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| UNESA | **Universitas Negeri Surabaya**<br>**Faculty of Social Sciences and Law**<br>**Geography Education Undergraduate Study Program** | **Document Code** |

# SEMESTER LEARNING PLAN

| Courses | CODE | Course Family | Credit Weight | SEMESTER | Compilation Date |
|---|---|---|---|---|---|
| Geography of Natural Resources | 8720202050 | Study Program Elective Courses | T=2 P=0 ECTS=3.18 | 4 | July 17, 2024 |

| AUTHORIZATION | SP Developer | Course Cluster Coordinator | Study Program Coordinator |
|---|---|---|---|
| | Dr. Ketut Prasetyo, M.S. / Dr. Fahmi Fahrudin Fadirubun, M.Pd. | Dr, Nugroho Hari Purnomo, S.P., M.Si. | Dr. Nugroho Hari Purnomo, S.P., M.Si. |

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| **Learning model** | **Project Based Learning** |

**Program Learning Outcomes (PLO)**

**PLO study program that is charged to the course**

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| **PLO-7** | Able to make appropriate decisions to resolve regional problems in a spatial context based on an integrated geographic approach |

**Program Objectives (PO)**

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| **PO - 1** | Synthesizing the concept of natural resources from a geographic perspective |

**PLO-PO Matrix**

| P.O | PLO-7 |
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| PO-1 | |

**PO Matrix at the end of each learning stage (Sub-PO)**

| P.O | Week | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| PO-1 | | | | | | | | | | | | | | | | |

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| **Short Course Description** | This course discusses resource concepts related to policies for managing natural, human and environmental resources, the influence of resource use on the environment, and determining appropriate policies in utilizing natural resources and the social environment. |

**References**

**Main :**

1. a. Tom Tietenberg, 2000.Environmental and Natural Resource Economics. b. Sixth Edition, Addison-Wesley, International Reading. Massachusetts, USA. (TT). c. Erhun Kula, 1992. Economics of Natural Resources and the Environment. d. First Edition, Chapman & Hall, London- New York-Tok-yo-Melboume and Madras. (EK). e. Charles W. Howe, 1979. Natural Resource Economics: -Issues, Analysis andPolicy. John Wiley & Son, USA. (CH). f. Alan Randall, 1987. Resource Economics: An Economic Approach to Natural Resource and Environmental Policy. John Wiley & Son, New York. (AR). g. Nick Hanley & Clive L. Spash, 1998. Cost Benefit Analysis and the Environment. Edgar Elgar, Cheltenham. UK (HS). h. A. Myrick Freeman 111, 1979. The Benefit of Environmental Improvement Theory and Practice. John Hopkins University Press, Baltij nore. (MF). i. Paul Barrow, 1980. The Economic Theory ofPollution Control. The MIT Press, Cambridge, Massachusetts. (PB).

**Supporters:**

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| **Supporting lecturer** | Prof. Dr. Ketut Prasetyo, M.S.<br>Dr. Nugroho Hari Purnomo, S.P., M.Si.<br>Dr. Aida Kurniawati, S.Pd., M.Si.<br>Dr. Fahmi Fahrudin Fadirubun, M.Pd |

| Week- | Final abilities of each learning stage (Sub-PO) | Evaluation | | Help Learning, Learning methods, Student Assignments, [ Estimated time] | | Learning materials [ References ] | Assessment Weight (%) |
|---|---|---|---|---|---|---|---|
| | | Indicator | Criteria & Form | Offline ( *offline* ) | Online ( *online* ) | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |

