



UNIVERSITY OF JAMMU

(NAAC ACCREDITED 'A ++' GRADE' UNIVERSITY)
Baba Sahib Ambedkar Road, Jammu-180006 (J&K)

Academic Section

Email: academicsectionju14@gmail.com

NOTIFICATION (25/Sept./Adp./65)

It is hereby notified for the information of all concerned that the Vice-Chancellor, in anticipation of the approval of the Academic Council, is pleased to authorize the adoption of the syllabus and courses of studies of the Subject of **Environmental Science** of semester VI for **Four Year Undergraduate Programme (FYUGP)** as per **Nep-2020 (as given in annexure)** for the examinations to be held in the years as per the details given below:-

Subject	Semester	For the Examinations to be held in the years
Environmental Science	Semester-VI	May 2026, 2027 and 2028

The Syllabi of the courses is also available on the University website:
www.jammuuniversity.ac.in

Sd/-
DEAN ACADEMIC AFFAIRS

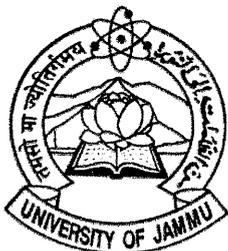
No. F. Acd/II/25/9113-36
Dated: 09/09/25

Copy for information and necessary action to:

1. Dean, Faculty of Life-Science
2. Convener, Board of Studies in Environmental Science
3. All members of the Board of Studies
4. Sr. P.A. to the Controller of Examinations
5. Director, Centre for IT Enabled services and Management, University of Jammu for information and for uploading on University Website.
6. C.A. to the Controller of Examinations
7. Director, Computer Centre, University of Jammu.
8. Joint Registrar/Deputy Registrar/Asst. Registrar (Conf. /Exam UG/Exam. Non Prof.)

Abusca
9/9/25
Joint Registrar (Academic)
8/9/25

**DEPARTMENT OF ENVIRONMENTAL SCIENCES
UNIVERSITY OF JAMMU**



**CURRICULUM FRAMEWORK FOR
FOUR –YEAR UNDERGRADUATE PROGRAMME (FYUGP)
IN ENVIRONMENTAL SCIENCES
(Semester 6th)**

UNDER CBCS

AS PER

NATIONAL EDUCATION POLICY -2020

Approved By

Board of Studies in Environmental Sciences (BoS-ES)

UNIVERSITY OF JAMMU
Syllabus for FYUGP in ENVIRONMENTAL SCIENCES
(Under CBCS as per NEP-2020)

DEPARTMENT OF ENVIRONMENTAL SCIENCES
UNIVERSITY OF JAMMU
Following Courses of Study are prescribed for
6th Semester
FYUGP in the subject of ENVIRONMENTAL SCIENCES
Under CBCS as per National Education Policy 2020

SEMESTER-6

S. No.	TYPE OF THE COURSE	TITLE OF THE COURSE	COURSE NO.	CREDITS T-Teaching P-Practical
1.	MAJOR COURSE	PUBLIC HEALTH AND SANITATION	UMJEST-601	4-Credits T-3/P-1
2.	MAJOR COURSE	ENVIRONMENTAL LAW AND POLICIES: AN OVERVIEW	UMJEST-602	4-Credits T-3/P-1
3.	MAJOR COURSE	BASICS OF ENVIRONMENTAL IMPACT ASSESSMENT (EIA)	UMJEST-603	4-Credits T-3/P-1
4.	MAJOR COURSE	ENVIRONMENTAL HAZARDS: CONCEPT AND MANAGEMENT	UMJEST-604	4-Credits T-3/P-1
5.	MINOR COURSE	PUBLIC HEALTH AND SANITATION	UMJEST-605	4-Credits T-3/P-1

Dr. Aline Singh *P. Singh* *A. Singh*

UNIVERSITY OF JAMMU
Syllabus for FYUGP in ENVIRONMENTAL SCIENCES
(Under CBCS as per NEP-2020)

UG SEMESTER-6
(For the examinations to be held in the years May 2026, 2027, 2028)
PUBLIC HEALTH AND SANITATION
(MAJOR COURSE)

Course Code: UMJEST-601

Max. Marks: 100 (Theory-75, Practical-25)

	Credits	Contact Hours	Units	Examination			
				Weightage (Marks)		Duration (hours)	
				Mid Semester Examination	End Semester Examination	Mid Semester Examination	End Semester Examination
Theory	03	45	1 to 4	15	60	1.5	3.0
Practical	01	30	P	10	15	-	-

Objectives:

- To provide students with a basic understanding of public health principles.
- To enable the learners to understand sanitation practices, and environmental health management.
- To equip the learners to promote and maintain community well-being and prevent the spread of diseases.

Learning Outcomes:

The students shall be able to

- understand the basic principles of public health and sanitation.
- identify the relationship between sanitation and disease prevention.
- recognize environmental health hazards and their control measures.
- apply hygiene and sanitation practices in community health settings.
- promote public awareness on health, hygiene, and sanitation issues.

