M.Sc. (Environmental Management)

i. Objectives

This two year post graduate degree programme is offered to graduates and make them sensitized in Environmental issues and developmental process. It enables the professionals working in Environmental Audit/ Environmental safety/Eco-tourism/ Pollution Monitoring/ Management section of industries to update their knowledge and skill *in lieu* with current developments.

Special sessions will be arranged with renowned environmental experts from all walks of life ranging from Pollution Control Boards, Industries, Forestry, ISO certifying agencies, Legal experts, Tourism, Urban planning etc.

ii. Duration	:	Two years - Four semesters 150 working days per semester, duration inclusive of Saturday
iii. Eligibility	:	B.Sc. (Ag.) / Degree in Life sciences / professional degree with minimum of three years work experience in the relevant field
iv. Medium of Instruction	:	English
v. Personal Contact Programme (PCP)	:	PCP: 10 classes Second week Saturday and Sunday of Every month 6th month – Final Examinations A minimum attendance of 60% is compulsory
vi. Fees Structure	:	Rs.13,750/- per Semester

vii. Course content

I SEMESTER	:	ODL-ENS-601 - Principles of Environmental Science
		ODL-ENS-602 - Environmental Chemistry
		ODL-ENS-603 - Environmental Pollution & Control
		ODL-ENS-604 - Practical I
II SEMESTER	:	ODL-ENS-605 - Waste recycling and management
		ODL-ENS-606 - Environmental Biotechnology
		ODL-ENS-607 - Biodiversity and eco- preservation
		ODL-ENS-608 - Practical II

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III SEMESTER	:	ODL-ENS-609 - Environmental Protection Engineering
		ODL-ENS-610 - Environmental Issues and Resource Management
		ODL-ENS-611 - Research Methodology
		ODL-ENS-612 - Practical III
IV SEMESTER	:	ODL-ENS-613 - Environmental education, legislation and people's movement
		ODL-ENS-614 - Environmental Impact Assessment
		ODL-ENS-615 - Project Work

viii. Expeeted outcome of the programme:

The candidates on completion of the programme will get qualified for advanced programmes I environmental management. It enables the professionals working in Environmental Audit/ Environmental safety/Eco-tourism/ Pollution Monitoring/ Management section of industries to update their knowledge and skill *in lieu* with current developments.

ix. Course wise Syllabus

ODL-ENM-601 - PRINCIPLES OF ENVIRONMENTAL SCIENCE

An introduction to Ecology – Basics of Ecology and Environment – scope and concepts of Ecology – Divisions of Ecology – Eco systems and it's components – Kinds of eco systems – Biomes and their characteristics – Productivity in eco system. Energy flow in eco systems – Food chain and food web – Ecological pyramids – Energy flow models.

Biosphere and it's components – An introduction to Biosphere – Atmosphere and it's characteristics – Hydrosphere and Lithosphere – Ecological Interactions – Positive and Negative interactions – Ecological Succession and Adaptation – Biogeo Chemical Cycles in Eco system – Atmospheric cycles – Edaphic cycles.

Conservation and Management of Natural resources – Soil and conservation techniques – Water resources and conservation – Forest types, distribution and management – Wild life and it's management – Biodiversity and it's conservation.

Air pollution and management – Introduction to air pollution – Types of air pollutants and sources – General Effects of air pollution – Environmental impacts of air pollution and control – El Nino, ENSO and their effects – Ozone depletion and Global warming – Acid rain – Particulate pollution and control – Noise pollution, effects and control.

Aquatic and land pollution – Domestic, agricultural and industrial sources and impacts – Bioindicators and Biomonitors – Wastewater treatment methods – Bioremediation – Eco friendly technologies in agriculture.

Environmental impact assessment – Introduction to EIA – Environmental Auditing – Environmental laws and legislations – National and International organizations.

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Reference:

1. Chapman, J.L and M.J Reiss. 1999. Ecology – Principles and Application. Cambridge University Press, UK.
2. Turk, J., A. Turk and K.Arms 1974. Environmental Science. Saunder College Publishing, New York.

