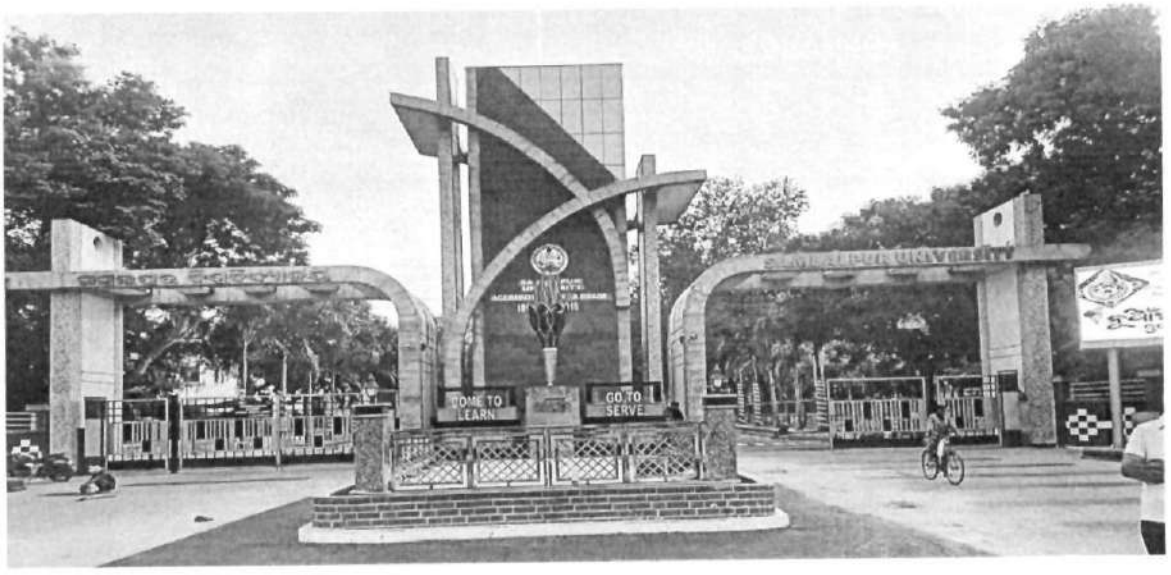
(VALUE ADDED COURSE)

Based on NEP-2020

ARTIFICIAL INGELLIGENCE

(Effective from Session 2024-25)

(Batch: 2024-2027)



SAMBALPUR UNIVERSITY

JYOTI-VIHAR, BURLA, SAMBALPUR, ODISHA-768019

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Unit I: Introduction to Artificial Intelligence

Intelligence and Artificial Intelligence, Intelligent Machines and Smart Systems, Definition and Scope of AI, History and Evolution of AI, AI Problem Solving and Search Techniques Rule-Based Systems, Natural Language Processing and Computer Vision - introductory concepts.

Unit 2: Machine Learning Fundamentals

Introduction to Machine Learning and Data-Driven Intelligence, Types of Machine Learning: Supervised, Unsupervised and Reinforcement Learning, Concept of Training Data and Labelled Data, Regression and Classification, Clustering and Dimensionality Reduction, Neural Networks - basic idea, Decision Trees, k-NN and Deep Learning (introductory concepts), Model Training and Evaluation (accuracy, precision, recall - concept only), Real-life examples of Machine Learning applications.

Unit 3: AI Applications & Tools (Stream Specific)

Generic AI Applications: AI in education, healthcare, agriculture, governance, business analytics, finance, robotics, media and entertainment.

Hands-on Exposure to AI Tools: ChatGPT, Gemini, Copilot, Claude Canva AI, Runway ML. Google Teachable Machine, DALL•E, Adobe Firefly and Pictory, Google AI Studio.

A) AI for Arts Stream: AI in literature, language translation, digital humanities, music composition, creative writing, journalism, media analytics and visual arts.

OR

B) AI for Science Stream: AI in climate modelling, healthcare diagnostics, bioinformatics, environmental monitoring, scientific data analysis and research automation.