UNIT 1: INTRODUCTION TO HUMAN HEALTH

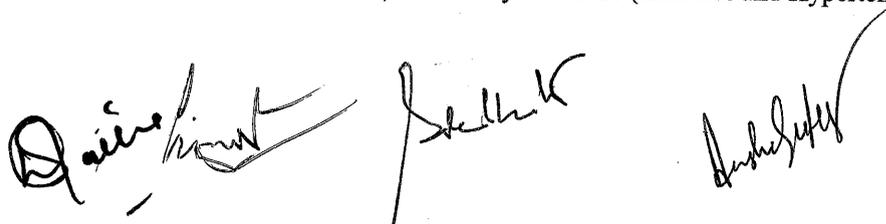
- 1.1. Definition and concept of health
- 1.2. Regional and global perspectives of health
- 1.3. Human exposure and Impact of environmental factors on human health
- 1.4. Human development indices for public health

UNIT 2: SANITATION AND HYGIENE

- 2.1. Sanitation and hygiene: types and principle
- 2.2. History and evolution of sanitation practices
- 2.3. Importance of hygiene in infection prevention
- 2.4. Concept of Water, Sanitation and Hygiene (WASH) and its importance

UNIT 3: TYPES OF DISEASES

- 3.1. Concept and types of diseases.
- 3.2. Pathogenesis, prevention and control of
 - 3.2.1. Vector-borne diseases (Dengue and Malaria)
 - 3.2.2. Food-borne diseases (Salmonellosis and Botulism)
- 3.3. Pathogenesis, prevention and control of
 - 3.3.1. Air-borne diseases (Tuberculosis and Pneumonia)
 - 3.3.2. Water-borne diseases (Cholera and Typhoid)
- 3.4. Occupational disease (Pneumoconiosis) and lifestyle disease (Diabetes and Hypertension)



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UG SEMESTER-6
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PUBLIC HEALTH AND SANITATION
(MAJOR COURSE)

Course Code: UMJEST-601

Max. Marks: 100 (Theory-75, Practical-25)

Unit 4: HUMAN HEALTH MANAGEMENT

- 4.1. Public health care system in India: Structure and functions
- 4.2. Role of NGOs and communities in public health management
- 4.3. Role of Information Technology in human health management
- 4.4. Public health initiatives for promotion of health and sanitation in India

PRACTICALS (P)

1. To study the knowledge, attitude and practices adopted for health care system by health care units in your area.
2. To collect and analyze public health data in your area using statistical tools/methods.
3. Study and document the rate of prevalence of air-borne diseases over the last one year by visiting nearby health centre.
4. Study and document water-borne diseases over last one year by visiting nearby health centre.
5. Study and document food-borne diseases over last one year by visiting nearby health centre.
6. Carry out a questionnaire-based health survey of your area.

SUGGESTED READINGS:

1. Alcamo, I. E. (1994). Fundamentals of Microbiology. The Benjamin / Cummings Pub. Co., USA.
2. Banerjee, S. K. (2001). Environmental Chemistry. Prentice Hall of India Pvt. Ltd., New Delhi.
3. De, A. K. (2003). Environmental Chemistry. New Age Int. Ltd., New Delhi.
4. Newman, M. C. (2020). Fundamentals of Ecotoxicology. CRC Press, USA.
5. Park, K. (2021). Textbook of preventive and social medicine. M/s Banarasi Das Bhanot, Jabalpur. (26th Ed.).
6. Prescott, L. M.; Harley, J. P. and Klein, D. A. (1993). Microbiology. WCB Pub., USA.
7. Satake, M.; Mido, Y.; Ysuhisa, H.; Taguchi, S.; Sethi, M. S. and Iqbal, S. A. (1997). Environmental Toxicology. Discovery Pub. House, New Delhi.
8. Shukla, S. K. and Srivastava, P. R. (1992). Characterization of Health hazards in man and Environment. Commonwealth Pub., New Delhi.
9. Shukla, S. K. and Srivastava, P. R. (1992). Environmental Pollution and chronic diseases. Commonwealth Pub., New Delhi.
10. Tortora, G. J.; Funke, B. R. and Case, C. L. (1995). Microbiology - An Introduction. The Benjamin / Cummings Pub. Co., USA.
11. Upton, A. C. and Graber, E. (1993). Staying Healthy in a risky Environment. Simon and Schuster Pub., USA.
12. Walker, C. H.; Sibly, R. M.; Hopkin, S. P. and Peakall, D. B. (2012). Principles of Ecotoxicology. CRC Press, USA.
13. Wright, D. A. and Welbowin, P. (2002). Environmental Toxicology. Cambridge Univ. Press, U.K.