ODL-ENM-602 - ENVIRONMENTAL CHEMISTRY

Introduction to Environmental & Toxicological Chemistry – Water, Air, Earth, life & Technology – Human Impact & Pollution – Technology and the Anthrosphere – Toxicological Chemistry – Health Hazards – Atmosphere & Atmospheric chemistry – Physical characteristics of Atmosphere – Atmospheric chemical reactions – Particles in the Atmosphere – Chemical process of particle formation – Gaseous Air Pollutants – Inorganic & Organic Air pollutants – Effects of Air Pollutants – Chemistry of GHG & Global warming – Ozone layer Destruction.

Hydrosphere and Aquatic chemistry – Chemical reactions in water bodies – Phase interactions & Oxidation – Reduction Reactions – Colloidal particles in water pE – pH diagrams – Aquatic Microbial Biochemistry – Microbial transformation of Elements – Nature & Types of water pollutants – Water Reuse & Recycling – Geosphere & Soil Chemistry – Environmental aspects of Geosphere – Soil Environmental Chemistry – Wastes & Pollutants in soil – Chemistry & Transformation of hazardous wastes – Reactive, Corrosive & Toxic substances – Effects & Fate of Hazardous waste – Hazardous waste in Biosphere.

Reference

1. Andrews, J. E., An Introduction to Environmental Chemistry, Blackwell Science, Cambridge, MA,1996.
2. Crosby, Donald G., Environmental Toxicology and Chemistry, Oxford University Press, New York, 1998.
3. Manahan, Stanley E., Environmental Chemistry, 7th ed., Lewis Publishers/CRC Press, Boca Raton, FL, 2000.
4. Anil Kumar de., Environmental Chemistry, 5th ed., New Age International (P) Ltd, India, 2003.
5. Sharma B K., Environmental Chemistry, 8th ed, Goel Publishing House, Meerut, India, 2002.

ODL-ENM-603 - ENVIRONMENTAL POLLUTION AND CONTROL

Introduction – Air Pollution – Quality standards and quality indices (National and International) – Current scenario (National and International) – Gaseous Air pollutants – Carbon Monoxide – Nitrogen Oxides – Hydro Carbons- Sulphur Dioxide – Acid Rain – Suspended Particulate air pollutants- Inorganic Particulate Matter – Organic Particulate Matter – Green house gases – Impact on public health : Water pollution – Quality standards and quality indices (National and International) – Water resources and pollution – Rivers and stream water pollution

– Ponds and lake water pollution – Sea water pollution – Groundwater Pollution – Water pollutants and public health – Biomagnification in aquatic ecosystem – Potential impacts of water – pollutants on environment and human health : Noise pollution – Quality standards and quality indices (National and International) – Types sources and levels of noise pollutants – measurement of noise pollution – Impact on public health – Soil pollution – Quality standards and quality indices (National and International) – Current scenario (National and International) – sources of soil pollution – soil types and interaction of pollutants – transformation of soil pollutants – Bio – availability of pollutants.

References:

Anjaneyulu,Y. 2002. **Air pollution and control strategies.** Allied Pub. (P) Ltd. Chennai.

Aravind Kumar. 2004. **Environmental Contamination and Bioreclamation.** APH Pub. Corp., New Delhi.

Barker.R.J. and D.T. Tingey. 1992. **Air Pollution Effects on Biodiversity**. CBS Publishers and Distributors, New Delhi.

Sharma,P.D. 1993. Environmental Pollution and Public Health. **Environmental Biology and Toxicology.** Rastogi Pub., Meerut. p. 154-193.

Tyler Miller,G. 2004. Environmental Science – Working with the Earth. 10th edition. Thomson Learning Inc., US.

Venugopala Rao,P. 2004. **Textbook of Environmental Engineering**. Prentice-Hall of India Pvt. Ltd., New Delhi.

