

SYLLABUS

ENVIRONMENTAL STUDIES – I Modules at a Glance

Sr. No.	Modules	No. of Lectures
1.	Environment and Ecosystem	13
2.	Natural Resources and Sustainable Development	13
3.	Populations and Emerging Issues of Development	13
4.	Urbanisation and Environment	13
5.	Reading of Thematic Maps and Map Filling	08
	Total	60

Sr. No.	Modules / Units
1.	Environment and Ecosystem Environment : Meaning, definition, scope and its components; concept of an ecosystem: definition, Characteristics, components and types, functioning and structure; Food Chain and Food Web- Ecological Pyramids - Man and environment relationship; Importance and scope of Environmental Studies.
2.	Natural Resources and Sustainable Development Meaning and definitions ; Classification and types of resources, factors influencing resource utilisation; Resource conservation- meaning and methods-conventional and non-conventional resources, problems associated with and management of water, forest and energy resources- resource utilization and sustainable development.
3.	Populations and Emerging Issues of Development Population explosion in the world and in India and arising concerns- Demographic Transition Theory - pattern of population growth in the world and in India and associated problems - Measures taken to control population growth in India; Human population and environment- Environment and Human Health – Human Development Index – The World Happiness Index.
4.	Urbanisation and Environment Concept of Urbanisation – Problems of migration and urban environment- changing land use, crowding and stress on urban resources, degradation of air and water, loss of soil cover impact on biodiversity, Urban heat islands – Emerging Smart Cities and safe cities in India - Sustainable Cities
5.	Reading of Thematic Maps and Map Filling Reading of Thematic Maps (4 Lectures) Located bars, Circles, Pie charts, Isopleths, Choropleth, and Flow map, Pictograms - Only reading and interpretation. Map Filling : (4 Lectures) Map filling of World (Environmentally significant features) using point, line and polygon segment.

SYLLABUS

ABILITY ENHANCEMENT COURSES (AEC) Environmental Studies II Modules at a Glance

Sr. No.	Modules	No. of Lectures
1.	Solid Waste Management for Sustainable Society	13
2.	Agriculture and Industrial Development	13
3.	Tourism and Environment	13
4.	Environmental Movements and Management	13
5.	Map Filling	08
	Total	60

Sr. No.	Modules / Units
1.	Solid Waste Management for Sustainable Society Classification of solid wastes – Types and Sources of Solid Waste; Effects of Solid Waste Pollution – Health hazards, Environmental impacts; Solid Waste Management – Solid waste management in Mumbai – Schemes and initiatives run by MCGM – Role of citizens in Waste Management in Urban and Rural areas.
2.	Agriculture and Industrial Development Environmental Problems Associated with Agriculture : Loss of Productivity, Land Degradation, desertification – Uneven Food Production – Hunger, Malnutrition and Food Security – Sustainable Agriculture practices. Environmental Problems Associated with Industries – pollution – Global warming, Ozone Layer Depletion, Acid rain – Sustainable Industrial practices – Green Business and Green Consumerism, Corporate Social Responsibility towards environment.
3.	Tourism and Environment Tourism : Meaning, Nature, Scope and importance – Typology of tourism – classification; Tourism potentials in India and challenges before India; New Tourism Policy of India; Consequences of tourism : Positive and Negative Impacts on Economy, Culture and Environment – Ecotourism.
4.	Environmental Movements and Management Environmental movements in India : Save Narmada Movement, Chipko Movement, Appiko Movement, Save Western Ghats Movement; Environmental Management : Concept, need and relevance; Concept of ISO 14000 and 16000; Concept of Carbon Bank and Carbon Credit, EIA, ecological footprint; Environment Protection Acts; Concept and components of Geospatial Technology – Applications of GST in Environmental Management.
5.	Map Filling Map filling of Konkan and Mumbai (Environmentally significant features)

UNIVERSITY OF MUMBAI

Revised Syllabus for the F.Y.B.A/F.Y.B.Sc/F.Y.B.Com

Semester I

Unit 1

Overview of Indian Society:

Understand the multi-cultural diversity of Indian society through its demographic composition: population distribution according to religion, caste, and gender;
Appreciate the concept of linguistic diversity in relation to the Indian situation;
Understand regional variations according to rural, urban and tribal characteristics;
Understanding the concept of diversity as difference.

