No. 6-38/2024 Add on Course (**Environmental Science**) HPU (Acad.)
Himachal Pradesh University, Summer Hill, Shimla-5
(NAAC Accredited "A" Grade University)
"Academic Branch",

Dated:
19 AUG 2024

To

1. The Dean, Faculty of Life Sciences, HPU, Shimla-5.
2. The Controller of Examinations, HPU, Shimla-5.
3. The D.R. Exam. (PG) HPU, Shimla-5.
4. The D.R. Eval./Re-Eval./Conduct, HPU, Shimla-5.
5. The D. R. Secrecy, HPU, Shimla-5. **(with 2 spare copies.)**
6. The S.O. Exam (**M.Sc. Environment Science**) HPU, Shimla-5.
7. The Librarian, HPU Main Library, Shimla-5.
8. The Incharge, Computer Centre, Examination Wing (PG), HPU, Shimla-5.

Subject: ***Complimentary copies of New syllabus of Add On Course (Certificate Course in Environmental Science).***

Sir/Madam,

I am sending herewith complimentary copy of ***New syllabus of Add On Course i.e Certificate Course in Environmental Science*** *as per annexure,* duly approved by the Standing Committee of Academic Council in its meeting held on 27.07.2024 vide On Spot Item No. 6, on the recommendations of the concerned Board of Studies and Faculty for its implementation from the Academic Session 2024-25 onwards.

Yours faithfully,

Encls. As above.

19/8/24
Deputy Registrar (Acad.)
HP University Shimla-5.

Endst. No. Even
Copy to:
Dated:
19 AUG 2024

1. The Chairman, Deptt. of Environment Science , HPU, Shimla-5 for information and **send the soft copy in PDF format to web Admin, HPU, Shimla-5 immediately.**
2. The Web Admin, HPU, Shimla-5, with the request to upload this letter with syllabus on the website.
3. The Dealing Assistant Meeting (Acad.), HPU, Shimla-5, for information.
4. Guard file.

19/8/24
Deputy Registrar (Acad.)

for Guard File

19/8/2024
Chairman
Deptt. Of Env. Science
H.P. University, Shimla

Annexure- O

GENERAL INSTRUCTIONS
&
COURSE CURRICULUM

FOR

Add- on Courses

CERTIFICATE COURSE IN ENVIRONMENTAL SCIENCE

(Effective from Session 2024-25)

DEPARTMENT OF ENVIRONMENTAL SCIENCE

HIMACHAL PRADESH UNIVERSITY

(NAAC Accredited "A" Grade University)

SUMMERHILL, SHIMLA-171005, HIMACHAL PRADESH

INDIA

Chairman
Deptt. Of Env. Science
H.P. University, Shimla

Annexure-O

HIMACHAL PRADESH UNIVERSITY
SUMMER HILL, SHIMLA-171005

Certificate Course in Environmental Science

GENERAL INSTRUCTIONS/ GUIDELINES FOR EXECUTION OF CURRICULUM

I. The Certificate course in Environmental Science will be of six months duration.

1. **Add on Courses [AOC]:** A total of two AOC will be offered by the department. AOC of 2-credits includes the theory and practical component of 25 marks each.

NOTE: The practical [PR] examination will carry 25 marks as follows;

Performance and write-up of practicals:	15.0 marks
Practical record/ Notebook:	5.0 marks
Viva voce examination:	5.0 marks

II. A candidate has to secure minimum pass marks individually in Theory [TH] paper and Practical [PR] examination to earn full credits in the concerned course. A candidate thus failing in any of these components shall be considered failed in that course.