ODL-ENM-604 - 4. PRACTICAL - I

Ex. No.	Title of the Exercise
1 and 2	Preparations of Reagents, standards and basic calculations in analytical chemistry.
3 and 4	Principles and practices of Instrumentation techniques used in the analysis of Environmental samples. Estimation of pH and EC in solid and liquid samples
5 and 6	Determination of Total, volatile, dissolved, floatable and settleable solids in the waste water
7	Determination of dissolved oxygen and BOD in the waste water.
8	Determination of COD and Total carbon in the waste water.
9 and 10	Determination of water soluble cations and anions in the solid and liquid samples.
11 and 12	Determination of acidity, alkalinity and hardness in the waste water

ODL - ENM - 605 - WASTE RECYCLING AND MANAGEMENT

Solid waste – Definition, sources and types – Physical, Chemical and Biological methods of solid waste management – composting- Different methods of composting – various factors influencing composting – compost maturity – assessment and various test – vermicomposting – various substrate suitable for vermicomposting – vermicompost production methods – Energy production from waste and different methods – Municipal solid waste management techniques – Biomedical waste disposal methods – Industrial sludges – ways to manage the sludges – UN regulation for solid waste management and Indian legislation for solid waste disposal.

Liquid waste – sources and types – characteristics and different liquid waste generated – various management techniques to handle the liquid waste for reusing and energy production – United Nations regulation for liquid waste management – Indian Legislation on liquid waste disposal – Role of biotechnology in solid and liquid waste management.

Reference

1. Frank Kreith and George Techobanoglobus 2002. Hand book of solid waste management. Culinary and Hospitality Industry Publications Services. New York.

2. Tandon H.L.S. 1995. Recycling of crop, animal, human and industrial waste in agriculture. Fertilizer development and consultation organization. New Delhi – India.

ODL- ENM-606 - ENVIRONMENTAL BIOTECHNOLOGY

- Introduction on Environmental Biotechnology – Major environmental concerns
- Ecology and environment – Earth's life support systems – Genetic diversity and ecosystem stability.
- Biogeochemical cycles – Conceptual models of major nutrient cycles- Microbes in biogeochemical cycles.
- Pollution and pollutants – Source and nature of pollutants – Chemical parameters of water quality.
- Xenobiotics – Heavy metal pollution – Biotransformation of heavy metals.
- Biotechnology and pollution abatement – Primary, Secondary and advanced treatment techniques – Effluent polishing – Bioflims – Bioreactors – Biofilters – Biosorption.
- Immobilization technology in pollution abatement – Immobilization methods – Industrial application of immobilized systems.
- Solid waste management – Technologies in solid waste management- Controlled tripping – Thermal processes.
- Waste recycling – Production of value added products – Single cell protein – Bio fuels.
- Bioremediaotn – Biomining of metals – Biodecolourization of dyes – Biodegradation of organics and agrochemicals.
- Role of genetically engineered micro organisms in waste management – Recombinant DNA technology – Super bugs – Genetic manipulation of microbes for waste degradation.
- Microbial biosensors for environmental monitoring – Bio recognition devices.

- Constructed wetlands for waste water treatment – Role of macrophytes and microorganisms in the self purification process – Bio amelioration of problem soils.

Reference:

1. Basic Environmental Technology, 4th Edition by Jerry A. Nathanson (Prentice Hall of India Pvt. Ltd., New Delhi).
2. Sustaining the Earth 4th Edition (by) G. Tyler Miller, Jr. (Books / Cole Publishing Company)

ODL-ENM-607 - BIODIVERSITY AND ECO-RESERVATION

Introduction – origins of life evolution, adaptation and natural selection; Biodiversity – Elements of Biodiversity; Ecological Niches and Ecological succession; Biodiversity through time – the fossil record; Community structure, species diversity and different types of species; Mega diversity regions; Speciation, Extinction and Endemison – causes for Extinction and characteristic endangered species; Population – dynamics, carrying capacity, growth curves and age structures; Biomes – terrestrial and aquatic environments, types and characteristics. Significance of Biodiversity for agriculture, food, industries medicines and economic value.