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| **1** | Able to understand the meaning of geography of natural resources | Explain the meaning of natural resource geography | **Criteria:**<br>1.A; 85 -100<br>2.B; 70 - 84<br>3.C: 56- 69<br>4.D: 44- 55<br>5.E > 44<br><br>**Form of Assessment** : Participatory Activities | Lectures, discussions and presentation of 2 X 50 group papers | | **Material:** Definition of environmental geography and natural resources<br>**References:** *a. Tom Tietenberg, 2000. Environmental and Natural Resource Economics. b. Sixth Edition, Addison-Wesley, International Reading. Massachusetts, USA. (TT). c. Erhun Kula, 1992. Economics of Natural Resources and the Environment. d. First Edition, Chapman & Hall, London-New York-Tok-yo-Melbourne and Madras. (OAK). e. Charles W. Howe, 1979. Natural Resource Economics: -Issues, Analysis and Policy. John Wiley & Son, USA. (CH). f. Alan Randall, 1987. Resource Economics: An Economic Approach to Natural Resources and Environmental Policy. John Wiley & Son, New York. (AR). g. Nick Hanley & Clive L. Spash, 1998. Cost Benefit Analysis and the Environment. Edgar Elgar, Cheltenham. UK (HS). h. A. Myrick Freeman 111, 1979. The Benefits of Environmental Improvement Theory and Practice. John Hopkins University Press, Baltij nore. (MF). i. Paul Barrow, 1980. The Economic Theory of Pollution Control. The MIT Press, Cambridge, Massachusetts. (PB).* | 5% |

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| **2** | Students are able to understand water resources | - Explain the process of water travel and the hydrological cycle - Explain the use of water resources | **Criteria:**<br>1.A; 85 -100<br>2.B; 70 - 84<br>3.C: 56- 69<br>4.D: 44- 55<br>5.E > 44<br><br>**Form of Assessment** : Participatory Activities | Lectures, discussions and presentation of 2 X 50 group papers | | **Material:** Discuss the hydrological cycle, utilization of water resources<br>**References:** *a. Tom Tietenberg, 2000. Environmental and Natural Resource Economics. b. Sixth Edition, Addison-Wesley, International Reading. Massachusetts, USA. (TT). c. Erhun Kula, 1992. Economics of Natural Resources and the Environment. d. First Edition, Chapman & Hall, London-New York-Tok-yo-Melbourne and Madras. (OAK). e. Charles W. Howe, 1979. Natural Resource Economics: -Issues, Analysis and Policy. John Wiley & Son, USA. (CH). f. Alan Randall, 1987. Resource Economics: An Economic Approach to Natural Resources and Environmental Policy. John Wiley & Son, New York. (AR). g. Nick Hanley & Clive L. Spash, 1998. Cost Benefit Analysis and the Environment. Edgar Elgar, Cheltenham. UK (HS). h. A. Myrick Freeman 111, 1979. The Benefits of Environmental Improvement Theory and Practice. John Hopkins University Press, Baltij nore. (MF). i. Paul Barrow, 1980. The Economic Theory of Pollution Control. The MIT Press, Cambridge, Massachusetts. (PB).* | 5% |

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| **3** | Students are able to understand surface water problems | - Explain the meaning of 3T<br>- Explain the problems in the watershed | **Criteria:**<br>1.A; 85 -100<br>2.B; 70 - 84<br>3.C: 56- 69<br>4.D: 44- 55<br>5.E > 44<br><br>**Form of Assessment** : Practice / Performance | Lectures, discussions and presentation of 2 X 50 group papers | | **Material:** Discuss the meaning of 3T and problems in watersheds, and look for examples of cases of problems in watersheds.<br>**Library:** *a. Tom Tietenberg, 2000. Environmental and Natural Resource Economics. b. Sixth Edition, Addison-Wesley, International Reading. Massachusetts, USA. (TT). c. Erhun Kula, 1992. Economics of Natural Resources and the Environment. d. First Edition, Chapman & Hall, London-New York-Tok-yo-Melbourne and Madras. (OAK). e. Charles W. Howe, 1979. Natural Resource Economics: -Issues, Analysis and Policy. John Wiley & Son, USA. (CH). f. Alan Randall, 1987. Resource Economics: An Economic Approach to Natural Resources and Environmental Policy. John Wiley & Son, New York. (AR). g. Nick Hanley & Clive L. Spash, 1998. Cost Benefit Analysis and the Environment. Edgar Elgar, Cheltenham. UK (HS). h. A. Myrick Freeman 111, 1979. The Benefits of Environmental Improvement Theory and Practice. John Hopkins University Press, Baltij nore. (MF). i. Paul Barrow, 1980. The Economic Theory of Pollution Control. The MIT Press, Cambridge, Massachusetts. (PB).* | 5% |

