

# EDS Program Structure

## Ph.D. Program

	Plan 1.1	Plan 1.2	Plan 2.1	Plan 2.2
Course Work Credits	-	-	15	24
- Compulsory Course	-	-	15	15
- Elective Course	-	-	-	9
Thesis Credits	51	72	36	48
<b>Totally Credit</b>	<b>51</b>	<b>72</b>	<b>51</b>	<b>72</b>

- \* - Ph.D. Plan 1.1 and 2.1 are plan for student who apply with Master's Degree  
 - Ph.D. Plan 1.2 and 2.2 are plan for student who apply with Bachelor's Degree

## Registration Plan for Ph.D. Student

### Plan 1.1

Year	Semester	Course	Credit	Description
1	1	2023831 Dissertation	6	
		2023701 Seminar in EDS	S/U	Thursday 5.00 pm – 8.00 pm
	2	2023831 Dissertation	9	
		2023897 Qualifying Examination	S/U	At the end of semester
		2023894 Doctoral Dissertation Seminar	S/U	Present progress of research at the end of semester
2	1	2023831 Dissertation	9	
		2023894 Doctoral Dissertation Seminar	S/U	Present progress of research at the end of semester
	2	2023831 Dissertation	9	
		2023894 Doctoral Dissertation Seminar	S/U	Present progress of research at the end of semester
3	1	2023831 Dissertation	9	
		2023894 Doctoral Dissertation Seminar	S/U	Present progress of research at the end of semester
	2	2023831 Dissertation	9	
		2023894 Doctoral Dissertation Seminar	S/U	Present progress of research at the end of semester



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## Plan 1.2

Year	Semester	Course	Credit	Description
1	1	2023830 Dissertation	9	
		2023701 Seminar in EDS	S/U	Thursday 5.00 pm – 8.00 pm
	2	2023830 Dissertation	9	
		2023897 Qualifying Examination	S/U	At the end of semester
		2023894 Doctoral Dissertation Seminar	S/U	Present progress of research at the end of semester
2	1	2023830 Dissertation	9	
		2023894 Doctoral Dissertation Seminar	S/U	Present progress of research at the end of semester
	2	2023830 Dissertation	9	
		2023894 Doctoral Dissertation Seminar	S/U	Present progress of research at the end of semester

Year	Semester	Course	Credit	Description
3	1	2023830 Dissertation	9	
		2023894 Doctoral Dissertation Seminar	S/U	Present progress of research at the end of semester
	2	2023830 Dissertation	9	
		2023894 Doctoral Dissertation Seminar	S/U	Present progress of research at the end of semester
4	1	2023830 Dissertation	9	
		2023894 Doctoral Dissertation Seminar	S/U	Present progress of research at the end of semester
	2	2023830 Dissertation	9	
		2023894 Doctoral Dissertation Seminar	S/U	Present progress of research at the end of semester



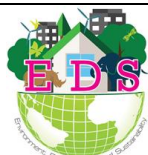
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### Plan 2.1

Year	Semester	Course	Credit	Description
1	1	2023602 Understanding EDS	3	Monday 5.00 pm – 8.00 pm
		2023603 Sustainable Resource Management	3	Wednesday 5.00 pm – 8.00 pm
		2023605 Development: History, Theory, Policy and Practice	3	Tuesday 5.00 pm – 8.00 pm
		2023701 Seminar in EDS	S/U	Thursday 5.00 pm – 8.00 pm
	2	2023601 Research Methodology in EDS	3	Wednesday 5.00 pm – 8.00 pm
		2023604 Advanced Issues in EDS (Elective Course)	3	Thursday 5.00 pm – 8.00 pm
		2023897 Qualifying Examination	S/U	At the end of semester
2	1	2023826 Dissertation	9	
		2023894 Doctoral Dissertation Seminar	S/U	Present progress of research at the end of semester
	2	2023826 Dissertation	9	
		2023894 Doctoral Dissertation Seminar	S/U	Present progress of research at the end of semester
3	1	2023826 Dissertation	9	
		2023894 Doctoral Dissertation Seminar	S/U	Present progress of research at the end of semester
	2	2023826 Dissertation	9	
		2023894 Doctoral Dissertation Seminar	S/U	Present progress of research at the end of semester