Biodiversity losses / Erosion – impact of Human, climate and environmental pollution on Ecosystems, Species interaction : Competition, predation, parasitism, mutualism and commensalisms; State of Biodiversity in India-Genetic diversity in crops and cattle, Invasion of Exotic species, Wild life, Rare and Threatened plants and animals, Sacred groves; Conservation of Biodiversity - Objective, Design and General measures for conservation and suitable use, *insitu* and *exsitu* systems of conservation; Conservation of eco-systems – Habitat conservation and Niche conservation; International policy and aid for Biodiversity – MBA programme, biosphere reserve etc.

Reference

1. Miller, Jr. G.J. 1990. Living in the Environment : An introduction to the Environmental Sciences, Words Worth Publishing company, Belmont, USA.
2. Negi, S.S. 1993. Biodiversity and its conservation in India. Indus Publishing company, New Delhi.
3. Perrings, C., K.G.Malar, C.Folke, C.S.Holling and B.O.Jansson 1995. Biodiversity loss. Economic and Ecological issues. Cambridge University press, U.K.
4. Sinha, R.K. 1997. Global Biodiveristy. INA Shree Publishers, Jaipur.

ODL-ENM-608 - PRACTICAL - II

Ex. No.	Title of Exercise
1 and 2	Analysis of solid and liquid samples for biological parameters a. Enumeration of Microbes for drinking water quality. b. Enumeration microbial colonies for solid and liquid samples.

3 and 4	Estimation of NO_3-N, NH_4-N and total N in solid and liquid samples.
5	Estimation of PO_4 in the solid and liquid samples.
6 and 7	Estimation of Heavy metals in solid and liquid samples.
8	Determination of phenols in solid and liquid samples.
9	Determination of volatile acid in solid and liquid samples
10 and 11	Estimation of Biodiversity indices for terrestrial and aquatic Eco-system by different methods.
12	Bio assay for toxicity of wastes.

ODL-ENM-609 - ENVIRONMENTAL PROTECTION ENGINEERING

Bio process technologies – Bioreactors and Bio processing – Selection scale up and Control of bioreactors – Recovery of products – Energy and Environment - Impact of fossil fuel on environment – Eco friendly non conventional energy sources – Technologies for management of environmental pollutants – Hazardous waste treatment technologies. Air, soil and water pollution – Instrumental methods of pollution monitoring – Mitigation measures for combating pollution – Physical, chemical and biological properties of waste – Recycling of waste for resource and product recovery –

Energy consumption pattern in urban and rural India – Types of renewable sources of energy: solar energy; solar radiation ,concepts of heat and mass transfer, design of solar thermal system and their application in heating, cooling , distillation, drying, dehydration, etc., Design of solar photovoltaic systems, power generation for rural electrification – Water pumping, solar ponds.

Wind energy for mechanical and electrical power generation - Types of wind mills; geothermal and tidal energy - Biogas animal and agricultural waste; types of biogas plants; utilization of biogas for heating, cooking, lighting and power generation - Characteristics of biogas slurry and its utilization - Energy from biomass - Liquid fuels from petrocrops, energy plantation crops - Concepts of producer gas, characterization of materials for producer gas, types of gasifiers - Animal draft power and its utilization in rural sector - Briquetting of agro-waste for fuel - Potential of renewable energy sources in India - Integrated rural energy programme - Rain water harvesting for agriculture.

Reference

1. Barak, N.N. 2003. Environmental Engineering Tata Mc Graw Hill Publications, New Delhi p:295.
2. Jerry A. Nathanson. 2002. Basic Environmental Technology 4th Edition. Prentice Hall of India (P) Ltd., New Delhi p:544.
3. Waste Water Engineering Treatment & Reuse. 2003 4th Edition. Fetcalf & Eddy, Inc. Revised by :Geroge Techobanoglous Franklin L. Burton &H. David Stensel,TATA McGraw Hill Publications p.1818.