SCHEME OF EXAMINATION

The paper will have seventy-five (75) marks for theory and twenty-five (25) marks for practical. The breakup for seventy-five (75) marks for theory shall contain fifteen (15) marks for mid semester assessment test and sixty (60) marks for end semester examination. There will be continuous assessment of ten (10) marks and final examination of fifteen (15) marks for practical component.

Arave *Rishi* *Pandey* *Arave*

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UG SEMESTER-6
(For the examinations to be held in the years May 2026, 2027, 2028)
PUBLIC HEALTH AND SANITATION
(MAJOR COURSE)

Course Code: UMJEST-601

Max. Marks: 100 (Theory-75, Practical-25)

NOTE FOR PAPER SETTING

Mid Semester Examination (Total marks: 15; Syllabus to be covered: 50%, Time 1.5 hrs)

Fifteen (15) marks for theory paper in a subject reserved for internal assessment shall have one (1) long answer type question of seven (7) marks and four (4) short answer type questions of two (2) marks each.

End Semester University Examination (Total marks: 60; syllabus to be covered: 100%, Time Allotted: 3 hrs)

The question paper will have (2) sections. **Section 'A'** will be compulsory having four (4) questions of three (3) marks each and spread over the entire theory syllabus (one from each unit i.e., Units 1 to 4) and the questions will be short answer type. **Section 'B'** will have eight (8) long answer type questions, two (2) from each unit. Each question will be of twelve (12) marks. The candidates will be required to answer one (1) question from each unit.

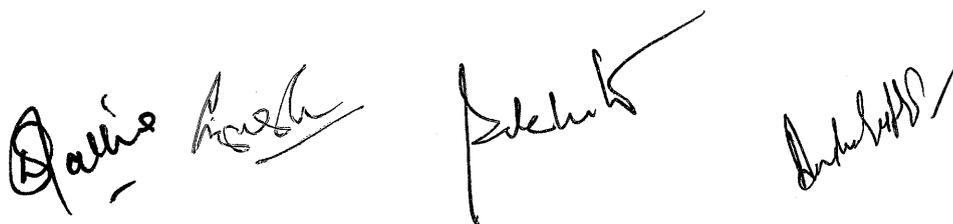
Note for distribution of 25 Marks in Practical Examination

I. Internal Assessment (Total Marks: 10)

	Marks
1. Attendance	2
2. Practical Test	5
3. Daily performance based on practical work done	3

II. External Assessment (Total Marks: 15)

1. External practical examination	10
2. Viva-voce	5



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Syllabus for FYUGP in ENVIRONMENTAL SCIENCES
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UG SEMESTER-6

(For the examinations to be held in the years May 2026, 2027, 2028)

ENVIRONMENTAL LAW AND POLICIES: AN OVERVIEW
(MAJOR COURSE)

Course Code: UMJEST-602

Max. Marks: 100 (Theory-75, Practical-25)

	Credits	Contact Hours	Units	Examination			
				Weightage (Marks)		Duration (hours)	
				Mid Semester Examination	End Semester Examination	Mid Semester Examination	End Semester Examination
Theory	03	45	1 to 4	15	60	1.5	3.0
Practical	01	30	P	10	15	-	-

Objectives:

- To provide students with a foundational understanding of environmental legislations and Policies.
- To familiarize the students with environmental initiatives at international and national level in order to prevent the degradation of environment.
- To promote environmental awareness and responsibility.

Learning Outcomes:

Students shall be able to

- understand the key environmental laws and policies and identify the role of law in environmental protection.
- analyze the effectiveness of environmental legislation and apply legal knowledge to real world scenarios.
- understand institutional and administrative mechanisms.

UNIT 1: ENVIRONMENTAL LAW AND POLICIES AT THE INTERNATIONAL LEVEL

- 1.1 Global environmental issues and challenges-introduction, concept of environment protection and International Environment Law (IEL)
- 1.2 Historical development of IEL - United Nations Conference on Human Environment (1972), United Nations Conference on Environment and Development (1992)
- 1.3 Key principles of IEL - Polluter Pay Principle, Precautionary Principle, Principle of Sustainable Development
- 1.4 International institutions for environment protection: United Nations Environment Programme (UNEP), Intergovernmental Panel on Climate Change (IPCC), International Union for Conservation of Nature (IUCN), World Bank and Environmental Funding Mechanisms (e.g., Green Climate Fund), World Trade Organization (WTO)

UNIT 2: KEY INTERNATIONAL AGREEMENTS – AN OVERVIEW

- 2.1 Key climate change agreements: United Nations Framework Convention on Climate Change (UNFCCC) (1992), Kyoto Protocol (1997), Paris Agreement (2015)
- 2.2 Key agreements on biodiversity: Convention on Biological Diversity (CBD, 1992), Convention on International Trade in Endangered Species of wild fauna and flora (CITES, 1973)
- 2.3 Key agreements on pollution and hazardous wastes: Basel Convention (1989), Stockholm Convention on Persistent Organic Pollutants (POPs, 2001)
- 2.4 Key agreements on wetlands: Ramsar Convention (1971)