- **A student will be awarded Certificate in Environmental science after securing 4 credits**

III. The admission to this certificate course will be as per the university norms.

Outline of Certificate Course in Environmental Science

Course Code	Title of the Course	Marks		Total Marks	Credits T+P
		Theory	Practical		
ES-AOC-1	Environmental Impact Assessment and Environmental Health	25	25	50	1+1
ES-AOC-2	Green Growth and Sustainable Management	25	25	50	1+1
Total Marks/ Credits		**50**	**50**	**100**	**2+2= 4**

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COURSE: ES-AOC-1
ENVIRONMENTAL IMPACT ASSESSMENT AND ENVIRONMENTAL HEALTH

Theory: 15 Credit Hours
Practical: 30 Credit Hours

Theory examination: 25 marks
Practical examination: 25 marks
Total Marks: 50

NOTE: Instructions for setting question paper
The examiner will set a total of nine (9) questions covering the entire syllabus. Out of nine questions, Q.No. 1 containing five short -answer type questions that will cover entire syllabus will be compulsory.There will be 4 questions from each section. Students will attempt five questions in total by selecting two questions from each section and the compulsory question. All questions shall carry equal marks (5 marks each).

SECTION I

(8 hours)

Unit 1: Definition and significance of EIA, Historical background, Objectives and scope of EIA, Classification of EIA, Laws and regulations governing EIA (e.g., NEPA in the US, EIA Directive in the EU), EIA process in India (EIA Notification, 2006). Role of government agencies and stakeholders in EIA, Screening and Scoping, Baseline data collection, public consultation, Impact prediction and assessment.

Unit 2: Strategies for minimizing adverse impacts, Monitoring and adaptive management, Environment Management Plan (EMP). Social impact assessment (SIA), prediction of environmental impacts, evaluation of impacts, Environmental Impact Statement (EIS), Strategic Environmental Assessment, Post Environmental Clearance Monitoring, Environment Audit.

Unit 3: Prediction and Assessment of Impacts on Water Environment, Air Environment, Noise Environment, Biological Environment, Cultural and Socio-cultural Environment, Impact of tourism on environment, impact on flora and fauna in Himalayan region.

SECTION II

(7 hours)

Unit 4: Tools and Techniques in EIA (Adhoc Method, Matrix Method, Network and Map Overlays Methods), Overview of environmental modeling, Introduction to Geographic Information Systems (GIS) in EIA, Basic concepts of risk assessment, Biodiversity and ecosystem services assessment. Overview of environmental health concepts and their relevance to EIA.

Unit 5: Historical perspective on integrating health considerations into EIA, Regulatory frameworks and guidelines for addressing health in EIA.

Unit 6: Environmental Health Hazard, Health Risk characterization and Management, Occupational Health and Safety in EIA: Occupational hazards associated with development projects, Occupational health and safety regulations in EIA, Worker protection measures and best practices.

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COURSE OBJECTIVES:

1. Give students the conceptual basis and the necessary tools for understanding environmental impacts
2. Providing information on the environmental consequences for decision making.

LEARNING OUTCOMES:

1. Develop capability to understand the concept of Environment Impact Assessment.
2. Obtain basic capability in skills and functional knowledge to carry out EIA.
3. Understand the general knowledge of environmental factors affecting health, environmental health problems and its causes
4. Understand the processes and mechanisms of environmental health hazards (Biological, chemical, physical, mechanical and psychological hazards)

Suggested Readings

1. Anjaneyulu, Y. and Manickam, V. Environmental Impact Assessment Methodologies. B.S. Publications.2002.
2. Boland, R.G.A. (Ed) Environmental Management Training. Sterling Publishers Pvt. Ltd. New Delhi, 1993.
3. Canter, L. Environmental Impact Assessment.2nd Edition. McGraw-hill Book Company, New York.1996.
4. Cutter, S.L. Environmental Risks and Hazards. Prentice Hall of India, New Delhi. 1999.
5. Glasson, J. Therivel, R. and Chadwick, A. Introduction to Environmental Impact Assessment. Routledge, London. 2006.
6. Goel, S. L. Environment Health and Value Education. Deep and Deep Publications. 2008.
7. Kumar, H. Environmental Health Hazards. IVY Publishing. 2001.
8. Sarkar, A and Panigrah, S. K. Water Borne diseases in India: Environmental health and policy perspective. Manak. 2007.
9. Yassi, A. Basic Environmental Health, Volume I. Oxford University Press. 2001.
10. Sarkar, A., Panigrah, S. K. and Anand, M. Vector Borne diseases in India: Environmental health and policy perspective. Manak. 2007.