ODL-ENM-610 - ENVIRONMENTAL ISSUES AND RESOURCE MANAGEMENT

Global Environmental Issues – Climate change – current trend & Technologies, polices and measures to mitigate the projected changes in climate – Loss of Biological Diversity – Projected Impact of human activities on biodiversity – Stratospheric ozone depletion – Status of International Agreements – Freshwater degradation – technologies, polices & measures to mitigate the changes – Desertification & Land degradation – Deforestation and unsustainable use of forests – Marine Environmental & Resource degradation – Persistent Organic Pollutants (POPS) – National Scenario of the issues. Natural resources – Renewable & Non – Renewable resources – Mineral Resources – Forest resources - Land resources – Water resources – Air resources – Energy resources – Conservation of Natural Resources.

Reference:

1. Tyler Miller, G. 2004. Environmental Science – working with the earth 10th edition Thomson Learning Inc, US.
2. Kurien Joseph and R. Nagendran. 2004. Essentials of Environmental studies Pearson education (Singapore) Pvt. Ltd., New Delhi.
3. Ignacimuthu, S. 2003. Environmental Science. Phoenix Publishing House Pvt. Ltd., New Delhi.
4. Brown, L.R., et al., (1992) State of the World, World Watch Institute, Washington, D.C, Indian Edition by Horizon India Books, New Delhi.
5. Wolf, E.C. 1987 On the brink of extinction, "Conserving the diversity of life" World Watch Paper 78, World Watch Institute, Washington, D.C.
6. Shea, C.P., 1989 Protecting the ozone layer, State of the World 1989, World Watch Institute, Norton, New York.
7. Shukla, P.R., Subodh K. Sharma, Ravindranath, N.H., Amit Garg and Sumana Bhattacharya. 2003. Climate Change & India : Vulnerability Assessment & Adaptation, University Press (India) Private Limited, Hyderabad.

ODL-ENM-611 - RESEARCH METHODOLOGY

Research – definition – characteristics – types of research – Hypothesis – null hypothesis – alternate hypothesis – Research Problem – selection and source – Research design – concepts – sampling methods – statistical methods – scientific information – primary, secondary sources – Library and information management system – collection & processing of data – statistical methods – presentation of data – scientific paper writing – proof verification – Audio visual aids in communication.

Reference:

1. Venkatasubramanian, V., 1999. Introduction to Research Methodology in Agricultural and Biological Sciences. New Century Book House (P) Ltd., Ambattur, Chennai – 98. pp. 306 Price : Rs.75/-.

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ODL-ENM-612 - PRACTICAL - III

Ex. No.	Title of Exercise
1 and 2	Estimation of pesticides residue in solid and liquid by GC and HPLC method
3 and 4	Introduction to anaerobic digestion and recycling of solid wastes for energy production by biomethanation process.
5	Estimation of microbial enzymes in the solid samples.
6 and 7	Composting of various wastes using micro-organisms and earthworm.
8	Measurement of ambient air quality using high volume sampler.
9	Methods of waste water treatment by precipitation and adsorption.
10	Environmental impact assessment studies for an Eco-system
11	Preparation of environmental related projects for financial support
12	Visit to contaminated sites to assess the extent of pollution.

ODL-ENM-613 - ENVIRONMENTAL EDUCATION, LEGISLATION AND PEOPLE'S MOVEMENT

Concept and principles of environmental education. Environmental educational programmes : formal and informal education, role of United Nations Environmental Programmes (UNEP). Environmental education in India and developed countries. Environmental information system. Environmental legislation : Stockholm conference, The Earth Summit – Rio declaration, Kyoto protocol. Legal environmentalism. Important environmental legislations of Central and State Governments : Water (Prevention and Control of Pollution) Act, Air (Prevention and Control of Pollution) Act, Environment (Protection) Act etc., Role of enforcement agencies : Central and State Governments Pollution Control Boards, Ministry of Environment and Forests, Department of Environment. Critical analysis of case studies involving environmental issues. ISO and environmental systems. People's movement : People and environment, politics and environment. Role of Environmental Brigade, Eco-Clubs, Environmental Committees and NGOs in environmental protection. Peoples movement against important projects, role in Forest and Wild life conservation and Eco-tourism. Environmental ethics : values, issues and challenges, impact on environmental protection.