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UG SEMESTER-6

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ENVIRONMENTAL LAW AND POLICIES: AN OVERVIEW

(MAJOR COURSE)

Course Code: UMJEST-602

Max. Marks: 100 (Theory-75, Practical-25)

UNIT 3: ENVIRONMENTAL LAW AND POLICIES AT THE NATIONAL LEVEL

- 3.1 Environment policy during the pre-independence era
- 3.2 Environment policy during the post-independence era
- 3.3 Constitutional provisions and environment protection in India: 42nd Amendment of Indian Constitution, Article 48A, Article 51A(g), Article 21 and Article 253
- 3.4 Institutions and Regulatory Authorities: Ministry of Environment, Forest and Climate Change (MoEF&CC), Central Pollution Control Board (CPCB), State Pollution Control Boards (SPCBs) and National Green Tribunal (NGT)

UNIT 4: FRAMEWORK OF ENVIRONMENTAL LEGISLATIONS AND POLICIES AT THE NATIONAL LEVEL (ONLY SALIENT FEATURES)

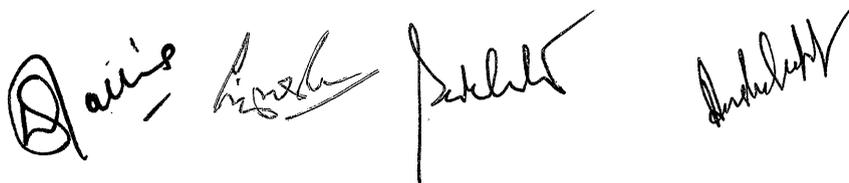
- 4.1 Water (Prevention and Control of Pollution) Act (1974); Air (Prevention and Control of Pollution) Act (1981)
- 4.2 Wildlife Protection Act (1972), Forest Act (1980), and Environmental Protection Act (1986)
- 4.3 Major waste management rules with latest amendments (Bio-medical waste management rules, E-waste management rules, Solid waste management rules)
- 4.4 National Conservation Strategy and Policy Statement on Environment and Development (NCSPSED, 1992)

PRACTICALS (P)

1. To prepare a poster of the physical timeline of the key conferences (1972–2020), including outcomes, declarations, and impact.
2. To analyze pre- and post-independence environmental policies and prepare a brief report on the shift in governance.
3. To study the use of safety and personal protective equipments while handling the biomedical waste by any healthcare unit.
4. To visit and understand the ecological significance of Ramsar site in Jammu.
5. To prepare flowchart of the structure and function of MoEF&CC/ CPCB/ SPCBs and NGT.

SUGGESTED READINGS:

1. Divan, S. and Rosencranz, A. (2005). Environmental Law and Policy in India, Oxford University Press, New Delhi.
2. Diwan, P. (1997). Environmental Administration - Law & Judicial Attitude, Vol. I, II. Deep & Deep Pub. New Delhi.
3. Jaswal, P. S. and Jaswal, N. (2014). Environmental Law. Allahabad Law Agency, Allahabad.
4. Khan, I. A. (2002). Environmental Law (2ndEd.), Central Law Agency, Allahabad.
5. Krishnamoorthy, B. (2017). Environmental Management: Text and Cases (3rdEd.), PHI learning Private Ltd, New Delhi.
6. Lal, S. (1990). Commentaries on Water, Air pollution & Environment (protection) Law. Law Pub. Pvt. Ltd. India.
7. Leelakrishnan, P. (1999). Environmental Law in India. Butterworths Publications, New Delhi.



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UG SEMESTER-6

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ENVIRONMENTAL LAW AND POLICIES: AN OVERVIEW

(MAJOR COURSE)

Course Code: UMJEST-602

Max. Marks: 100 (Theory-75, Practical-25)

8. Shastri, S. C. (2005). Environmental Law (2ndEd.), Eastern Book Company, Lucknow.
9. Singh, G. (1995). Environmental Law: International & National Perspectives.
10. Tilak, A. S. (2009). Environmental Law (1stEd.), Snow White Publication, Mumbai.

SCHEME OF EXAMINATION

The paper will have seventy-five (75) marks for theory and twenty-five (25) marks for practical. The breakup for seventy-five (75) marks for theory shall contain fifteen (15) marks for mid semester assessment test and sixty (60) marks for end semester examination. There will be continuous assessment of ten (10) marks and final examination of fifteen (15) marks for practical component.