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| **4** | Students are able to understand groundwater issues | -Explain the causes and consequences of groundwater problems, land conversion | **Criteria:**<br>1.A; 85 -100<br>2.B; 70 - 84<br>3.C: 56- 69<br>4.D: 44- 55<br>5.E > 44<br><br>**Form of Assessment** : Project Results Assessment / Product Assessment | Lectures, discussions and presentation of 2 X 50 group papers | | **Material:** Discuss and look for examples of groundwater problems **. Reference:** *a. Tom Tietenberg, 2000. Environmental and Natural Resource Economics. b. Sixth Edition, Addison-Wesley, International Reading. Massachusetts, USA. (TT). c. Erhun Kula, 1992. Economics of Natural Resources and the Environment. d. First Edition, Chapman & Hall, London-New York-Tok-yo-Melbourne and Madras. (OAK). e. Charles W. Howe, 1979. Natural Resource Economics: -Issues, Analysis and Policy. John Wiley & Son, USA. (CH). f. Alan Randall, 1987. Resource Economics: An Economic Approach to Natural Resources and Environmental Policy. John Wiley & Son, New York. (AR). g. Nick Hanley & Clive L. Spash, 1998. Cost Benefit Analysis and the Environment. Edgar Elgar, Cheltenham. UK (HS). h. A. Myrick Freeman 111, 1979. The Benefits of Environmental Improvement Theory and Practice. John Hopkins University Press, Baltij nore. (MF). i. Paul Barrow, 1980. The Economic Theory of Pollution Control. The MIT Press, Cambridge, Massachusetts. (PB).* | 5% |

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| **5** | Students are able to understand groundwater issues | -Explain the causes and consequences of groundwater problems, land conversion | **Criteria:**<br>1.A; 85 -100<br>2.B; 70 - 84<br>3.C: 56- 69<br>4.D: 44- 55<br>5.E > 44<br><br>**Form of Assessment** : Project Results Assessment / Product Assessment | Lectures, discussions and presentation of 2 X 50 group papers | | **Material:** Discuss and look for examples of groundwater problems **. Reference:** *a. Tom Tietenberg, 2000. Environmental and Natural Resource Economics. b. Sixth Edition, Addison-Wesley, International Reading. Massachusetts, USA. (TT). c. Erhun Kula, 1992. Economics of Natural Resources and the Environment. d. First Edition, Chapman & Hall, London-New York-Tok-yo-Melbourne and Madras. (OAK). e. Charles W. Howe, 1979. Natural Resource Economics: -Issues, Analysis and Policy. John Wiley & Son, USA. (CH). f. Alan Randall, 1987. Resource Economics: An Economic Approach to Natural Resources and Environmental Policy. John Wiley & Son, New York. (AR). g. Nick Hanley & Clive L. Spash, 1998. Cost Benefit Analysis and the Environment. Edgar Elgar, Cheltenham. UK (HS). h. A. Myrick Freeman 111, 1979. The Benefits of Environmental Improvement Theory and Practice. John Hopkins University Press, Baltij nore. (MF). i. Paul Barrow, 1980. The Economic Theory of Pollution Control. The MIT Press, Cambridge, Massachusetts. (PB).* | 5% |

