Course	Course Name	Natural Resources and Environmental System
	Course Code	DK184103
	Credit	4
	Semester	I

Description of Course
Natural resources and environmental system course held for 32 weeks of lectures (twice a week face to face in 16 weeks) and a field study. Basically, this course divided by 2 basic points such as introduction to enviroment, terrestrial resources concept, aquatic resources concept, aquatic and terrestrial natural resources analysis

Learning Outcomes	
Knowledge	1.1 Mastering the theoretical concept of urban and regional planning in the aspects of urban studies, regional studies, spatial science, data science & computer application, socio-political, environmental management, built environment design, infrastructure and transportation system, coastal studies, management, economics. 1.2 Mastering the techniques and processes of urban and regional planning in qualitative, quantitative, spatial modeling (geographic information systems) and presentation techniques.
Specific Skill	2.1 Able to compile the planning concept and direction of the plan through the study of strategic issues in the context of urban, regional, and coastal planning problems with understanding through observation and utilization of the data of physical/spatial, social, economic and environmental. 2.2 Able to utilize ICT in the management of data to produce information that is easily understood by the public and the decision makers. 2.3 Able to describe the spatial characteristics of urban, regional and coastal area through the lingkage analize of spatial and aspasial aspects

	so that provide the information as the basis for drawing up planning model 2.4 Able to compile an alternative spatial model through a qualitative and quantitative approach in the form of scenarios setting the pattern of space and structure of urban, regional, and coastal area as well as propose the appropriate solutions
General Skill	3.1 Able to apply logical, critical, systematic, and innovative thinking in the context of development or implementation of science and technology by considering and applying the suitable value of humanities in accordance with their expertise 3.2 Able to demonstrate independent, quality and scalable performance

Course Learning Outcomes	
Knowledge	1. Mastering planning principals and philosophy and abel to articulate in understanding environment issues specially regarding terrestrial and aquatic resources 2. Apply urban studies aspect, regional studies, spatial science, data science and computer application, socio-politic, environmental management, urban design, infrastructure system, coastal studies, management, economics associated with environment
Specific Skill	1. Able to understand planning issues by observing social, economic, environment conditions to formulate strategic issues in urban, regional and coastal aspect 2. Able to compile social,economic and environmental data through proper data needs formulation in accordance with the strategic issues and planning approach using ICT to produce creative and innovative planning works 3. Able to analyze urban, regional and coastal spatial characteristics by understanding linkages between spatial and non-spatial

	aspects so the data is avaliable as basic to summarize planning model and concept 4. Able to formulate model through quantitatve and qualitative approach to simulate urban, regional and coastal spatial arrangement scenario
General Skill	1. Able to apply logical, critical, systematic, and innovative thinking in context of developing and implementing science and technology which notice and apply the value of humanities which suits the area of expertise 2. Able to make proper decisions in context of problem solving in the area of expertise based on information and data analysis and able to deliver with good presentation

Learning Outcomes based on module

1. Able to explain planning concept in sustainable development
2. Able to explain terrestrial resources concept, land, vegetation, water, minerals, and air
3. Able to explain natural resources management approach in sustainable development: biocentric, catchment area, environmental carrying capacity, environmental capacity, buffer planning
4. Able to explain terrestrial resources analysis: land capability, land use balance, water balance, extractive balance and minerals, air balance, vegetation analysis
5. Able to explain satellite imagery management
6. Able to explain aquatic resources data: aquatic ecosystem analysis, oceanography analysis, and sea geomorphology analysis

Main Subject

1. Planning concept in sustainable development
2. Terrestrial resources concept: land, vegetation, water, extractive and minerals, air
3. Aquatic resources concept: aquatic ecosystem, oceanography, and sea geomorphology
4. Natural resources management approach in sustainable developmnt: biocentric, catchment area, environmental carrying capacity, environmental capacity, buffer planning
5. Terrestrial resources analysis: land capacity, land balance, water balance, extractive balance and minerals, air analysis, vegetation analysis

6.	Satellite imagery data processing
7.	Aquatic ecosystem analysis, oceanography analysis, and sea geomorphology analysis

Prerequisite

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References

1. Dumol, Mark (2000), The Manila Water Concession, The World Bank.