NOTE FOR PAPER SETTING

Mid Semester Examination (Total marks: 15; Syllabus to be covered: 50%, Time 1.5 hrs)

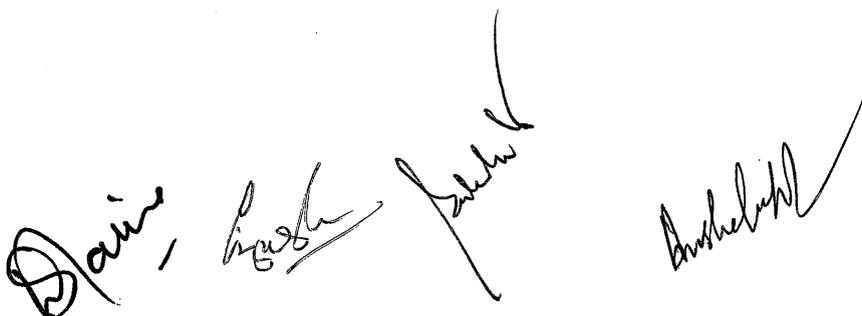
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End Semester University Examination (Total marks: 60; syllabus to be covered: 100%, Time Allotted: 3 hrs)

The question paper will have (2) sections. **Section 'A'** will be compulsory having four (4) questions of three (3) marks each and spread over the entire theory syllabus (one from each unit i.e., Units 1 to 4) and the questions will be short answer type. **Section 'B'** will have eight (8) long answer type questions, two (2) from each unit. Each question will be of twelve (12) marks. The candidates will be required to answer one (1) question from each unit.

Note for distribution of 25 Marks in Practical Examination

I. Internal Assessment (Total Marks: 10)	Marks
1. Attendance	2
2. Practical Test	5
3. Daily performance based on practical work done	3
II. External Assessment (Total Marks: 15)	
1. External practical examination	10
2. Viva-voce	5



UNIVERSITY OF JAMMU
Syllabus for FYUGP in ENVIRONMENTAL SCIENCES
(Under CBCS as per NEP-2020)

UG SEMESTER-6
(For the examinations to be held in the years May 2026, 2027, 2028)
BASICS OF ENVIRONMENTAL IMPACT ASSESSMENT (EIA)
(MAJOR COURSE)

Course Code: UMJEST-603

Max. Marks: 100 (Theory-75, Practical-25)

	Credits	Contact Hours	Units	Examination			
				Weightage (Marks)		Duration (hours)	
				Mid Semester Examination	End Semester Examination	Mid Semester Examination	End Semester Examination
Theory	03	45	1 to 4	15	60	1.5	3.0
Practical	01	30	P	10	15	-	-

Objectives:

- To provide information on significant environmental impacts of proposed projects to decision-makers and the public.
- To strengthen the scientific knowhow to prevent adverse environmental impacts by identifying appropriate alternatives or mitigation measures.
- To ensure the protection of environment along with appropriate and efficient use of resource.

Learning Outcomes:

The students shall be able to

- define Environmental Impact Assessment and describe origin and evolution of EIA.
- understand the importance of EIA, its guiding principles and relationship with sustainable development.
- know various stages involved in EIA process, understand the methodologies involved in impact prediction and analysis and EIA documentation and reporting.

UNIT 1: INTRODUCTION TO EIA-I

- 1.1. Definition, objectives and types of Environmental Impact Assessment (EIA)
- 1.2. Historical account of EIA with special reference to India
- 1.3. EIA notification 1994; 2006 and subsequent amendments
- 1.4. Importance of EIA and its role in sustainable development

UNIT 2: INTRODUCTION TO EIA-II

- 2.1. An overview of guiding principles of EIA
- 2.2. General procedure/steps involved in EIA
- 2.3. Environmental impacts to be considered in EIA process and their types
- 2.4. Categorization of EIA *vis-à-vis* infrastructure projects

UNIT 3: EIA METHODOLOGIES: TYPES, ADVANTAGES AND DISADVANTAGES

- 3.1. Methods in EIA: Adhoc and Checklist, Matrix and Overlay, Network and Modeling
- 3.2. Impact prediction: Identification of cause and effects
- 3.3. Social Impact Assessment in EIA- Process and Components
- 3.4. Cost- Benefit Analysis in EIA

UNIT 4: EIA DOCUMENTATION AND REPORTING

- 4.1. Environmental Impact Statement, Reviewing of EIA/EIS
- 4.2. Public consultation in EIA
- 4.3. Environmental Monitoring and Management Plan
- 4.4. Environmental Auditing





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UG SEMESTER-6

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BASICS OF ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

(MAJOR COURSE)

Course Code: UMJEST-603

Max. Marks: 100 (Theory-75, Practical-25)

PRACTICALS (P)

1. To study rapid environmental impact assessment by checklist method of proposed project.
2. To study baseline data collection for EIA.
3. To study the environmentally sensitive places of the respective areas.
4. To study the impacts of any two developmental projects (Mining/industries/Transport sector/Hydroelectric project) by Checklist, Adhoc and Matrix method.
5. To study the EMP of any two developmental projects (mining/industries/transport sector/hydroelectric project).
6. To study rehabilitation plan of micro / small infrastructure project.
7. To study mitigation measures of any developmental project in your area.