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| **6** | Students are able to understand aspects of water resources management | -Explain aspects of water resources management | **Criteria:**<br>1.A; 85 -100<br>2.B; 70 - 84<br>3.C: 56- 69<br>4.D: 44- 55<br>5.E > 44<br><br>**Form of Assessment** : Project Results Assessment / Product Assessment | Lectures, discussions and presentation of 2 X 50 group papers | | **Material:** Discuss aspects of water resources management<br>**References:** *a. Tom Tietenberg, 2000. Environmental and Natural Resource Economics. b. Sixth Edition, Addison-Wesley, International Reading. Massachusetts, USA. (TT). c. Erhun Kula, 1992. Economics of Natural Resources and the Environment. d. First Edition, Chapman & Hall, London-New York-Tok-yo-Melbourne and Madras. (OAK). e. Charles W. Howe, 1979. Natural Resource Economics: -Issues, Analysis and Policy. John Wiley & Son, USA. (CH). f. Alan Randall, 1987. Resource Economics: An Economic Approach to Natural Resources and Environmental Policy. John Wiley & Son, New York. (AR). g. Nick Hanley & Clive L. Spash, 1998. Cost Benefit Analysis and the Environment. Edgar Elgar, Cheltenham. UK (HS). h. A. Myrick Freeman 111, 1979. The Benefits of Environmental Improvement Theory and Practice. John Hopkins University Press, Baltij nore. (MF). i. Paul Barrow, 1980. The Economic Theory of Pollution Control. The MIT Press, Cambridge, Massachusetts. (PB).* | 5% |

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| **7** | Students are able to understand aspects of water resources management | -Explain aspects of water resources management | **Criteria:**<br>1.A; 85 -100<br>2.B; 70 - 84<br>3.C: 56- 69<br>4.D: 44- 55<br>5.E > 44<br><br>**Form of Assessment** : Project Results Assessment / Product Assessment | Lectures, discussions and presentation of 2 X 50 group papers | | **Material:** Discuss aspects of water resources management<br>**References:** *a. Tom Tietenberg, 2000. Environmental and Natural Resource Economics. b. Sixth Edition, Addison-Wesley, International Reading. Massachusetts, USA. (TT). c. Erhun Kula, 1992. Economics of Natural Resources and the Environment. d. First Edition, Chapman & Hall, London-New York-Tok-yo-Melbourne and Madras. (OAK). e. Charles W. Howe, 1979. Natural Resource Economics: -Issues, Analysis and Policy. John Wiley & Son, USA. (CH). f. Alan Randall, 1987. Resource Economics: An Economic Approach to Natural Resources and Environmental Policy. John Wiley & Son, New York. (AR). g. Nick Hanley & Clive L. Spash, 1998. Cost Benefit Analysis and the Environment. Edgar Elgar, Cheltenham. UK (HS). h. A. Myrick Freeman 111, 1979. The Benefits of Environmental Improvement Theory and Practice. John Hopkins University Press, Baltij nore. (MF). i. Paul Barrow, 1980. The Economic Theory of Pollution Control. The MIT Press, Cambridge, Massachusetts. (PB).* | 10% |

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| **8** | Midterm Exam (UTS) | Midterm Exam (UTS) | **Criteria:**<br>1.A; 85 -100<br>2.B; 70 - 84<br>3.C: 56- 69<br>4.D: 44- 55<br>5.E > 44<br><br>**Form of Assessment** :<br>Test | Midterm Exam (UTS) 2 X 50 | | **Material:** basic natural resources<br>**References:** *a. Tom Tietenberg, 2000. Environmental and Natural Resource Economics. b. Sixth Edition, Addison-Wesley, International Reading. Massachusetts, USA. (TT). c. Erhun Kula, 1992. Economics of Natural Resources and the Environment. d. First Edition, Chapman & Hall, London-New York-Tok-yo-Melbourne and Madras. (OAK). e. Charles W. Howe, 1979. Natural Resource Economics: -Issues, Analysis and Policy. John Wiley & Son, USA. (CH). f. Alan Randall, 1987. Resource Economics: An Economic Approach to Natural Resources and Environmental Policy. John Wiley & Son, New York. (AR). g. Nick Hanley & Clive L. Spash, 1998. Cost Benefit Analysis and the Environment. Edgar Elgar, Cheltenham. UK (HS). h. A. Myrick Freeman 111, 1979. The Benefits of Environmental Improvement Theory and Practice. John Hopkins University Press, Baltij nore. (MF). i. Paul Barrow, 1980. The Economic Theory of Pollution Control. The MIT Press, Cambridge, Massachusetts. (PB).* | 5% |