Unit 2

Concept of Disparity- 1:

Understand the concept of disparity as arising out of stratification and inequality;
Explore the disparities arising out of gender with special reference to violence against women, female foeticide (declining sex ratio), and portrayal of women in media;
Appreciate the inequalities faced by people with disabilities and understand the issues of people with physical and mental disabilities.

Unit 3

Concept of Disparity-2:

Examine inequalities manifested due to the caste system and inter-group conflicts arising thereof;
Understand inter-group conflicts arising out of communalism;
Examine the causes and effects of conflicts arising out of regionalism and linguistic differences.

Unit 4

The Indian Constitution:

Philosophy of the Constitution as set out in the Preamble;
The structure of the Constitution-the Preamble, Main Body and Schedules;
Fundamental Duties of the Indian Citizen; tolerance, peace and communal harmony as crucial values in strengthening the social fabric of Indian society;
Basic features of the Constitution.

Unit 5

Significant Aspects of Political Processes:

The party system in Indian politics;
Local self-government in urban and rural areas; the 73rd and 74th Amendments and their implications for inclusive politics;
Role and significance of women in politics.

Unit 6

Growing Social Problems in India:

- a) Substance abuse- impact on youth & challenges for the future
- b) HIV/AIDS- awareness, prevention, treatment and services
- c) Problems of the elderly- causes, implications and response
- d) Issue of child labour- magnitude, causes, effects and response
- e) Child abuse- effects and ways to prevent
- f) Trafficking of women- causes, effects and response

Note:

15 lectures will be allotted for project guidance

Unit Number 6 will not be assessed for the Semester End Exam



UNIVERSITY OF MUMBAI

Syllabus for the F.Y.B.A/F.Y.B.Sc/F.Y.B.Com

Semester II

Unit 1

Globalisation and Indian Society:

Understanding the concepts of liberalization, privatization and globalization;
Growth of information technology and communication and its impact manifested in everyday life;

Impact of globalization on industry: changes in employment and increasing migration;

Changes in agrarian sector due to globalization; rise in corporate farming and increase in farmers' suicides.

Unit 2

Human Rights

Concept of Human Rights; origin and evolution of the concept;

The Universal Declaration of Human Rights;

Human Rights constituents with special reference to Fundamental Rights stated in the Constitution;

Unit 3

Ecology

Importance of Environment Studies in the current developmental context;

Understanding concepts of Environment, Ecology and their interconnectedness;

Environment as natural capital and connection to quality of human life;

Environmental Degradation- causes and impact on human life;

Sustainable development- concept and components; poverty and environment

Unit 4

Understanding Stress and Conflict:

Causes of stress and conflict in individuals and society;

Agents of socialization and the role played by them in developing the individual;

Significance of values, ethics and prejudices in developing the individual;

Stereotyping and prejudice as significant factors in causing conflicts in society.

Aggression and violence as the public expression of conflict;

Unit 5

Managing Stress and Conflict in Contemporary Society:

Types of conflicts and use of coping mechanisms for managing individual stress;
Maslow's theory of self-actualisation;
Different methods of responding to conflicts in society;
Conflict-resolution and efforts towards building peace and harmony in society.

Unit 6

Contemporary Societal Challenges:

- a) Increasing urbanization, problems of housing, health and sanitation;
- b) Changing lifestyles and impact on culture in a globalised world.
- c) Farmers' suicides and agrarian distress.
- d) Debate regarding Genetically Modified Crops.
- e) Development projects and Human Rights violations.
- f) Increasing crime/suicides among youth.

Note:

15 lectures will be allotted for project guidance

Unit Number 6 will not be assessed for the Semester End Exam



Annexure I

B. Sc (Information Technology)		Semester – II	
Course Name: Green IT		Course Code: USIT205	
Periods per week (1 Period is 50 minutes)		5	
Credits		2	
		Hours	Marks
Evaluation System	Theory Examination	2	75
	Internal	--	25

Course Objectives:

- **To understand the concept of Green Technology.**
- **To learn Green IT regulating Green IT and different standards.**
- **To understand the concept of minimizing power utilization in technology.**
- **To know about Green PCs, Green notebooks and servers and Green data centers.**
- **To know how the way of work is changing and understand implementation of Paperless work.**
- **To know the concept of Recycling.**
- **To understand Metrics for Green IT.**