### Plan 2.2

Year	Semester	Course	Credit	Description
1	1	2023602 Understanding EDS	3	Monday 5.00 pm – 8.00 pm
		2023603 Sustainable Resource Management	3	Wednesday 5.00 pm – 8.00 pm
		2023605 Development: History, Theory, Policy and Practice	3	Tuesday 5.00 pm – 8.00 pm
		2023701 Seminar in EDS	S/U	Thursday 5.00 pm – 8.00 pm
	2	2023601 Research Methodology in EDS	3	Wednesday 5.00 pm – 8.00 pm
		2023604 Advanced Issues in EDS	3	Thursday 5.00 pm – 8.00 pm
		*xxxxxx Elective Course	3	Monday 5.00 pm – 8.00 pm
		*xxxxxx Elective Course	3	Tuesday 5.00 pm – 8.00 pm
		*xxxxxx Elective Course	3	Friday 5.00 pm – 8.00 pm
		2023897 Qualifying Examination	S/U	At the end of semester
		2023894 Doctoral Dissertation Seminar	S/U	Present progress of research at the end of semester



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2	1	2023828 Dissertation	3	
		2023894 Doctoral Dissertation Seminar	S/U	Present progress of research at the end of semester
	2	2023828 Dissertation	9	
		2023894 Doctoral Dissertation Seminar	S/U	Present progress of research at the end of semester
3	1	2023828 Dissertation	9	
		2023894 Doctoral Dissertation Seminar	S/U	Present progress of research at the end of semester
	2	2023828 Dissertation	9	
		2023894 Doctoral Dissertation Seminar	S/U	Present progress of research at the end of semester
4	1	2023828 Dissertation	9	
		2023894 Doctoral Dissertation Seminar	S/U	Present progress of research at the end of semester
	2	2023828 Dissertation	9	
		2023894 Doctoral Dissertation Seminar	S/U	Present progress of research at the end of semester

### Detail of Elective Course (if applicable)

#### 2016612 Urban Development and Planning

Factors influencing the location, role, and expansion directions of urban settlements at different levels of community, from small villages to metropolises; urban spatial relations, problems and prospects of urban growth trend; prevention and solutions to problems through urban planning.

#### 2023503 Renewable Energy Resources and Utilization

Introduction to renewable energy resources: biomass fuels, bio-fuels, solar energy, wind energy, hydro energy, geothermal energy and hydrogen energy; technology of converting and utilizing these forms of energy.

#### 2023507 Climate Science, Impacts, Adaptation and Mitigation

Climate change science, impacts adaptation, mitigation and responses to climate change, climate modeling, climate change impacts, adaptation, mitigation and responses at local, regional and global levels.

#### 2026502 Energy Resource and Technology

Classification of energy resource; renewable and conventional energy resources, Fossil fuel: technology, utilization, environmental impacts and climate change; Technology options for environmental impacts and greenhouse gases mitigation; renewable energy and alternative energy for the future.



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2026509 Energy Issues in Global Arena

Development of the world's energy system issues from economic, political, social, and environmental perspectives; international political economy and geopolitics of problem product; energy and city-rural nexus; alternative energies and adjustment of the way of life

2026513 Decision Making under Risk for Energy Investment

Project evaluation concepts and its application in energy investment; discounted cash flow model; estimation of project cash flows; project evaluation criteria; economics risk analysis; tools for economic risk management; probabilistic models for project evaluation; Monte Carlo simulation concept; decision tree analysis; assessment of project flexibility using option pricing theory and real option pricing

2023509 Adaptation Policy Framework - Climate Change Impacts and Policy

Formulating adaptation strategies to manage risk from climate impact; adaptation to short-term climate variability and extreme climate events as foundation for reducing vulnerability to long-term climate change; adaptation policy to climate change and measures in a sustainable development context; adaptation strategies at different levels and sectors in society to better manage future risk and exploit possible opportunity from climate change impact; role of multi-stakeholders and process in adaptation policy development; prioritizing and selecting adaptation options.

2023510 Vulnerability Study for Sustainable Development Planning

Potential changes in future environmental condition and their implications on major systems and sectors; future risk and coping capacity to threat from impact of environmental change; defining vulnerability of systems and/or sectors under context of environmental change; components of vulnerability, sensitivity, exposure and coping capacity to environmental risk; using proxy indicators to identify and measure vulnerability of systems and/or sectors; assessing vulnerability to future environmental change; vulnerability indexing; multi-level and multiple agents to social vulnerability to environmental change.

2023513 Strategic Environmental Assessment

A systematic process for evaluating and anticipating the consequences of decisions taken prior to the project stage to ensure that environmental considerations and alternatives are addressed as early as possible and on a part with economic and social factors in policy, plan or program development; strategic environmental assessment methods and approaches for conducting environmental assessment of programs on regional/area and sector development programs; strategic environmental assessment of policies, plans and programs used as a tool in national environmental analysis.



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