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| **9** | Students are able to explain land and water resources | -Explain about land resources (erosion and sedimentation) | **Criteria:**<br>1.A; 85 -100<br>2.B; 70 - 84<br>3.C: 56- 69<br>4.D: 44- 55<br>5.E > 44<br><br>**Form of Assessment** : Project Results Assessment / Product Assessment | Lectures, discussions and presentation of 2 X 50 group papers | | **Material:** Discuss soil resources (erosion and sedimentation)<br>**References:** *a. Tom Tietenberg, 2000. Environmental and Natural Resource Economics. b. Sixth Edition, Addison-Wesley, International Reading. Massachusetts, USA. (TT). c. Erhun Kula, 1992. Economics of Natural Resources and the Environment. d. First Edition, Chapman & Hall, London-New York-Tok-yo-Melbourne and Madras. (OAK). e. Charles W. Howe, 1979. Natural Resource Economics: -Issues, Analysis and Policy. John Wiley & Son, USA. (CH). f. Alan Randall, 1987. Resource Economics: An Economic Approach to Natural Resources and Environmental Policy. John Wiley & Son, New York. (AR). g. Nick Hanley & Clive L. Spash, 1998. Cost Benefit Analysis and the Environment. Edgar Elgar, Cheltenham. UK (HS). h. A. Myrick Freeman 111, 1979. The Benefits of Environmental Improvement Theory and Practice. John Hopkins University Press, Baltij nore. (MF). i. Paul Barrow, 1980. The Economic Theory of Pollution Control. The MIT Press, Cambridge, Massachusetts. (PB).* | 5% |

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| **10** | Students are able to explain land and water resources | -Explain about land resources (erosion and sedimentation) | **Criteria:**<br>1.A; 85 -100<br>2.B; 70 - 84<br>3.C: 56- 69<br>4.D: 44- 55<br>5.E > 44<br><br>**Form of Assessment** : Project Results Assessment / Product Assessment | Lectures, discussions and presentation of 2 X 50 group papers | | **Material:** Discuss soil resources (erosion and sedimentation)<br>**References:** *a. Tom Tietenberg, 2000. Environmental and Natural Resource Economics. b. Sixth Edition, Addison-Wesley, International Reading. Massachusetts, USA. (TT). c. Erhun Kula, 1992. Economics of Natural Resources and the Environment. d. First Edition, Chapman & Hall, London-New York-Tok-yo-Melbourne and Madras. (OAK). e. Charles W. Howe, 1979. Natural Resource Economics: -Issues, Analysis and Policy. John Wiley & Son, USA. (CH). f. Alan Randall, 1987. Resource Economics: An Economic Approach to Natural Resources and Environmental Policy. John Wiley & Son, New York. (AR). g. Nick Hanley & Clive L. Spash, 1998. Cost Benefit Analysis and the Environment. Edgar Elgar, Cheltenham. UK (HS). h. A. Myrick Freeman 111, 1979. The Benefits of Environmental Improvement Theory and Practice. John Hopkins University Press, Baltij nore. (MF). i. Paul Barrow, 1980. The Economic Theory of Pollution Control. The MIT Press, Cambridge, Massachusetts. (PB).* | 5% |