Unit	Details	Lectures
I	<p>Overview to Green IT: Problems: Toxins, Power Consumption, Equipment Disposal, Company’s Carbon Footprint: Measuring, Details, reasons to bother, Plan for the Future, Cost Savings: Hardware, Power.</p> <p>Regulating Green IT: Laws, Standards and Protocols Introduction, The Regulatory Environment and IT Manufacturers RoHS, REACH, WEEE, Legislating for GHG Emissions and Energy Use of IT Equipment. Nonregulatory Government Initiatives, Industry Associations and Standards Bodies, Green Building Standards, Green Data Centres, Social Movements and Greenpeace.</p>	12
II	<p>Minimizing Power Usage: Power Problems, Monitoring Power Usage, Servers, Low-Cost Options, Reducing Power Use, Data De-Duplication, Virtualization, Management, Bigger Drives, Involving the Utility Company, Low Power Computers, PCs, Linux, Components, Servers, Computer Settings, Storage, Monitors, Power Supplies, Wireless Devices, Software.</p> <p>Cooling: Cooling Costs, Power Cost, Causes of Cost, Calculating Cooling Needs, Reducing Cooling Costs, Economizers, On-Demand Cooling, HP’s Solution, Optimizing Airflow, Hot Aisle/Cold Aisle, Raised, Floors, Cable Management, Vapour Seal, Prevent Recirculation of Equipment Exhaust, Supply Air Directly to Heat Sources, Fans, Humidity, Adding Cooling, Fluid Considerations, System Design, Datacentre Design, Centralized Control, Design for Your Needs, Put Everything Together.</p>	12
III	<p>Greening IT: Green PCs, Notebooks and Servers, Green Data Centres, Green Cloud Computing, Green Data Storage, Green Software, Green Networking and Communications.</p> <p>Changing the Way of Work: Old Behaviours, starting at the Top, Process Reengineering with Green in Mind, Analysing the Global Impact of Local Actions, Steps: Water, Recycling, Energy, Pollutants, Teleworkers and Outsourcing, Telecommuting, Outsourcing, how to Outsource.</p> <p>Going Paperless: Paper Problems, The Environment, Costs: Paper and Office, Practicality, Storage, Destruction, Going Paperless, Organizational Realities, Changing Over, Paperless Billing, Handheld Computers vs. the Clipboard, Unified Communications, Intranets, What to Include, Building an Intranet, Microsoft Office SharePoint Server 2007, Electronic Data Interchange (EDI), Nuts and Bolts, Value Added Networks, Advantages, Obstacles.</p>	12

Annexure I

IV	<p>Recycling: Means of Disposal, Recycling, Refurbishing, Make the Decision, Life Cycle, from beginning to end, Life, Cost, Green Design, Recycling Companies, Finding the Best One, Checklist, Certifications, Hard Drive Recycling, Consequences, cleaning a Hard Drive, Pros and cons of each method, CDs and DVDs, good and bad about CD and DVDs disposal, Change the mind-set, David vs. America Online.</p> <p>Hardware Considerations: Certification Programs, EPEAT, RoHS, Energy Star, Computers, Monitors, Printers, Scanners, All-in-Ones, Thin Clients, Servers, Blade Servers, Consolidation, Products, Hardware Considerations, Planned Obsolescence, Packaging, Toxins, Other Factors, Remote Desktop, Using Remote Desktop, Establishing a Connection.</p>	12
V	<p>Greening Your Information Systems: Initial Improvement Calculations, Selecting Metrics, Tracking Progress, Change Business Processes, Customer Interaction, Paper Reduction, Green Supply Chain, Improve Technology Infrastructure, Reduce PCs and Servers, Shared Services, Hardware Costs, Cooling.</p> <p>Staying Green: Organizational Check-ups, Chief Green Officer, Evolution, Sell the CEO, SMART Goals, Equipment Check-ups, Gather Data, Tracking the data, Baseline Data, Benchmarking, Analyse Data, Conduct Audits, Certifications, Benefits, Realities, Helpful Organizations.</p>	12

Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Green IT	Toby Velte, Anthony Velte, Robert Elsenpeter	McGraw Hill		2008
2.	Harnessing Green IT: Principles and Practices	San Murugesan, G. R. Ganadharan,	Wiley & IEEE.		
3.	Green Data Center: Steps for the Journey	Alvin Galea, Michael Schaefer, Mike Ebbers	Shroff Publishers and Distributers		2011
4.	Green IT	Deepak Shikarpur	Vishwkarma Publications,		2014
5.	Green Computing Tools and Techniques for Saving Energy, Money and Resources	Bud E. Smith	CRC Press		2014
	Green Computing and Green IT Best Practice	Jason Harris	Emereo		

Course Outcomes:

Learners will be able to,

- Understand the concept of Green IT and problems related to it.
- Know different standards for Green IT.
- Understand the how power usage can be minimized in Technology.
- Learn about how the way of work is changing.
- Understand the concept of recycling.
- Know how information system can stay Green Information system.