OR

C) AI for Commerce Stream: AI in marketing, customer analytics, accounting automation, fraud detection, e-commerce, stock prediction and financial services.

Unit 4: Ethical, Social, Economic and Legal Implications of AI

Ethical AI and Responsible AI Practices, Algorithmic Bias and Fairness, Privacy and Surveillance Issues, Misinformation and Deep fakes, Intellectual Property and AI-generated Content, AI and Employment, Human-AI Collaboration; Digital Divide, Security Concerns, Existing Law and Policies related to AI, need for AI Governance and Sustainable AI.

Unit 5: Group Mint Project & Presentation

Students shall identify a real-life case study from their stream and: (a) Design a conceptual AI-based solution, or (b) Critically evaluate an existing At system/tool. The project should include problem identification, AI application analysis, ethical considerations, report preparation and seminar presentation.

Teaching-Learning Methodology

- Interactive lectures with multimedia demonstrations
- Hands-on activities using no-code AI tools
- Case studies and interdisciplinary discussions
- Group activities, seminars and presentations
- Reflective assignments and mini-projects

Assessment Scheme

Component	Weightage
Quizzes MCQ Tests	10%
Assignments/Reflective Journals	10%
Class Participation & Project Work	30%
End Semester Examination	50%

Text Books:

1. Saptarsi Goswami, Amit Kumar Das, and Amlan Chakrabarti. AI for Everyone: A Beginner's Handbook for Artificial Intelligence (AI), Pearson.
2. Sridhar Seshadri, Shreeram Iyer. AI for Everyone: A Common Man's Guide to Artificial Intelligence, Embassy Books.

Suggested References

1. Russell, Stuart & Peter. Artificial Intelligence: A Modern Approach, 4th Edition, Pearson.
2. Andreas C. Müller & Sarah Guido. Introduction to Machine Learning with Python, O'Reilly.
3. Selected online resources and AI tool documentation.

Detailed Syllabus

Unit 1: Introduction to Artificial Intelligence

Intelligence and Artificial Intelligence, Intelligent Machines and Smart Systems, Definition and Scope of AI, History and Evolution of AI, AI Problem Solving and Search Techniques, Rule-Based Systems, Natural Language Processing and Computer Vision – introductory concepts.

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8/06/2026

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Unit 5: Group Mini Project & Presentation

Students shall identify a real-life case study from their stream and: (a) Design a conceptual AI-based solution, or (b) Critically evaluate an existing AI system/tool. The project should include problem identification, AI application analysis, ethical considerations, report preparation and seminar presentation.

Teaching-Learning Methodology

- Interactive lectures with multimedia demonstrations
- Hands-on activities using no-code AI tools
- Case studies and interdisciplinary discussions
- Group activities, seminars and presentations
- Reflective assignments and mini-projects

Assessment Scheme

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3. Selected online resources and AI tool documentation.

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VALUE ADDED COURSES

SEMESTER-I, III, V & VI

(Effective from Session 2024-25)

(Batch: 2024-2027)



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VALUE ADDED COURSES

SEMESTER -I

ENVIRONMENTAL STUDIES AND DISASTER MANAGEMENT

FULL MARK-100 **Lecture: 45 Hour** **3CH**

Unit 1: Multidisciplinary nature of environmental studies (12 Period)

Definition, scope and importance, Need for public awareness

Environmental Pollution

Definition

• Cause, effects and control measures of: -

a) Air pollution
b) Water pollution
c) Soil pollution
d) Marine pollution
e) Noise pollution
f) Radiation pollution

Unit 2: Natural Resources: (12 Period)

Renewable and non-renewable resources:

Natural resources and associated problems.

a) Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forest and tribal people.
b) Water resources : Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.
c) Mineral resources : Use and exploitation, environmental effects of extracting and using mineral resources, case studies.
d) Food resources : World food problems, changes caused by agriculture and Overgrazing, effects of modern agriculture, fertilizer-pesticide problems, waterlogging, salinity, case studies.
e) Energy resources : Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources. Case studies.

