



Deccan Education Society's

Fergusson College (Autonomous), Pune

Program Specific Outcomes(PSOs) and Course Outcomes (COs) 2019-20

Department of Environmental Science

Programme: B.Sc. Environmental Science

<b>PSO No.</b>	<b>Program Specific Outcomes (PSOs)</b> <b>Upon completion of this programme the student will be able to</b>
<b>PSO1</b>	<b>Academic Competence:</b> (i) Understand various concepts of Computing, Statistics, Mathematics and Electronics appropriately to the discipline. (ii) Recommend computing solutions to solve the problems in different domains
<b>PSO2</b>	<b>Personal and Professional Competence:</b> (i) Apply the fundamental knowledge for professional software development as well as to acquire new skills. (ii) Develop strong problem solving, analysing and decision-making abilities. Identify the information and apply their disciplinary knowledge and professional skills to design components , system or processes to meet required specification
<b>PSO3</b>	<b>Research Competence:</b> (i) Apply programming languages, tools and techniques to conduct research and demonstrate appropriate emerging skills to seek solutions to problems in various interdisciplinary fields. (ii) Integrate Computer Science, Electronics, Mathematical and Statistical knowledge to explore different domains' data for experimental and research purpose
<b>PSO4</b>	<b>Entrepreneurial and Social Competence:</b> (i) Use the knowledge and skills necessary to support their career in software development, web development, databases and entrepreneurship in recent trends like data analytics, artificial intelligence, Image processing, Networking, Embedded systems etc. (ii) Develop software based solutions for industry as well as research and development and develop skills required for social interaction.

<b>Course Outcomes (COs)</b>		
<b>F.Y. B.Sc. Semester I</b>		
<b>Title of the Course and Course Code</b>	<b>Earth and Earth Surface Processes – (EVS1101)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's Cognitive level</b>
CO1	Recall basic concepts of structure, composition of the earth and describe different surface processes and their impact.	1
CO2	Differentiate components of the environment and explain the history of earth and important processes which shaped landforms through different aspects.	2
CO3	Demonstrate skills based on rock cycle, field identification of rocks, basics of soil characterization and soil profile. Outline soil quality monitoring techniques in soil quality assessment.	3
CO4	Explain different layers in atmospheric structure. Identify the change in lapse rate due to different processes of climate change and other anthropogenic impacts.	4
CO5	Compare techniques used in soil quality monitoring and outline physico-chemical parameters and biological aspects of soil.	5
CO6	Specify techniques used to analyze soil quality.	6
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<b>Title of the Course and Course Code</b>	<b>Physics and Chemistry of Environment – (EVS1102)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's Cognitive level</b>
CO1	Recall concepts, basic principles of environmental processes.	1
CO1	Differentiate concepts of physics and chemistry associated with environmental components and processes in different spheres. Explain environmental pollutants, their processing in the environment and impact on living and nonliving things.	2
CO3	Apply practical skills for analysis of water quality and outline different water pollutants affecting water quality and aquatic ecosystems.	3
CO4	Differentiate between solutes, solvents and identify food additives and preservatives.	4

CO5	Compare techniques used for water quality monitoring and physico-chemical properties of different water samples.	5
CO6	Specify behavior of heavy metals and its absorption and influence on human anatomy.	6
<b>Title of the Course and Course Code</b>	<b>Environmental Science Practical – I – (EVS1103)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's Cognitive level</b>
CO1	Recall laboratory safety rules for handling environmental samples while performing practicals. List different methods used for sample collection and preservation.	1
CO2	Estimate moisture content and water holding capacity of soil sample.	2
CO3	Illustrate chemicals used for estimation of organic carbon.	3
CO4	Identify and illustrate physical properties of rock and mineral samples.	4
CO5	Measure pH and conductivity of a given soil sample with the help of suitable methods.	5
CO6	Collect soil samples using different methods. Construct textural classification of soil by comparing its physical properties.	6
<b>F.Y. B.Sc. Semester II</b>		
<b>Title of the Course and Course Code</b>	<b>Systematics and Biogeography – (EVS1201)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's Cognitive level</b>
CO1	Describe applications of environmental biology, classical and modern day systematics for classification of living organisms. Outline different levels of classification.	1
CO2	Illustrate historical and contemporary patterns of distributions of organisms and design effective conservation strategies. Explain bio-geographic theories in an era of global change and large scale human induced degradation.	2
CO3	Apply skills for identifying adaptations in organisms and outline evolution of life through geological time.	3
CO4	Differentiate between the concepts of mass and background	4