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| **11** | Students are able to explain soil and water conservation methods | -explain conservation methods agronomic, mechanical, chemical and water conservation methods | **Criteria:**<br>1.A; 85 -100<br>2.B; 70 - 84<br>3.C: 56- 69<br>4.D: 44- 55<br>5.E > 44<br><br>**Form of Assessment** : Project Results Assessment / Product Assessment | Lectures, discussions and presentation of 2 X 50 group papers | | **Material:** Discuss soil and water conservation methods and look for examples of applications of soil and water conservation methods<br>**References:** *a. Tom Tietenberg, 2000. Environmental and Natural Resource Economics. b. Sixth Edition, Addison-Wesley, International Reading. Massachusetts, USA. (TT). c. Erhun Kula, 1992. Economics of Natural Resources and the Environment. d. First Edition, Chapman & Hall, London-New York-Tok-yo-Melbourne and Madras. (OAK). e. Charles W. Howe, 1979. Natural Resource Economics: -Issues, Analysis and Policy. John Wiley & Son, USA. (CH). f. Alan Randall, 1987. Resource Economics: An Economic Approach to Natural Resources and Environmental Policy. John Wiley & Son, New York. (AR). g. Nick Hanley & Clive L. Spash, 1998. Cost Benefit Analysis and the Environment. Edgar Elgar, Cheltenham. UK (HS). h. A. Myrick Freeman 111, 1979. The Benefits of Environmental Improvement Theory and Practice. John Hopkins University Press, Baltij nore. (MF). i. Paul Barrow, 1980. The Economic Theory of Pollution Control. The MIT Press, Cambridge, Massachusetts. (PB).* | 5% |

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| **12** | Students are able to explain soil and water conservation methods | -explain conservation methods agronomic, mechanical, chemical and water conservation methods | **Criteria:**<br>1.A; 85 -100<br>2.B; 70 - 84<br>3.C: 56- 69<br>4.D: 44- 55<br>5.E > 44<br><br>**Form of Assessment** : Project Results Assessment / Product Assessment | Lectures, discussions and presentation of 2 X 50 group papers | | **Material:** Discuss soil and water conservation methods and look for examples of applications of soil and water conservation methods<br>**References:** *a. Tom Tietenberg, 2000. Environmental and Natural Resource Economics. b. Sixth Edition, Addison-Wesley, International Reading. Massachusetts, USA. (TT). c. Erhun Kula, 1992. Economics of Natural Resources and the Environment. d. First Edition, Chapman & Hall, London-New York-Tok-yo-Melbourne and Madras. (OAK). e. Charles W. Howe, 1979. Natural Resource Economics: -Issues, Analysis and Policy. John Wiley & Son, USA. (CH). f. Alan Randall, 1987. Resource Economics: An Economic Approach to Natural Resources and Environmental Policy. John Wiley & Son, New York. (AR). g. Nick Hanley & Clive L. Spash, 1998. Cost Benefit Analysis and the Environment. Edgar Elgar, Cheltenham. UK (HS). h. A. Myrick Freeman 111, 1979. The Benefits of Environmental Improvement Theory and Practice. John Hopkins University Press, Baltij nore. (MF). i. Paul Barrow, 1980. The Economic Theory of Pollution Control. The MIT Press, Cambridge, Massachusetts. (PB).* | 5% |

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| **13** | Students are able to explain watershed conservation | -explain the meaning of WS, DAS, CAT -explain the function of a watershed -explain watershed conservation efforts | **Criteria:**<br>1.A; 85 -100<br>2.B; 70 - 84<br>3.C: 56- 69<br>4.D: 44- 55<br>5.E > 44<br><br>**Form of Assessment** : Project Results Assessment / Product Assessment | Lectures, discussions and presentation of 2 X 50 group papers | | **Material:** Discuss the meaning of WS, DAS, CAT, DA functions, watershed conservation efforts and look for examples of watershed conservation.<br>**Reference:** *a. Tom Tietenberg, 2000. Environmental and Natural Resource Economics. b. Sixth Edition, Addison-Wesley, International Reading. Massachusetts, USA. (TT). c. Erhun Kula, 1992. Economics of Natural Resources and the Environment. d. First Edition, Chapman & Hall, London-New York-Tok-yo-Melbourne and Madras. (OAK). e. Charles W. Howe, 1979. Natural Resource Economics: -Issues, Analysis and Policy. John Wiley & Son, USA. (CH). f. Alan Randall, 1987. Resource Economics: An Economic Approach to Natural Resources and Environmental Policy. John Wiley & Son, New York. (AR). g. Nick Hanley & Clive L. Spash, 1998. Cost Benefit Analysis and the Environment. Edgar Elgar, Cheltenham. UK (HS). h. A. Myrick Freeman 111, 1979. The Benefits of Environmental Improvement Theory and Practice. John Hopkins University Press, Baltij nore. (MF). i. Paul Barrow, 1980. The Economic Theory of Pollution Control. The MIT Press, Cambridge, Massachusetts. (PB).* | 10% |