Biodiversity:-

Introduction-Definition; Biogeographically classification of India

India as a mega diversity nation. Hot sports of biodiversity, Threats to biodiversity. Endangered and endemic species of India. Conservation of biodiversity. In Situ and Ex-so conservation of biodiversity

Unit-3: Disaster Management (12 Period)

1. **Disaster Management:** Types of disasters (natural and Man-made) and their causes and effect)
2. **Vulnerability Assessment and Risk analysis:** Vulnerability to various disasters (Flood, Cyclone, Earthquake, Heat waves, Desertification and Lighting)
3. **Institutional Framework:** Institutional arrangements for disaster management (National Disaster Management Authority (NDMA), State Disaster Management Authority

(SDMA), Disaster Management Act, 2005, District Disaster Management Authority (DDMA), National Disaster Response Force(NDRF) and Odisha Disaster Rapid Action Force(ODRAF)

4. **Preparedness measures:** Disaster Management cycle, Early Warning System, Pre-Disaster and Post-Disaster Preparedness, strengthening of SDMA and DDMA, Community Preparedness for flood cyclone, heat waves, fire safety, lightening and snake biting. Stakeholders participation, Corporate Social Responsibility (CSR)
5. **Survival Skills:** Survival skills adopted during and after disaster (Flood, Fire, Earthquake, Cyclone and Lightening), Disaster Management Act-2005, Compensation and Insurance

Unit 4: Social Issues and the Environment (9Period)

A.

a) Environmental Ethics: Issues and possible solutions.
b) Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies
c) Environment Protection Act
d) Air(Preservation Control of Pollution) Act
e) Water(Preservation Control of Pollution) Act
f) Wildlife Protection Act
g) Forest Conservation Act
h) Solid waste management Cause, effect and Control Measure of Urban and Industrial waste

(Role of each individual in the conservation of Natural resources and prevention of pollution)

B. Human Population and the Environment

Population Ecology: Individuals, species, population, community
Human population growth, population control method
Urbanisation and its effect on society

Unit 5: Field work (15 Periods of 30 hrs)

- Visit to an area to document environmental assets: river/forest/flora/fauna, etc.
- Visit to a local polluted site- Urban/Rural/Industrial/Agricultural
- Study of common plants, insects, birds and basic principles of identification.

Study of simple ecosystems-pond, river, Delhi Ridge ,etc.

SEMESTER-III

ETHICS AND VALUES

Credit point: 3 **Lecture: 45 Hour** **Total Hours: 45**

COURSE OUTCOME

- Development of a good human being and a responsible citizen
- Developing a sense of right and wrong leading to ethically correct behavior
- Inculcating a positive attitude and healthy work culture
- To equip the students to prepare themselves national and state level civil service and other competitive examination.

COURSE CONTENTS

UNIT-I- ETHICS AND HUMAN INTERFACE [5 Hours]

Learning Outcome-

✓ *Understand the basic concept of ethics and its relevance in life*

- Ethics and Human Interface: Essence, Determinants and consequence of ethics and human action.
- Dimensions of Ethics in private and public relationship
- Human Values: Tolerance, Compassion, Rationality, Objectivity, Scientific Attitude Integrity, Respecting conscience and Empathy etc.
- Mahatma Gandhi and Ethical Practices: Non-Violence, Truth, Non-hatred and love for all, concern for the poorest, objective Nationalism and Education for man making. Relation between Ends and Means.

Subject Teacher: Philosophy/Political Science or Any other Teacher.