Reference:

1. Environmental Management Bala Krishnamoorthy (2005) Printice – Hall of India, Pvt. Ltd., New Delhi.
2. A.K.Shrivastava (2004) Environmental Ethics A.P.H. Publishing Corporation, New Delhi.
3. Vijay Malik (1987) Environmental Pollution Laws EBC publishers Pvt. Ltd., Lucknow.
4. Ratandeep Singh. 2003 Indian Eco-tourism – Environmental Rules & Regulations. Kaniskha Publishers. Distributors. New Delhi.

ODL-ENM-614 - ENVIRONMENTAL IMPACT ASSESSMENT

Introduction to EIA – Natural and Manmade impacts – concepts and types of EIA -Steps and process involved in EIA study-Methods of impact assessment : Adhoc methods – expert opinion - checklists and ranking methods - Map overlay technology –Matrices – Network or impact trees- Over view of economic, environmental and ecological consequences of common property resource degradation.-

Environmental indices and indicators for describing the affected environment – Assessment of impacts of developmental activities and land use – Prediction and assessment of impacts on air environment – noise environment – water environment – soil/land environment – biological environment – Assessment of socio-economic impacts – Preparation of EIA for industrial projects – land clearing projects – gas based power stations- highways and road projects.

Environmental audit – waste audit – energy audit – health and safety audit – management audit – preparation of audit report.

Reference:

1. Canter Larry. W. 1996. Environmental Impact Assessment Mc Graw – Hill, Inc. New York p.658.

2. Anjaneyulu. Y and C.A.Sastry (ed) 2002. Environmental Impact Assessment Methodologies BS Publications, Hyderabad p.355.

15. DISSERTATION

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RULES AND REGULATIONS

III. PG Degree Programmes

1. Regulations

PG Degree Programme : Rules and Regulations for the ODL P.G. Degree programme (Under Semester System) at DODL, TNAU.

The Regulations provided herein shall apply to all ODL P.G. Degree Programmes offered by Directorate of ODL, TNAU, Coimbatore, for a duration of 2 years (4 Semesters) in English to candidates of Tamil Nadu, other parts of the India as well as other countries with minimum education qualifications of an under graduate degree as prescribed for the course **under semester system, in an academic year.**

2. Courses offered at DODL and eligibility for admission

10+2+3 system (10th, Plus two and bachelor's Diploma from recognized Universities).

Master Degree Programme	Eligibility Criteria
MBA	Any degree
MBA	Any degree
M.Sc (Sugarcane Technology)	B.Sc. (Ag.) / Any degree with minimum of three years work experience in the relevant field.
M.Sc (Environmental Management)	B.Sc. (Ag.) / Any degree in Life sciences/ Any professional degree with minimum of three years work experience in the relevant field.

3. Definitions

3.1. Academic Year means a period consisting of two consecutive semesters including the inter-semester break as announced by the Director (ODL).

3.2. The study year shall be the first and second semesters following a student's admission.

3.3. Curriculum is a group of courses and other specified requirements for the fulfillment of the specific programme of ODL.

3.4. Curricula and syllabi Are a list of approved courses of P.G. Degree programme under ODL. Each course will be identified with ODL and three-Letter subject code indicating the respective department which is offering the course, along with an ODL code. Three letter subject code

Model for PG Degree programme

Course ID	:	ODL-MBA-601onwards
		ODL-ENS-601 onwards
		ODL-SCT-601 onwards
Candidate ID	:	ODL-MBA-05-001 onwards
		ODL-SCT-05-001 onwards

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3.5. Course 'Course' is a teaching unit of a discipline to be covered within a semester as detailed in the curricula and syllabi issued by the University.

3.6. Personal Contact Programme: Personal contact programmes will be offered for the respective courses as **proposed by the DODL**, which offer the courses as part of the requirement to fulfill the course completion, based on its need as the case may be.

3.7. Duration of Semester: Duration of each semester is 150 days, including the day of practical examination but excluding the period of final theory examinations.