UNIVERSITY OF MUMBAI

**SECOND YEAR B.A., SECOND YEAR B.Sc.,
SECOND YEAR B.Com.**

SEMESTER III AND IV

FOUNDATION COURSE

UNDER THE CBCGSS SYSTEM

EFFECTIVE FROM 2017-2018

FOUNDATION COURSE

Semester III

Internal marks: 25

External marks: 75

Total Marks: 100

Lectures: 45

Objectives

- i. Develop a basic understanding about issues related to Human Rights of weaker sections, ecology, and science and technology.
- ii. Gain an overview of significant skills required to address competition in career choices
- iii. Appreciate the importance of developing a scientific temper towards technology and its use in everyday life

Module 1 Human Rights Provisions, Violations and Redressal (12 lectures)

- A. Scheduled Castes- Constitutional and legal rights, Forms of violations, Redressal mechanisms. (2 Lectures)
- B. Scheduled tribes- Constitutional and legal rights, Forms of violations, Redressal mechanisms. (2 Lectures)
- C. Women- Constitutional and legal rights, Forms of violations, Redressal mechanisms. (2 Lectures)
- D. Children- Constitutional and legal rights, Forms of violations, Redressal mechanisms. (2 Lectures)
- E. People with Disabilities, Minorities, and the Elderly population- Constitutional and legal rights, Forms of violations, Redressal mechanisms. (4 Lectures)

Module 2 Dealing With Environmental Concerns (11 lectures)

- A. Concept of Disaster and general effects of Disasters on human life- physical, psychological, economic and social effects. (3 Lectures)
- B. Some locally relevant case studies of environmental disasters. (2 Lectures)
- C. Dealing with Disasters - Factors to be considered in Prevention, Mitigation (Relief and Rehabilitation) and disaster Preparedness. (3 Lectures)
- D. Human Rights issues in addressing disasters- issues related to compensation, equitable and fair distribution of relief and humanitarian approach to resettlement and rehabilitation. (3 Lectures)

Module 3 Science and Technology I (11 lectures)

- A. Development of Science- the ancient cultures, the Classical era, the Middle Ages, the Renaissance, the Age of Reason and Enlightenment. (3 Lectures)
- B. Nature of science- its principles and characteristics; Science as empirical, practical, theoretical, validated knowledge. (2 Lectures)
- C. Science and Superstition- the role of science in exploding myths, blind beliefs and prejudices; Science and scientific temper- scientific temper as a fundamental duty of the Indian citizen. (3 Lectures)

D. **Science in everyday life-** technology, its meaning and role in development; Interrelation and distinction between science and technology. (3 Lectures)

Module 4 Soft Skills for Effective Interpersonal Communication (11 lectures)

Part A

- i) Effective Listening - Importance and Features. (4 Lectures)
- ii) Verbal and Non-Verbal Communication; Public-Speaking and Presentation Skills.
- iii) Barriers to Effective Communication; Importance of Self-Awareness and Body Language.

Part B

- I) Formal and Informal Communication - Purpose and Types. (4 Lectures)
- II) Writing Formal Applications, Statement of Purpose (SOP) and Resume.
- III) Preparing for Group Discussions, Interviews and Presentations.

Part C

- I) Leadership Skills and Self-Improvement - Characteristics of Effective Leadership. (3 Lectures)
- ii) Styles of Leadership and Team-Building.

Projects / Assignments (for Internal Assessment)

- i. Projects/Assignments should be drawn for the component on Internal Assessment from the topics in **Module 1 to Module 4**.
- ii. Students should be given a list of possible topics - at least 3 from each Module at the beginning of the semester.
- iii. The Project/Assignment can take the form of Street-Plays / Power-Point Presentations / Poster Exhibitions and similar other modes of presentation appropriate to the topic.
- iv. Students can work in groups of not more than 8 per topic.
- v. Students must submit a hard / soft copy of the Project / Assignment before appearing for the semester end examination.