UNIT-II- ETHICS AND MAJOR RELIGIONS AND CIVILIZATIONS [7 hours]

Learning Outcome-

✓ *Be familiar with ethical principles and values promoted by major religious traditions and civilization*

- Hinduism- Dharma and Mokhya (out of 4 goals of life Dharma, Artha, Kama and Mokhya), Concept of Purusartha, Nisakama Karma(work without attachment to results), Concept of Basudev Kutumba and Peace (Whole world including all animals, plants, inanimate beings and human form one world)
- Ten Commandments: (Christianity and Judaism Tradition)
- Islamic Ethics: Justice, Goodness, Kindness, Forgiveness, Honesty, Purity and Piety
- Egyptian- Justice, Honesty, Fairness, Mercy, Kindness and Generosity
- Mesopotian-Non-indulgence in lying, stealing, defrauding, maliciousness, adultery, coveting possession of others, unworthy ambition, misdemeanors and injurious teaching.
- Buddhism-Arya Astangika Marg: Right View, Thought, Speed, Action, Livelihood, Efforts, Attention and Concentration.
- Jainism-Right faith, knowledge and conduct(Triralna)

- Chinese-Confucianism- Respect for Autonomy, Beneficence, non-maleficence and justice. Taoism: No killing, No stealing, No sexual misconduct, No false Speech and No taking of intoxicants.

Subject Teacher: History/Philosophy/Political Science or Any other Teacher.

UNIT-III- CONSTITUTIONAL VALUES, GOOD CITIZENSHIP, PATRIOTISM AND VOLUNTEERISM [10 Hours]

Learning Outcome-

- ✓ *Students Learns about constitutional values of India, Civic Sense and good Citizenship (both National and International) Patriotism and need for Volunteerism*

- Salient Values of Indian Constitution: Sovereign, Socialist, Secular, Democratic, Republic, Justice, Liberty, Equality and Fraternity
- Patriotic values and ingredients of National Building, Examples of great Patriots, Rani Laxmi Bai, Bhagat Singh, Mangal Pandey, Birsa Munda, Laxman Naik, Subhas Chandra Bose and Khudiram Bose.
- Law abiding citizenship
- Concept of Global citizenship in contemporary world
- Volunteerism- concept and facts of Volunteerism, building a better society through Volunteerism, Blood Donation, Social work, Helping the Aged, Promotion of Green Practices and Environment protection.

Subject Teacher: Philosophy/Political Science /History/ or Any other Teacher.

UNIT-IV- WORK ETHICS [6 hours]

Learning Outcome-

- ✓ *Understand the concept of work ethics, ethics in work place and ethical practices to be adopted by various professionals*

- The concept of professionalism.
- Professional ethics at work place
- Core values needed for all professionals. Reliability, Dedication, Discipline, Productivity, Co-operation , Integrity, Responsibility, Efficiency, Professionalism, Honesty, Purity and Time Management, Accountability, Respect Diversity, Gender Sensitivity, Respect for others, Cleanliness, Rational Thinking, Scientific Attitude, Clarity in Thinking . Diligence, cleanliness and Environment Consciousness.
- Codes of conduct for Students(both in College and Hostels),Teachers, Business professional, Doctors, Lawyers, Scientist, Accountants, IT professionals and Journalist.
- Practical ethics in day to day life.

Subject Teacher: Commerce/Philosophy/Education/History/ or Any other Teacher.

UNIT-V-ETHICS AND SCIENCE AND TECHNOLOGY [7 Hours]

Learning Outcome-

- ✓ *Understand how Science is related to ethics and values has ethical implications.*

- Ethics of Science and Technology. Are science and Technology ethically neutral? Are Science and Technology Value Free?
- Ethics of scientific Research ,Innovation and Technology
- Ethics of Social Media, Modern Gadgets
- AI and Ethics

Subject Teacher: Philosophy or Any Science Teacher

UNIT-VI- ETHICS AND VULNERABLE SECTIONS OF SOCIETY [10 hours]

Learning Outcome-

- ✓ *Understand how various vulnerable sections of our society are treated unequally and what needs to be done to address their inequality*
- ✓ *Understand dimensions of substance abuse*