3.8. The Directorate will organize contact programme of ten days / semester (2 days / month @ 6 hours / day). Candidates has to attend a minimum of 6 days / semester. A minimum of 4 semesters is to be completed for the award of P.G. Degree programme under ODL.

4. System of Education

4.1. The duration of PG Degree programme is normally two academic year.

4.2. Course requirement: Each student has to complete required number of courses for PG Degree programme as per the details given below.

Master Degree Programme	Course requirement
MBA	16 courses + One Project work
MBA (RB&FM)	16 courses + One Project work
M.Sc (Sugarcane Technology)	14 courses + One Project work
M.Sc (Environmental Management)	14 courses + One Project work

5. Registration of Courses

5.1. All eligible candidates including the entrants shall register the requisite courses in the beginning of each semester. Registration will be done only through online.

A candidate permitted to register only one semester at a time.

5.2. Registration without fine: The courses prescribed for a semester shall be registered on the date fixed by the University. The registration shall be permitted by the DODL **upto 10 days inclusive of the date of registration without fine.**

5.3. Registration with fine: The late registration shall be permitted by the DODL upto 30 days inclusive of the date of registration with a late fine of **Rs.300 (Rupees Three Hundred only)** and **60 days inclusive of the date of registration with a late fee of Rs.500/- (Rupees Five hundred)** only.

The student concerned shall apply with proper reason to the DODL through the concerned Coordinator and get permission for the late registration of the course. Beyond the prescribed time limit, no student shall be permitted to register the course for the particular semester.

6. Tuition fee and other fees

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6.1. In case of new admissions, the fees for the first semester are payable in advance failing which they will not be admitted.

6.2. In other cases, the fees are payable within seven working days including the date or registration from the commencement of the semester. If the seventh day happens to be a holiday, the next working day shall be the last due date for payment of fees without fine.

6.3. Semester fees once paid will not be refunded on any circumstances.

6.4. In default of full payment within seven working days, a fine of Rs.50/- for each day of default in respect of tuition fees alone will be collected. The students who fail to pay tuition fees "within 30 working days" of commencement of the semester will not be allowed to continue the programme.

6.5. Re-registration fee: Respective course semester fee (Mentioned in 7.3)
Late registration and Default in tuition fees (Mentioned in 5.3)
Revaluation / Re-totaling - Rs.400 per subject
Reappearance - Rs.400 per subject
(either theory / practical/both theory and practical)

7. Discontinuance and Readmission

7.1. The student who discontinues the first semester for genuine reasons with the permission of the Director, ODL, will be re-admitted in the first semester of the next year or in the second semester of the same year, with the approval of the Director, ODL.

7.2. A candidate may discontinue the studies temporarily on valid and genuine grounds with prior permission of the Director, ODL of the Institute. Grade 'E' will be awarded for all the courses registered. The student has to rejoin on payment of respective course semester fee with the permission of the DODL.

7.3. In case of revision of curricula and syllabi the candidate has to complete all the course work in the original syllabus in which the candidate has joined, by registering equivalent / special semester courses (or) the candidate has to forgo all the courses registered so for in the original curricula and syllabi and register all the courses from first semester in the new syllabus.

7.4. On no account a student who discontinued without written permission of the Director, ODL of the institute will not be readmitted for further studies.

8. Attendance Requirements: Each candidate is expected to maintain 60% per cent attendance in each course. A candidate who has not maintained a minimum of 60 % attendance of each course shall not be permitted to appear for both the practical and theory in the course concerned and **'E'** "incomplete" will be awarded. The candidate must re-register for the course with the permission of the DODL when offered again.

9. Examinations

9.1. An examination schedule approved by the Director, DODL shall be final. The duration of **final theory examinations will be for three hours.**

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9.2. A candidate must take up all the examinations prescribed for a course to become eligible for a pass in that course.

9.3. Late comer in Examinations: The candidates who are late by 30 minutes shall not be allowed to enter the examination hall. Similarly no candidate will be allowed to leave the examination hall within 30 minutes after the commencement of the examination.

9.4. The practical examination will be conducted in the last practical contact class of the respective courses by the Course Teachers and the statement of marks should be sent to the Director, ODL.