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| **14** | Students are able to explain watershed conservation | -explain the meaning of WS, DAS, CAT -explain the function of a watershed -explain watershed conservation efforts | **Criteria:**<br>1.A; 85 -100<br>2.B; 70 - 84<br>3.C: 56- 69<br>4.D: 44- 55<br>5.E > 44<br><br>**Form of Assessment** : Portfolio Assessment | Lectures, discussions and presentation of 2 X 50 group papers | | **Material:** Discuss the meaning of WS, DAS, CAT, DA functions, watershed conservation efforts and look for examples of watershed conservation.<br>**Reference:** *a. Tom Tietenberg, 2000. Environmental and Natural Resource Economics. b. Sixth Edition, Addison-Wesley, International Reading. Massachusetts, USA. (TT). c. Erhun Kula, 1992. Economics of Natural Resources and the Environment. d. First Edition, Chapman & Hall, London-New York-Tok-yo-Melbourne and Madras. (OAK). e. Charles W. Howe, 1979. Natural Resource Economics: -Issues, Analysis and Policy. John Wiley & Son, USA. (CH). f. Alan Randall, 1987. Resource Economics: An Economic Approach to Natural Resources and Environmental Policy. John Wiley & Son, New York. (AR). g. Nick Hanley & Clive L. Spash, 1998. Cost Benefit Analysis and the Environment. Edgar Elgar, Cheltenham. UK (HS). h. A. Myrick Freeman 111, 1979. The Benefits of Environmental Improvement Theory and Practice. John Hopkins University Press, Baltij nore. (MF). i. Paul Barrow, 1980. The Economic Theory of Pollution Control. The MIT Press, Cambridge, Massachusetts. (PB).* | 10% |

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| **15** | Students are able to explain the environmental carrying capacity and environmental capacity | -explain the meaning of environmental carrying capacity and environmental carrying capacity, explain how to calculate DDL | **Criteria:**<br>1.A; 85 -100<br>2.B; 70 - 84<br>3.C: 56- 69<br>4.D: 44- 55<br>5.E > 44<br><br>**Form of Assessment** : Portfolio Assessment | Lectures, discussions and presentation of 2 X 50 group papers | | **Material:** Discusses environmental carrying capacity, environmental carrying capacity and methods for calculating DDL and examples of DDL cases.<br>**Reference:** *a. Tom Tietenberg, 2000. Environmental and Natural Resource Economics. b. Sixth Edition, Addison-Wesley, International Reading. Massachusetts, USA. (TT). c. Erhun Kula, 1992. Economics of Natural Resources and the Environment. d. First Edition, Chapman & Hall, London-New York-Tok-yo-Melbourne and Madras. (OAK). e. Charles W. Howe, 1979. Natural Resource Economics: -Issues, Analysis and Policy. John Wiley & Son, USA. (CH). f. Alan Randall, 1987. Resource Economics: An Economic Approach to Natural Resources and Environmental Policy. John Wiley & Son, New York. (AR). g. Nick Hanley & Clive L. Spash, 1998. Cost Benefit Analysis and the Environment. Edgar Elgar, Cheltenham. UK (HS). h. A. Myrick Freeman 111, 1979. The Benefits of Environmental Improvement Theory and Practice. John Hopkins University Press, Baltij nore. (MF). i. Paul Barrow, 1980. The Economic Theory of Pollution Control. The MIT Press, Cambridge, Massachusetts. (PB).* | 10% |