	extinction. Identify different habitats and discuss its importance.	
CO5	Compare biogeographical profiles of the World and India.	5
CO6	Develop skills to classify different organisms.	6
<b>Title of the Course and Course Code</b>	<b>Water and Water Resources – (EVS1202)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's Cognitive level</b>
CO1	Recall the key terms in the hydrological cycle. List the forms of precipitation, condensation, types of aquifers.	1
CO2	Outline water resources, its utilization and management along with problems associated with it. Discuss traditional and advanced water management practices.	2
CO3	Illustrate the hydrological cycle with its components. Classify types of aquifers. Outline different pollutants affecting components of water quality.	3
CO4	Identify and relate the problems associated with water shortages in India and other countries. Explain national and international conflicts on water.	4
CO5	Evaluate threats associated with marine ecosystems and associated resources, list the marine research institutes and identify their importance in oceanography. Compare techniques used for water quality monitoring with reference to physical and chemical properties of different water samples.	5
CO6	Design a water quality monitoring plan based on water sampling methods and water quality parameters.	6
<b>Title of the Course and Course Code</b>	<b>Environmental Science Practical – II – (EVS1203)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's Cognitive level</b>
CO1	Recall laboratory safety rules for handling environmental samples while performing practicals. List different methods used for sample collection and preservation.	1
CO2	Estimate pH and Conductivity of water sample.	2

CO3	Illustrate chemicals used for estimation of Alkalinity.	3
CO4	Identify adaptations in organisms and illustrate different plant and animal forms.	4
CO5	Measure total hardness, chlorides, conductivity and turbidity of a given water sample with the help of suitable methods.	5
CO6	Write a report on collection of water samples using different methods. Construct experiments to understand physical properties of water by comparing its level of pollution.	6
<b>S.Y. B.Sc. Semester III</b>		
<b>Title of the Course and Course Code</b>	<b>Ecology and Ecosystems (EVS2301)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's Cognitive level</b>
CO1	Outline levels and applications of Ecology. Differentiate between classical and modern day theories of Ecology.	1
CO2	Compare community characteristics.	2
CO3	Apply skills for identifying keystone species and outline the concept of Ecosystems.	3
CO4	Differentiate types of ecosystems and identify biotic and abiotic components.	4
CO5	Compare and contrast different biogeochemical cycles.	5
CO6	Execute and organize skills to classify different types of ecosystems and biogeochemical cycles.	6
<b>Land and Soil Conservation and Management (EVS2302)</b>		
<b>Title of the Course and Course Code</b>	<b>Land and Soil Conservation and Management (EVS2302)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's Cognitive level</b>
CO1	Recall different concepts and important key terms of soil health. Identify the factors affecting soil and responsible for degradation.	1
CO2	Discuss drivers of Land degradation and management. Compare the land management practices followed in developing and developed world as per social needs	2
CO3	Examine the advanced techniques for effective management of land. Apply eco-friendly technologies for management of land.	3
CO4	Differentiate between soil resistance and resilience. Classify and describe soil erosion processes. Identify different causes of soil erosion.	4
CO5	Evaluate ecosystem services and identify threats associated	5

	with it. Identify the challenges associated with food security.	
CO6	Write a report on behavior of cations and anions in nutrients transport from soil to plant. Analyze ecological and economical importance of soil and their role in its conservation.	6
<b>Title of the Course and Course Code</b>	<b>Practicals based on EVS 2301 and EVS 2302 Practical -III (EVS 2303)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's Cognitive level</b>
CO1	Recall and analyze frequency, density and abundance of vegetation. Outline different methods to understand the healthiness of ecosystems with respect to vegetation and soil.	1
CO2	Compare methods used for study of the grassland ecosystem. Evaluate lime or gypsum requirement for treatment of soil.	2
CO3	Analyze available nitrogen and phosphate from soil samples.	3
CO4	Illustrate chemicals and methods used for estimation of different soil parameters.	4
CO5	Compare above and below ground primary productivity of the grassland community. Evaluate field capacity and bulk density of soil.	5
CO6	Write a report on vegetation diversity by applying IVI. Build phenograms of the species from the surrounding area.	6
<b>S.Y. B.Sc. Semester IV</b>		
<b>Title of the Course and Course Code</b>	<b>Urban Ecosystems (EVS 2401)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's Cognitive level</b>
CO1	Recall the importance of interaction between urban society and relate it to environment governance and policy decisions.	1
CO2	Illustrate the urban ecosystem and elements associated with it. Examine the existing environmental issues, conflicts and their impact in urban development.	2
CO3	Examine housing scenarios at different scales of cities and identify urban Environmental issues associated with it.	3
CO4	Identify key challenges posed by increasing development to the farreaching goal of sustainability in urban areas.	4
CO5	Determine ecological footprint by connecting environmental variables.	5
CO6	Develop innovative solutions by evaluating the importance of Eco-housing and Green cities and integrate them in planning.	6