List of Practicals:

1. Analysis of Socioeconomic survey in the concern village
2. Hypothetical EIA of Hydro power project.
3. Hypothetical EIA of Cement plants/ mining
4. Impact study of National highways/road construction
5. Hypothetical EIA of River valley project

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COURSE: ES-AOC-2
GREEN GROWTH AND SUSTAINABLE MANAGEMENT

Theory: 15 Credit Hours
Practical: 30 Credit Hours

Theory examination: 25 marks
Practical examination: 25 marks
Total Marks: 50

NOTE: Instructions for setting question paper
The examiner will set a total of nine (9) questions covering the entire syllabus. Out of nine questions, Q.No. 1 containing five short -answer type questions that will cover entire syllabus will be compulsory. There will be 4 questions from each section. Students will attempt five questions in total by selecting two questions from each section and the compulsory question. All questions shall carry equal marks (5 marks each).

SECTION-I **(8 hours)**

Unit 1: Green Economy, Definition and principles of green growth, Definition and scope of sustainability, Historical perspectives on sustainability, Sustainable development goals and frameworks, Role of green economy in promoting sustainability Sustainable Agriculture and Food Systems: Organic and Natural farming and agro ecology.

Unit 2: Sustainable Consumption and Production, Food security and sustainable food production, Sustainable transportation and Urban Planning: Sustainable transportation systems (public transit, biking, walking), Urban design for sustainability (smart cities, green infrastructure).

Unit 3: Sustainable Consumption and Lifestyle Choices: Consumer behavior and its environmental impacts, Strategies for promoting sustainable consumption, Personal sustainability action plans, Role of technology in promoting sustainability.

SECTION-II **(7 hours)**

Unit 4: Green growth and climate change: linkages between green growth and climate action, Mitigation and adaptation strategies, the role of carbon pricing and emissions trading.

Unit 5: Green Growth and Biodiversity Conservation: Conservation and restoration of ecosystems, Biodiversity-friendly agriculture and land use practices, Payment for ecosystem services (PES) schemes.

Unit 6: Policy and Governance for Sustainable Development: Environmental policies and regulations, Role of governments, NGOs, and international organizations, Policy Frameworks for Green Growth: National and international policies for promoting green growth, Regulatory frameworks and market mechanisms, Green Climate Fund.

COURSE OBJECTIVES:

1. Understanding the balance between development, environmental stewardship, and social equity.
2. Aligning economic and environmental goals for a sustainable future.

LEARNING OUTCOMES:

1. Understanding of the importance and implementation of a green growth and sustainability.
2. Understand the concept of Sustainable Consumption and Lifestyle Choices
3. Importance of ecosystem restoration and conservation.

Suggested Readings:

1. Barrow, C.J. 2006.Environmental Management and Development. Pub.Routledge; 2nd edition (11 August 2006)
2. Kulkarni,V. andRamchandra,T.V.2009. Environmental Management. TERI, New Delhi.

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Murali Krishna,I.V andValli Manickam. 2017. Introduction to Environmental Management. Elsevier Pub.
Sulphey, M., M. and Safeer, M. M.,2017.Introduction To Environment Management. Fourth Edition, PHI Learning Private limited. Pp 423.

List of Practicals

1. Record the success stories of the NGOs/ individuals working for clean environmentand how the same is achieved and prepare a report.
2. Visit to nearby Institute/ organization to study the initiative on green technology.
3. Activity on designing and creation of any sustainable product.

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