SUGGESTED READINGS:

1. Anjaneyulu, Y. (2002), Environmental Impact Assessment Methodologies. BSP BS Publications, Hyderabad.
2. Canter, L.W. (1996). Environmental Impact Assessment. 2nd Edition, McGraw Hill, New York.
3. Lawrence, D.P. (2003). Environmental Impact Assessment -Practical solutions to recurrent problems. Wiley-Interscience, New Jersey.
4. Shukla, S.K. and Shrivastav, P.R. (1992). Concepts in Environmental Impact analysis. Commonwealth Publishers, New Delhi.
5. Shukla S.K and Shrivastav P.R. (1992). Methodology of Environmental Monitoring and Assessment. Commonwealth Publishers, New Delhi.
6. Srivastav A. K. (2011). Environmental Impact Assessment. A.P.H. Publishing Corporation, New Delhi.
7. Trivadi P.R. (2009). Environmental Impact Assessment. A.P.H. Publishing Corporation, New Delhi.
8. Vankhede G. (2012). Environmental Impact Assessment. Biotech Books New Delhi.
www.envfor.nic.in/divisions/iass/eia/Cover.ht

SCHEME OF EXAMINATION

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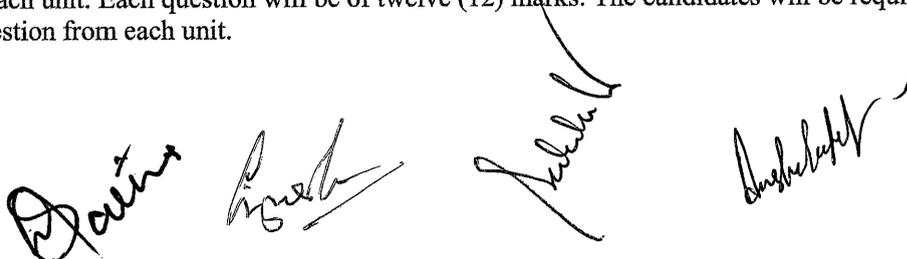
NOTE FOR PAPER SETTING

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UG SEMESTER-6
(For the examinations to be held in the years May 2026, 2027, 2028)
BASICS OF ENVIRONMENTAL IMPACT ASSESSMENT (EIA)
(MAJOR COURSE)

Course Code: UMJEST-603

Max. Marks: 100 (Theory-75, Practical-25)

Note for distribution of 25 Marks in Practical Examination

I. Internal Assessment (Total Marks: 10)	Marks
1. Attendance	2
2. Practical Test	5
3. Daily performance based on practical work done	3
II. External Assessment (Total Marks: 15)	
1. External practical examination	10
2. Viva-voce	5

Dalve *Agarwal* *Prakash* *Ankur Sood*

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Syllabus for FYUGP in ENVIRONMENTAL SCIENCES
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UG SEMESTER-6
(For the examinations to be held in the years May 2026, 2027, 2028)
ENVIRONMENTAL HAZARDS: CONCEPT AND MANAGEMENT
(MAJOR COURSE)

Course Code: UMJEST-604

Max. Marks: 100 (Theory-75, Practical-25)

	Credits	Contact Hours	Units	Examination			
				Weightage (Marks)		Duration (hours)	
				Mid Semester Examination	End Semester Examination	Mid Semester Examination	End Semester Examination
Theory	03	45	1 to 4	15	60	1.5	3.0
Practical	01	30	P	10	15	-	-

Objectives:

- To provide comprehensive knowledge to the learners on disaster management.
- Equip learners with tools for meeting emergency medical requirements.
- Enable the learners to carry out risk assessment and vulnerability analysis.

Learning Outcomes:

The students shall be able to

- Understand hazard, vulnerability and disaster.
- know the disaster profile of India, especially Jammu and Kashmir.
- comprehend the basic knowledge of disaster management and different approaches to reduce the impact of disaster.

UNIT 1: INTRODUCTION TO HAZARDS AND DISASTERS

- 1.1. Definitions and concepts: hazard, risk, vulnerability, and disaster
- 1.2. Classification and types of hazards - physical, chemical, biological, psychological and public health hazards
- 1.3. Causes (natural, man-made, and hybrid) - characteristics, and impacts of disasters
- 1.4. Vulnerability and risk profile of India, with special focus on Jammu & Kashmir (UT)

UNIT 2: MAN-MADE DISASTERS- CAUSES, EFFECTS, MITIGATION STRATEGIES

- 2.1. Nuclear disasters
- 2.2. Chemical disasters
- 2.3. Biological disasters
- 2.4. Transportation-related disasters

UNIT 3: NATURAL DISASTERS- CAUSES, EFFECTS, MITIGATION STRATEGIES

- 3.1. Cyclones, heatwaves, and cold waves
- 3.2. Floods and droughts
- 3.3. Earthquakes and tsunamis
- 3.4. Landslides and avalanches