<b>Title of the Course and Course Code</b>	<b>Natural Resource Management and Sustainability (EVS 2402)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's Cognitive level</b>
CO1	Recall the types of resources, concepts of resource base, resource reserve. Outline different types of mines.	1
CO2	Discuss sustainable management of food, water and forest resources in relation with future development.	2
CO3	Outline different renewable energy resources and compare their energy efficiency.	3
CO4	Compare different frameworks followed for resource conservation. Analyze sustainable conservation approaches followed in different societies.	4
CO5	Evaluate impact of energy consumption on the global economy. Classify different fossil fuels and discuss their environmental impact.	5
CO6	Write a report on different types of resources, their availability, exploitation and on the ecological, social and economic dimension of resource management.	6
<b>Title of the Course and Course Code</b>	<b>Practicals based on EVS2401 and EVS 2402 Practical -IV Practical Paper - 2 (EVS 2403)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's Cognitive level</b>
CO1	Describe resource consumption methods used for Green building / Ecotel. Practice composting for effective solid waste management. Compare methods used for urban planning by on field observations.	1
CO2	Estimate calorific value of biomass sample.	2
CO3	Illustrate chemicals and methods used for estimation of Zinc, Iron and Nickel. Express results by comparing standard values.	3
CO4	Analyze water utilization at household level and collect data for conducting water audit. Enumerate types and sources of solid wastes and evaluate energy consumption pattern.	4
CO5	Compare methods used for treatment of leachate/collected from nearby mine/stone quarry.	5
CO6	Design and develop a biogas plant and measurement of its performance.	6
<b>T.Y. B.Sc. Semester V</b>		
<b>Title of the Course and Course Code</b>	<b>Natural Ecosystems Management (EVS3501)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's</b>

		<b>Cognitive level</b>
CO1	Outline the recognition of an "ecosystem approach" for natural and anthropogenic environments	1
CO2	Discuss major pathways by which carbon, nitrogen, phosphorus and water cycle, and energy passes through, ecosystems	2
CO3	Apply the skills for ecosystem studies for Research and social awareness.	3
CO4	Compare apparently contradictory "taxonomic blindness" versus "taxonomic primacy" embodied within the ecosystem concept.	4
CO5	Evaluate the principles of Ecosystem Ecology.	5
CO6	Specify the value of various ecosystem states and conditions to human society	6
<b>Title of the Course and Course Code</b>	<b>Environmental Monitoring (EVS3502)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's Cognitive level</b>
CO1	Recall basic concepts and principles behind various environmental monitoring processes e.g. water, air, soil, noise, biodiversity etc.	1
CO2	Summarize definitions of sample, its types etc. Explain various steps and precautions required before sampling of soil, water, air etc.	2
CO3	Apply practical skills for analysis of Air, Soil, Noise, and water quality.	3
CO4	Identify unknown pollutants from given water, soil, air samples.	4
CO5	Evaluate the environmental quality based on its analysis and monitoring.	5
CO6	Design the environmental monitoring survey for any ecologically important area and develop methods for sampling and monitoring for it.	6
<b>Title of the Course and Course Code</b>	<b>Remote Sensing and GIS (EVS3503)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's Cognitive level</b>
CO1	Recall basic concepts, principles and processes that define Remote sensing and GIS. Recall basics of Electromagnetic radiation and Spectrum.	1
CO2	Discuss satellites in space, their applications, data acquisition and recent advances.	2



