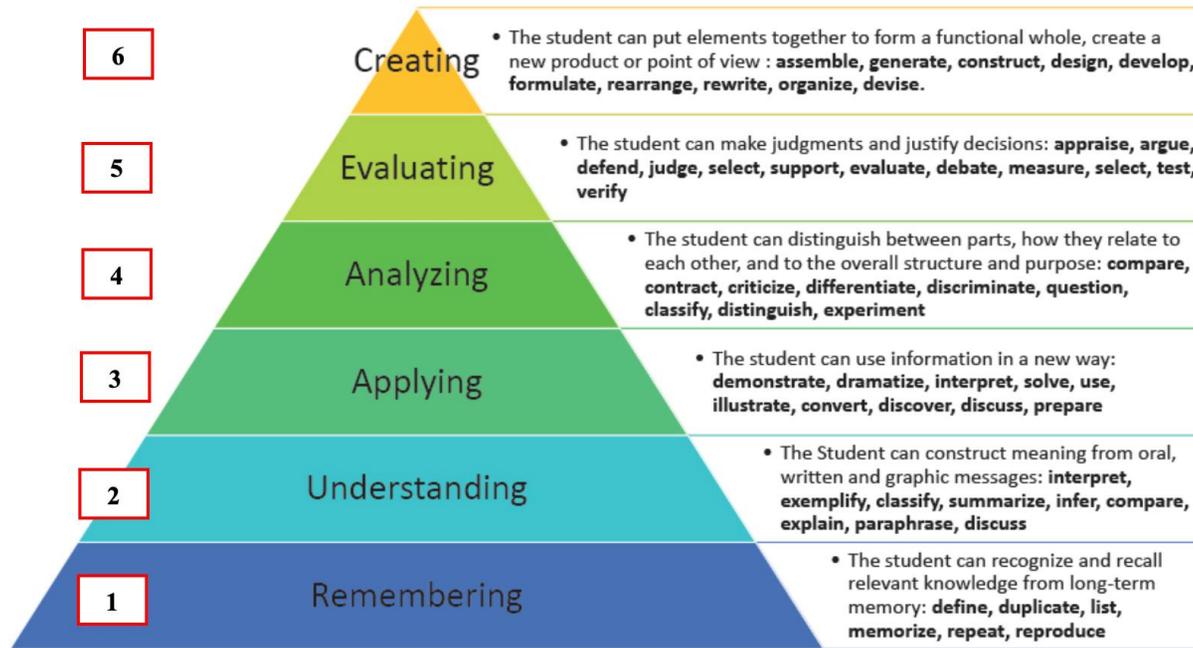


Fig. Bloom's Taxonomy