UNIT 4: DISASTER MANAGEMENT FRAMEWORK

- 4.1. Disaster Management Cycle: prevention, preparedness, response, and recovery
- 4.2. National and State-level disaster management authorities and their roles
- 4.3. International disaster risk reduction frameworks
- 4.4. Application of Information and Communication Technology (ICT) in disaster forecasting, communication, and response

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UNIVERSITY OF JAMMU
Syllabus for FYUGP in ENVIRONMENTAL SCIENCES
(Under CBCS as per NEP-2020)

UG SEMESTER-6
(For the examinations to be held in the years May 2026, 2027, 2028)
ENVIRONMENTAL HAZARDS: CONCEPT AND MANAGEMENT
(MAJOR COURSE)

Course Code: UMJEST-604

Max. Marks: 100 (Theory-75, Practical-25)

PRACTICALS (P)

1. To study disaster preparedness plans for your institution.
2. To study fire extinguishing equipments and their operation.
3. To study safety tips before, during and after earthquake, floods and fire accidents.
4. To study disaster management cycle with the help of case studies.
5. To study the vulnerability/disaster profile of India and J&K with the help of map.
6. To conduct disaster related mock drills in the college.
7. To organize disaster related first aid training exercise.

SUGGESTED READINGS:

1. Collins, L. R. and Schneid T. D. (2000). Disaster Management and Preparedness, Taylor and Francis.
2. David, A. (2000). Introduction in Confronting Catastrophe, Oxford University Press.
3. Ghosh, G.K. (2006). Disaster Management (6. vols.), APH Publishing Corporation, New Delhi.
4. Goel S.L. and Ram, K. (2001). Disaster Management (1st ed.), Deep and Deep Publications, New Delhi.
5. Goel, S.L. (2007). Disaster Administration and Management: Text and Case studies, Deep and Deep Publications, New Delhi.
6. Gupta, A.K.; Niar S.S. and Chatterjee, S. (2013). Disaster management and Risk Reduction, Role of Environmental Knowledge, Narosa Publishing House, Delhi.
7. Modh S. (2010). Managing Natural Disasters, Mac Millan publishers India Ltd.
8. Murthy D.B.N. (2012). Disaster Management, Deep and Deep Publication, New Delhi.
9. Singh, S and Singh, J. (2016). Disaster management, Pravalika Publications, Allahabad.
10. Singh, S.K. and Singh, S. (1998). Disaster Management, Mittal Publications, New Delhi.

SCHEME OF EXAMINATION

The paper will have seventy-five (75) marks for theory and twenty-five (25) marks for practical. The breakup for seventy-five (75) marks for theory shall contain fifteen (15) marks for mid semester assessment test and sixty (60) marks for end semester examination. There will be continuous assessment of ten (10) marks and final examination of fifteen (15) marks for practical component.

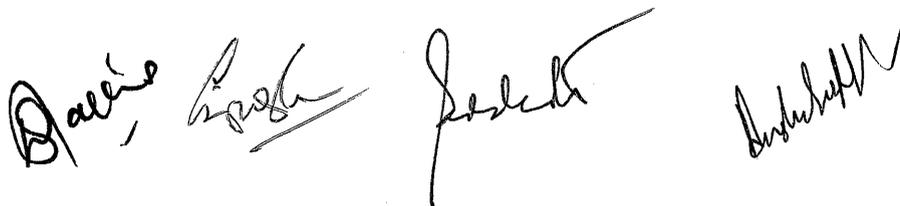
NOTE FOR PAPER SETTING

Mid Semester Examination (Total marks: 15; Syllabus to be covered: 50%, Time 1.5 hrs)

Fifteen (15) marks for theory paper in a subject reserved for internal assessment shall have one (1) long answer type question of seven (7) marks and four (4) short answer type questions of two (2) marks each.

End Semester University Examination (Total marks: 60; syllabus to be covered: 100%, Time Allotted: 3 hrs)

The question paper will have (2) sections. **Section 'A'** will be compulsory having four (4) questions of three (3) marks each and spread over the entire theory syllabus (one from each unit i.e., Units 1 to 4) and the questions will be short answer type. **Section 'B'** will have eight (8) long answer type questions, two (2) from each unit. Each question will be of twelve (12) marks. The candidates will be required to answer one (1) question from each unit.