CO3	Demonstrate map projection methods to understand its importance and limitations based on method of projection.	3
CO4	Compare Raster data and Vector data in GIS to recognize its role in generating information about various features on the earth. Distinguish spatial data and Non-spatial data to understand characteristics and represent the earth features	4
CO5	Select classification method, Interpret satellite images visually and digitally. Judge the accuracy level of classified maps.	5
CO6	Develop spatial thinking in GIS and use its geo-processes and functions. Apply the understanding to address real life field issues using various softwares.	6
<b>Title of the Course and Course Code</b>	<b>Environmental Biotechnology (RG) (EVS3504)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's Cognitive level</b>
CO1	Recall the basic concepts, objectives and scope of Environmental biotechnology and enlist applications of biotechnology in the field of Environment.	1
CO2	Explain the terms biopolymers, bioindicators and biosensors. Discuss the role bioindicators and biosensors play in the monitoring of environmental pollutants.	2
CO3	Apply the knowledge of biotechnology in the field of agriculture with reference to biopesticides, biofertilizers, composting and vermicomposting. Demonstrate process of phytoremediation and select appropriate method and plants suitable for phytoremediation process.	3
CO4	Compare methods used for bioleaching and recognize role of microbes in the recovery of metals and oil. Explain the concepts of bioaugmentation and biostimulation. Identify the factors affecting bioremediation process.	4
CO5	Review the concept, Environmental ethical social and health problems associated with GMO's.	5
CO6	Prepare a flow chart for production of biopesticides and biofertilizers.	6
<b>Title of the Course and Course Code</b>	<b>Introduction to Environmental Statistics (EVS3505)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's Cognitive level</b>
CO1	Describe concept of population and sample in Environmental statistics	1
CO2	Represent variables in diagrammatic and graphical form.	2
CO3	Apply their skills of Environmental statistics and construct various indices.	3

CO4	Analyze and compute measures of dispersion with the help of suitable tools.	4
CO5	Select suitable dispersion measures and apply it.	5
CO6	Generate Environmental datasets and calculate its central component.	6
<b>Title of the Course and Course Code</b>	<b>Climate Change and Sustainability (EVS3506)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's Cognitive level</b>
CO1	Identify and list environmental, social, and economic impacts of anthropogenic activities and required sustainability framework for mitigation of the same.	1
CO2	Classify and distinguish the human induced and natural drivers of climate change. Discuss importance and opportunities for climate change and sustainability development.	2
CO3	Examine and interpret environmental impacts for major developmental projects in various societies by using available methodologies and software's.	3
CO4	Identify the impacts of climate change and compare with future goals of sustainability. Integrate various policies and agreements to examine future outputs regarding sustainability.	4
CO5	Determine the impacts of climate change and environmental conditions by appropriate tools and techniques. Evaluate the measures for sustainable management of resources.	5
CO6	Compile the collected data after laboratory methods and surveys to prepare reports about climate change and sustainable practices in society.	6
<b>Title of the Course and Course Code</b>	<b>Practicals Based on EVS3501 &amp; EVS3502 (EVS3507)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's Cognitive level</b>
CO1	Report the knowledge about coastal ecosystems and benthic fauna.	1
CO2	Explain and apply various tools to monitor ecosystem health and services.	2
CO3	Demonstrate the methods used for handling and working of monitoring instruments.	3
CO4	Analyze the air, water and soil quality using standard methods.	4
CO5	Evaluate air and water quality index to rate the air and water quality in the study area.	5
CO6	Develop ecosystem management plan by involving all stakeholders.	6

<b>Title of the Course and Course Code</b>	<b>Practicals Based on EVS3503 &amp; EVS3504 (EVS3508)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's Cognitive level</b>
CO1	Outline the phytoremediation techniques and selection of plants useful for remediation.	1
CO2	Explain and apply basic techniques for visual image interpretation.	2
CO3	Carry out isolation of phosphate solubilizing microbes and test their phosphate solubilization efficiency.	3
CO4	Analyze remote sensing data digitally using software's.	4
CO5	Compare and classify the bacteria using Gram Staining technique and recall the mechanism of the staining process.	5
CO6	Create digital maps using satellite data for any given area.	6
<b>Title of the Course and Course Code</b>	<b>Practicals Based on EVS3505 &amp; EVS3506 (EVS3509)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's Cognitive level</b>
CO1	Outline the fundamentals of Environmental Statistics.	1
CO2	Explain the data collection, classification and analysis methods. Differentiate between various methods used to estimate environmental parameters.	2
CO3	Apply the skills for assessment of issues of Environmental science.	3
CO4	Analyze measures of central tendency and dispersion using software, the relation between resource quality and economics associated with development by using different tests.	4
CO5	Review and judge the impacts on the local environment in relation with climate change, economics and sustainability and evaluate the impacts by using statistical techniques.	5
CO6	Collect long term data to prepare final reports with scientific techniques. flowcharts, network diagrams, video documentaries to spread awareness of environmental issues. Formulate maps and final results by using online softwares.	6
<b>Title of the Course and Course Code</b>	<b>Hydroponics: A Green Way of Urban Farming (EVS3511)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's Cognitive level</b>
CO1	Describe the fundamentals of hydroponics.	1
CO2	Discuss the role and responsibilities of various institutions.	2
CO3	Apply their skills of use of different media for hydroponics	3