1. **Women and family-**Gendered practices in the family, marriages (dowry, child marriage, women's consent).
   Women and work- women's work at home and at work place, pay gap, gendered roles, harassment at work place and working women and role conflict.
   Women and Society- Gender sensitive language, property right, marriage-divorce/Separation and women's right; violence against women
2. **Issues Relating to Children:** Nutrition and health , Child Exploitation: Child labour ,trafficking, sexual exploitation
3. **Issues Relating to Elderly Persons :** Abuse of Elders, Financial insecurity, Loneliness and Social insecurity, Health Care Issues, Needs for a happy and Dignified Ageing
4. **Issues Relating to persons with disability:** Rights of PWD, affirmative action, prevention of discrimination, providing equal opportunity, various scheme for empowering PWD and social justice for PWD.
5. **Issues Relating to Third Gender:** Understanding LGBTQ, Social justice for them, Removal of discrimination, Affirmative action and Acceptance of diversity of gender.

Subject Teacher: Sociology/political Science /Anthropology or Any Science Teacher

Sample Questions-

1. Birsa Munda belongs to which state of India?[1 mark]
2. Recall at least 4 constitutional values from the preamble to India constitution.[2 marks]
3. Explain utility of being Punctual.[5 marks]
4. Explain the ethical principles a scientist should follow.[8 marks]

Course material: To be developed by OSHEC and DDCE, Utkal University. Video Lectures will be also prepared by OSHEC and VTP, Utkal University. There shall be no internal examination for this course. The Term End Examination shall be conducted by the respective Universities. Student would engage in self-study and colleges shall conduct at least 4 doubt clearing session for each unit by engaging subject teachers as indicated above. The Principal may assign responsibility to any teacher.

SEMESTSER-VI

CREATIVE WRITING

Credit point: 3 **Full mark -100** **Lecture: 45 Hour**

Subject Teacher: The classes will be assigned to the teacher/ faculty competent to teach the course by the Principal.

Course Objective:

The course aims to provide students with the foundational skills, techniques, and creative processes necessary for expressing themselves effectively through various forms of media writing. Through a combination of theoretical study, practical exercises, and workshop-style feedback sessions, students will explore the craft of creative writing across genres such as fiction, and creative nonfiction. This course also aims to foster creativity, critical thinking, and self-expression while equipping students with the tools and confidence to pursue further writing endeavors.

Unit I

Basics of creative writing, Principles of good writing, Various formats of writing, differentiate between journalistic and creative writing, Characteristics of media writings, Drafting and revising.

Unit II

Various formats of news writing, writing features, writing articles, writing editorials, columns, middle, letter to editor, writing film reviews, Writing book reviews.

Unit III

Basics of radio writing, Radio talks, radio features, Basic of television writing, Writing for

fictional and non-fictional programme.

Unit IV

Writing for web: characteristics of web writing, technical writing, blogs, online journalism, restrictions on publications, ethics and responsibility, Practical writing exercises- anecdotes, news story, features, captions, headlines, copywriting, reviews, press release.

List of Practical's:

1. Writing feature articles exploring human interest stories, profiles, or in-depth analyses on specific topics.

2. Writing editorial expressing personal viewpoints on current events or any social issues.

3. Writing columns on specialized topics or areas of expertise.

4. Composing letters to the editor addressing community concerns or responding to published articles.

5. Writing film reviews and book reviews analyzing plot, character development, themes, and overall impact.

6. Crafting radio scripts for various formats such as radio talks, interviews, radio features.

7. Developing scripts for Television News Programs.

8. Writing content for websites, blogs, and online publications.

Suggested Readings:

- Batty Craig and Cain Sandra (2010). Media writing: A Practical introduction. Palgrave Macmillan.
- Stovel. J.(2006). Writing for Mass Media, 6th edition. Allyn and Bacon.
- Melvin Mencher (2006). News Reporting and Writing. 10th edition. McGraw-Hill.
- Strunk, William & White, E.B. (1999). The Elements of Style. Longman.
- Clark, Roy Peter (2006). Writing tools: 50 Essential Strategies for Every writer: Little
- Brown.
- Raman, Usha (2009). Writing for the Media, OUP.