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ENVIRONMENTAL HAZARDS: CONCEPT AND MANAGEMENT
(MAJOR COURSE)

Course Code: UMJEST-604

Max. Marks: 100 (Theory-75, Practical-25)

Note for distribution of 25 Marks in Practical Examination

I. Internal Assessment (Total Marks: 10)	Marks
1. Attendance	2
2. Practical Test	5
3. Daily performance based on practical work done	3
II. External Assessment (Total Marks: 15)	
1. External practical examination	10
2. Viva-voce	5

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UNIVERSITY OF JAMMU
Syllabus for FYUGP in ENVIRONMENTAL SCIENCES
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UG SEMESTER-6
(For the examinations to be held in the years May 2026, 2027, 2028)
PUBLIC HEALTH AND SANITATION
(MINOR COURSE)

Course Code: UMIEST-605

Max. Marks: 100 (Theory-75, Practical-25)

	Credits	Contact Hours	Units	Examination			
				Weightage (Marks)		Duration (hours)	
				Mid Semester Examination	End Semester Examination	Mid Semester Examination	End Semester Examination
Theory	03	45	1 to 4	15	60	1.5	3.0
Practical	01	30	P	10	15	-	-

Objectives:

- To provide students with a basic understanding of public health principles.
- To enable the learners to understand sanitation practices, and environmental health management.
- To equip the learners to promote and maintain community well-being and prevent the spread of diseases.

Learning Outcomes:

The students shall be able to

- understand the basic principles of public health and sanitation.
- identify the relationship between sanitation and disease prevention.
- recognize environmental health hazards and their control measures.
- apply hygiene and sanitation practices in community health settings.
- promote public awareness on health, hygiene, and sanitation issues.

UNIT 1: INTRODUCTION TO HUMAN HEALTH

- 1.3. Definition and concept of health
- 1.4. Regional and global perspectives of health
- 1.3. Human exposure and Impact of environmental factors on human health
- 1.4. Human development indices for public health

UNIT 2: SANITATION AND HYGIENE

- 2.1. Sanitation and hygiene: types and principle
- 2.2. History and evolution of sanitation practices
- 2.3. Importance of hygiene in infection prevention
- 2.4. Concept of Water, Sanitation and Hygiene (WASH) and its importance

UNIT 3: TYPES OF DISEASES

- 3.1. Concept and types of diseases
- 3.2. Pathogenesis, prevention and control of
 - 3.2.1. Vector-borne diseases (Dengue and Malaria)
 - 3.2.2. Food-borne diseases (Salmonellosis and Botulism)
- 3.3. Pathogenesis, prevention and control of
 - 3.3.1. Air-borne diseases (Tuberculosis and Pneumonia)
 - 3.3.2. Water-borne diseases (Cholera and Typhoid).
- 3.4. Occupational disease (Pneumoconiosis) and lifestyle disease (Diabetes and Hypertension)

Dr. Anil

Rajesh

Shalini

Dr. Anil

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Unit 4: HUMAN HEALTH MANAGEMENT

- 4.1. Public health care system in India: Structure and functions
- 4.2. Role of NGOs and communities in public health management
- 4.3. Role of Information technology in human health management
- 4.4. Public health initiatives for promotion of health and sanitation in India

PRACTICALS (P)

1. To study the knowledge, attitude and practices among the health care units in your area.
2. To collect and analyze public health data in your area using statistical tools/methods.
3. Study and document rate of prevalence of air-borne disease over past few months or years by visiting health centre.
4. Study and document water-borne disease over past few months or years by visiting health centre.
5. Study and document food-borne disease over past few months or years by visiting health centre.
6. Carry out a questionnaire-based health survey of your area.

SUGGESTED READINGS:

1. Alcamo, I. E. (1994). Fundamentals of Microbiology. The Benjamin / Cummings Pub. Co., USA.
2. Banerjee, S. K. (2001). Environmental Chemistry. Prentice Hall of India Pvt. Ltd., New Delhi.
3. De, A. K. (2003). Environmental Chemistry. New Age Int. Ltd., New Delhi.
4. Newman, M. C. (2020). Fundamentals of Ecotoxicology. CRC Press, USA.
5. Park, K. (2021). Textbook of preventive and social medicine. M/s Banarasi Das Bhanot, Jabalpur. (26th Ed.).
6. Prescott, L. M.; Harley, J. P. and Klein, D. A. (1993). Microbiology. WCB Pub., USA.
7. Satake, M.; Mido, Y.; Ysuhisa, H.; Taguchi, S.; Sethi, M. S. and Iqbal, S. A. (1997). Environmental Toxicology. Discovery Pub. House, New Delhi.
8. Shukla, S. K. and Srivastava, P. R. (1992). Characterization of Health hazards in man and Environment. Commonwealth Pub., New Delhi.
9. Shukla, S. K. and Srivastava, P. R. (1992). Environmental Pollution and chronic diseases. Commonwealth Pub., New Delhi.
10. Tortora, G. J.; Funke, B. R. and Case, C. L. (1995). Microbiology - An Introduction. The Benjamin / Cummings Pub. Co., USA.
11. Upton, A. C. and Graber, E. (1993). Staying Healthy in a risky Environment. Simon and Schuster Pub., USA.
12. Walker, C. H.; Sibly, R. M.; Hopkin, S. P. and Peakall, D. B. (2012). Principles of Ecotoxicology. CRC Press, USA.
13. Wright, D. A. and Welbown, P. (2002). Environmental Toxicology. Cambridge Univ. Press, U.K.

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	Marks
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2. Practical Test	5
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