	techniques.	
CO4	Explain the principles of watershed hydroponics techniques.	4
CO5	Test and apply their skills of hydroponics for Research and social awareness.	5
CO6	Specify about policies and legislation on safety in industries and workplace environments.	6
<b>Title of the Course and Course Code</b>	<b>Softwares in Environmental Studies (EVS3512)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's Cognitive level</b>
CO1	Identify and list different software used in environmental studies.	1
CO2	Outline and apply statistical skills for environmental studies.	2
CO3	Calculate parameters of environmental significance by using software	3
CO4	Analyse environmental monitoring data with the help of various tools	4
CO5	Determine the importance of Environmental variables.	5
CO6	Collect data, compute and compare obtained results by using different software.	6
<b>T.Y. B.Sc. Semester VI</b>		
<b>Title of the Course and Course Code</b>	<b>Waste Treatment Technology (EVS3601)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's Cognitive level</b>
CO1	Outline key terms used in waste management and control of pollution.	1
CO2	Explain working principles and concepts of various treatment methods and their outcomes.	2
CO3	Examine practical skills for treatment of different wastes.	3
CO4	Analyze and select various treatment methods for wastes.	4
CO5	Evaluate the working of various treatment technologies and performance.	5
CO6	Develop the methods for eco-friendly management and control of various environmental pollutants.	6
<b>Title of the Course and Course Code</b>	<b>Wildlife Biology and Conservation (EVS3602)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's Cognitive level</b>
CO1	Recall definition and concepts in Wildlife Biology.	1
CO2	Distinguish groups of plants and animals and Summarise their	2

	habitats	
CO3	Apply field survey techniques for wildlife survey	3
CO4	Identify the various threats to wildlife.	4
CO5	Rank the threats and determine conservation measures.	5
CO6	Design the wildlife survey for any ecologically important area and develop local conservation plan.	6
<b>Title of the Course and Course Code</b>	<b>Environment Impact Assessment and Management (EVS3603)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's Cognitive level</b>
CO1	State the scope, importance and opportunities in EIA practices in relation with sustainable development	1
CO2	Illustrate and study methods for impact assessment and prediction	2
CO3	Examine standard practices of management and development of standards.	3
CO4	Explain important guidelines of Environmental management system standards	4
CO5	Evaluate Environment Management plan and mitigation measures	5
CO6	Perform Environmental Audit by applying skills.	6
<b>Title of the Course and Course Code</b>	<b>Environmental Governance and Ethics (EVS3604)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's Cognitive level</b>
CO1	Recall basic concepts and principles in relation with environmental governance, ethics and policies. Identify the relation between good governance and ethics.	1
CO2	Explain the important provisions of environmental laws. Discuss the differentiation in policies and implementation ways of various societies.	2
CO3	Examine legal case studies from Indian and other societies. Interpret the judgments given as part of various laws.	3
CO4	Compare ethical and legal practices followed in various societies. Identify hurdles in effective implementation of environmental governance and ideal ethics.	4
CO5	Review international practices in relation with effective implementation of laws. Decide the better options of governance as per changing needs of the society.	5
CO6	Collect primary and secondary data to prepare reports based on various judgments. Design questionnaires and carry out surveys in relation with laws and ethics.	6