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| **16** | Final Semester Examination (UAS) | Final Semester Examination (UAS) | **Criteria:**<br>1.A; 85 -100<br>2.B; 70 - 84<br>3.C: 56- 69<br>4.D: 44- 55<br>5.E > 44<br><br>**Form of Assessment** : Test | Final Semester Examination (UAS)<br>2 X 50 | | **Material: applied library** resources : *a. Tom Tietenberg, 2000. Environmental and Natural Resource Economics. b. Sixth Edition, Addison-Wesley, International Reading. Massachusetts, USA. (TT). c. Erhun Kula, 1992. Economics of Natural Resources and the Environment. d. First Edition, Chapman & Hall, London-New York-Tok-yo-Melbourne and Madras. (OAK). e. Charles W. Howe, 1979. Natural Resource Economics: -Issues, Analysis and Policy. John Wiley & Son, USA. (CH). f. Alan Randall, 1987. Resource Economics: An Economic Approach to Natural Resources and Environmental Policy. John Wiley & Son, New York. (AR). g. Nick Hanley & Clive L. Spash, 1998. Cost Benefit Analysis and the Environment. Edgar Elgar, Cheltenham. UK (HS). h. A. Myrick Freeman 111, 1979. The Benefits of Environmental Improvement Theory and Practice. John Hopkins University Press, Baltij nore. (MF). i. Paul Barrow, 1980. The Economic Theory of Pollution Control. The MIT Press, Cambridge, Massachusetts. (PB).* | 5% |

**Evaluation Percentage Recap: Project Based Learning**

| No | Evaluation | Percentage |
|---|---|---|
| 1. | Participatory Activities | 10% |
| 2. | Project Results Assessment / Product Assessment | 55% |
| 3. | Portfolio Assessment | 20% |
| 4. | Practice / Performance | 5% |
| 5. | Test | 10% |
| | | 100% |

**Notes**

1. **Learning Outcomes of Study Program Graduates (PLO - Study Program)** are the abilities possessed by each Study Program graduate which are the internalization of attitudes, mastery of knowledge and skills according to the level of their study program obtained through the learning process.
2. **The PLO imposed on courses** are several learning outcomes of study program graduates (CPL-Study Program) which are used for the formation/development of a course consisting of aspects of attitude, general skills, special skills and knowledge.
3. **Program Objectives (PO)** are abilities that are specifically described from the PLO assigned to a course, and are specific to the study material or learning materials for that course.
4. **Subject Sub-PO (Sub-PO)** is a capability that is specifically described from the PO that can be measured or observed and is the final ability that is planned at each learning stage, and is specific to the learning material of the course.
5. **Indicators for assessing** ability in the process and student learning outcomes are specific and measurable statements that identify the ability or performance of student learning outcomes accompanied by evidence.
6. **Assessment Criteria** are benchmarks used as a measure or measure of learning achievement in assessments based on predetermined indicators. Assessment criteria are guidelines for assessors so that assessments are consistent and unbiased. Criteria can be quantitative or qualitative.
7. **Forms of assessment:** test and non-test.
8. **Forms of learning:** Lecture, Response, Tutorial, Seminar or equivalent, Practicum, Studio Practice, Workshop Practice, Field Practice, Research, Community Service and/or other equivalent forms of learning.
9. **Learning Methods:** Small Group Discussion, Role-Play & Simulation, Discovery Learning, Self-Directed Learning, Cooperative Learning, Collaborative Learning, Contextual Learning, Project Based Learning, and other equivalent methods.
10. **Learning materials** are details or descriptions of study materials which can be presented in the form of several main points and sub-topics.
11. **The assessment weight** is the percentage of assessment of each sub-PO achievement whose size is proportional to the level of difficulty of achieving that sub-PO, and the total is 100%.

12. TM=Face to face, PT=Structured assignments, BM=Independent study.