QUESTION PAPER PATTERN (Semester III)

The Question Paper Pattern for Semester End Examination shall be as follows:

TOTAL MARKS: 75

DURATION: 150 MINUTES

QUESTION NUMBER	DESCRIPTION	MARKS ASSIGNED
1	i. Question 1 A will be asked on the meaning / definition of concepts / terms from all	a) Total marks: 15

FOUNDATION COURSE

Semester IV

Internal marks: 25

External marks: 75

Total Marks: 100

Lectures: 45

Module 1 Significant, contemporary Rights of Citizens (12 lectures)

- A. **Rights of Consumers**-Violations of consumer rights and important provisions of the Consumer Protection Act, 2016; Other important laws to protect consumers; Consumer courts and consumer movements. (3 Lectures)
- B. **Right to Information**- Genesis and relation with transparency and accountability; important provisions of the Right to Information Act, 2005; some success stories. (3 Lectures)
- C. **Protection of Citizens'/Public Interest**-Public Interest Litigation, need and procedure to file a PIL; some landmark cases. (3 Lectures)
- D. **Citizens' Charters, Public Service Guarantee Acts.** (3 Lectures)

Module 2 Approaches to understanding Ecology (11 lectures)

- A. **Understanding approaches to ecology**- Anthropocentrism, Biocentrism and Eco centrism, Ecofeminism and Deep Ecology. (3 Lectures)
- B. **Environmental Principles-1**: the sustainability principle; the polluter pays principle; the precautionary principle. (4 Lectures)
- C. **Environmental Principles-2**: the equity principle; human rights principles; the participation principle. (4 Lectures)

Module 3 Science and Technology II (11 lectures)

Part A: Some Significant Modern Technologies, Features and Applications: (7 Lectures)

- i. **Laser Technology**- Light Amplification by Stimulated Emission of Radiation; use of laser in remote sensing, GIS/GPS mapping, medical use.
- ii. **Satellite Technology**- various uses in satellite navigation systems, GPS, and imprecise climate and weather analyses.
- iii. **Information and Communication Technology**- convergence of various technologies like satellite, computer and digital in the information revolution of today's society.
- iv. **Biotechnology and Genetic engineering**- applied biology and uses in medicine, pharmaceuticals and agriculture; genetically modified plant, animal and human life.
- v. **Nanotechnology**- definition: the study, control and application of phenomena and materials at length scales below 100 nm; uses in medicine, military intelligence and consumer products.

Part B: Issues of Control, Access and Misuse of Technology. (4 Lectures)

Module 4 Introduction to Competitive Examinations (11 lectures)

Part A. Basic information on Competitive Examinations- the pattern, eligibility criteria and local centres: (4 Lectures)

- i. Examinations conducted for entry into professional courses - Graduate Record Examinations (GRE), Graduate Management Admission Test (GMAT), Common Admission Test (CAT) and Scholastic Aptitude Test (SAT).
- ii. Examinations conducted for entry into jobs by Union Public Service Commission, Staff Selection Commission (SSC), State Public Service Commissions, Banking and Insurance sectors, and the National and State Eligibility Tests (NET / SET) for entry into teaching profession.

Part B. Soft skills required for competitive examinations- (7 Lectures)

- i. Information on areas tested: Quantitative Ability, Data Interpretation, Verbal Ability and Logical Reasoning, Creativity and Lateral Thinking
- ii. Motivation: Concept, Theories and Types of Motivation
- iii. Goal-Setting: Types of Goals, SMART Goals, Stephen Covey's concept of human endowment
- iv. Time Management: Effective Strategies for Time Management
- v. Writing Skills: Paragraph Writing, Report Writing, Filing an application under the RTI Act, Consumer Grievance Letter.

Projects / Assignments (for Internal Assessment)

- i. Projects/Assignments should be drawn for the component on Internal Assessment from the topics in **Module 1 to Module 4**.
- ii. Students should be given a list of possible topics - at least 3 from each Module at the beginning of the semester.
- iii. The Project/Assignment can take the form of Street-Plays / Power-Point Presentations / Poster Exhibitions and similar other modes of presentation appropriate to the topic.
- iv. Students can work in groups of not more than 8 per topic.
- v. Students must submit a hard / soft copy of the Project / Assignment before appearing for the semester end examination.

QUESTION PAPER PATTERN (Semester IV)

The Question Paper Pattern for Semester End Examination shall be as follows:

TOTAL MARKS: 75

DURATION: 150 MINUTES

QUESTION NUMBER	DESCRIPTION	MARKS ASSIGNED
1	i. Question 1 A will be asked on the meaning / definition of concepts / terms from all Modules.	a) Total marks: 15 b) For 1 A, there will be 3 marks for each sub-question.