<b>Title of the Course and Course Code</b>	<b>Environmental Toxicology, Health and Safety (EVS3605)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's Cognitive level</b>
CO1	Recall the concept of Environmental toxicology and basic parameters of toxicity testing. Discuss toxic effects of Volatile and organic solvents, heavy metals and other toxicants.	1
CO2	Explain concepts of epidemiology investigate potential and widespread effects of water and airborne diseases	2
CO3	Demonstrate Various toxicity tests with suitable examples and compare toxicity of various toxicants based on toxicity parameters. Apply the skills of epidemiological studies for research and social awareness.	3
CO4	Differentiate between bacterial and viral diseases and relate causative agents based	4
CO5	Evaluate potential and extent of spread and effects of epidemic and pandemic diseases.	5
CO6	Specify occupational health hazards and safety measures, laws and regulations for handling / disposal of toxic materials.	6
<b>Title of the Course and Course Code</b>	<b>Ecosystem Restoration (EVS3606)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's Cognitive level</b>
CO1	State key ecological principles used for restoration of terrestrial and aquatic ecosystems.	1
CO2	Discuss about the role of conservation and restoration play within the larger context of natural resource management.	2
CO3	Apply their skills for ecosystem restoration for Research and social awareness.	3
CO4	Explain about restoration approaches that require careful assessment of alternatives constrained by complex ecological, sociological and political realities.	4
CO5	Evaluate the principles of Restoration Ecology.	5
CO6	Specify the value of various ecosystems which have been improved after restoration practices.	6
<b>Title of the Course and Course Code</b>	<b>Practicals Based on EVS3601, EVS3602 &amp; EVS 3603 (EVS3607)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's Cognitive</b>

		<b>level</b>
CO1	Identify the threats to wildlife and the role of local people in conservation.	1
CO2	Explain the methods used for Impact identification and assessment.	2
CO3	Apply skills based on Environmental Impact and Management Plan. Calculate diversity indices and carry out quantitative assessment of plants and animal groups. Demonstrate the anaerobic digestion process.	3
CO4	Analyze the wastewater and solid waste to assess the extent of pollution level.	4
CO5	Evaluate the noise level and specify the noise quality. Select a dose of coagulant for wastewater treatment.	5
CO6	Design and draw the outline of wastewater treatment plants.	6
<b>Title of the Course and Course Code</b>	<b>Practicals Based on EVS3604, EVS3605 &amp; EVS3606 (EVS3608)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's Cognitive level</b>
CO1	Identify and describe applications of Environmental Governance and Ethics	1
CO2	Discuss and interpret various judgements on selected environmental laws	2
CO3	Examine the effect of toxicants on plants and aquatic organisms and evaluate the dose of toxicant.	3
CO4	Interpret the effect of metals and metal salts on microbes. Analyse the risk based on health and safety aspects.	4
CO5	Determine the amount of coal burnt for household energy requirement.	5
CO6	Create a plan for a city to conserve energy on the basis of energy consumption pattern	6
<b>Title of the Course and Course Code</b>	<b>Project Work (EVS3609)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's Cognitive level</b>
CO1	Describe purpose of the selected topic of the project work. List basic concepts in scientific work.	1
CO2	Discuss basic concepts in research to implement the project work. Associate the objectives in relation with selected topics of research. Outline effective timeline for implementation of research ways.	2
CO3	Carry out step by step implementation of methodology for completion of selected objectives within the decided time	3

	frame. Apply practical skills for analysis of various parameters.	
CO4	Analyse the various parameters by using standard sophisticated instrumentation techniques and well known methods. Identify the issues and work towards solutions.	4
CO5	Assess the impacts or evaluate the basics behind the selected topic of interest. Evaluate the scientific and field related work to recommend certain steps to be implemented by agencies.	5
CO6	Collect and compile data to form a final report based on scientific understanding. Write as per international acceptability. Prepare an ideal report with standard guidelines.	6
<b>Title of the Course and Course Code</b>	<b>Entrepreneurship Development and Services by Environmental Consultancy (EVS3611)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's Cognitive level</b>
CO1	Identify and outline various requirements for development of environmental consultancy/startup	1
CO2	Discuss guidelines available for development of a laboratory. Explain compliance requirements under environmental laws and rules.	2
CO3	Examine different water and wastewater treatment/air pollution control technologies.	3
CO4	Organize and explain guidelines/formats under EIA and EHS.	4
CO5	Evaluate and review important services provided by environmental consultants/NGOs	5
CO6	Prepare documentation on detailed requirements for establishment of NGO and individual startup.	6
<b>Title of the Course and Course Code</b>	<b>Design and Development of Ecofriendly Products (EVS3612)</b>	<b>Number of Credits : 02</b>
<b>On completion of the course, the students will be able to:</b>		<b>Bloom's Cognitive level</b>
CO1	Outline the concept of Eco-design.	1
CO2	Articulate the importance of various supporting schemes and organizations for startups.	2
CO3	Apply skills of circular economy for evaluating sustainability	3
CO4	Analyse Eco Friendly products with various tools and interpret impacts	4
CO5	Review and connect the social and environmental needs with employment generation	5
CO6	Design and develop eco products using natural raw material	6