9.5. Postponement of Final Examination: Whenever Government declares holidays on the dates of final examinations due to unforeseen circumstances, the examinations that fall on the dates will be postponed to the dates after the last examination as per the original examination schedule.

9.6. A failing candidate in a subject shall reappear either for final theory or practical, as and when conducted.

9.7. The minimum mark to be secured for a pass for the successful completion of individual course is 50.0. A candidate should secure a minimum of 50% of the marks in theory and 50% in practical and aggregate of 50%.

10. Question paper setting and Evaluation

10.1. The Semester final theory question papers for all the courses will be set by the External Examiners.

10.2 Final Examinations:

A. Theory: The examinations will be conducted as per the schedule communicated by the Director, ODL. The valuation of the final theory papers will be done by the External Examiner nominated by the Controller of Examinations.

B. The practical examination will be conducted in the last practical contact class of the respective courses and the statement of marks should be sent to the Director, ODL within 10 days by the concerned **course teachers** through the Director (ODL).

11. Evaluation of course work

11.1. The results of the course shall be indicated by the percentage of marks obtained in all the courses.

11.2. The following symbols may be used

P	-	Pass
E	-	Incomplete (Lack of 60% Attendance)
F	-	Fail
A	-	Absent for theory and/or practical/ assignment

11.3. Each course shall carry a maximum, of 100 marks which may be distributed as follows:

A. Courses with theory and practical

Examination	Marks
Final Practical Examination	40
Final Theory Examination	60

I. Question pattern for 60 marks

1. Part A - (out of 12 / 10)	- 1 mark (1x10=10 marks)		
2. Part B	- Short notes (out of 12 / 10)	- 2 marks	(2x10=20 marks)
3. Part C	- Essay type (out of 8 / 6)	- 5 marks	(5x6= 30 marks)

II. Evaluation pattern for practical examinations for 40 marks

a. Procedure /Identification	-	10 marks
b. Viva-Voce	-	5 marks
c. Short notes	-	5 marks
d. Practical work	-	20 marks

B. Courses with only practical (100 marks)

a. Written part	-	40 marks
b. Procedure /Identification	-	10 marks
c. Experiments Demonstration	-	20 marks
d. Assignment	-	10 marks
e. Record	-	10 marks
f. Viva-voce	-	10marks

C. Course with only theory – 100 marks

Question pattern for 100 marks

1. Part A - (out of 8 / 6)	- 2 marks	(2x6=12 marks)	
2. Part B	- Short notes (out of 12/10)	- 4 marks	(4x10=40 marks)
3. Part C - Essay type (out of 8 / 6)	- 8 marks	(8x6=48 marks)	

12. Re-Examinations

PG Degree Programme: The student is permitted to appear for the theory and practical exam **only three times excluding the regular examinations** within n+3 years (which includes the period of Degree programme).

Incase the student failed to secure pass in the three reexaminations permitted he/she has to re-register the course along with the juniors by paying the semester fee, attend the personal contact programmes and permitted to appear for re-appearance examinations as per the regular registration.

12.1. Re-Evaluation/Re-Total

A student can submit a request for revaluation or re-total in the prescribed format along with the fee to the Controller of Examinations through the Director, ODL within 30 days from the issue of class grade chart to the students from DODL. Submissions thereafter will not be considered.

13. Project Work

- Students are to submit the project work within the stipulated time mentioned by Director, ODL

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- The student submitting the project work beyond closure of the semester has to pay the fine amount now and than fixed by the Director, ODL.
- The project work for MBA, M.Sc. (ENS), M.Sc. (SCT) will be evaluated.

14. Result Notification

14.1. After the completion of each semester, the student will be given the statement of marks by the Controller of Examinations through the Director, ODL.

14.2. The transcript will be prepared by the Controller of Examinations.

14.3. The result declaration proposal will be sent by the Director, ODL to the Registrar and the Controller of Examinations.

15. Malpractices in examination and conduct of students

15.1. The Director (ODL) shall be responsible for dealing all cases of unfair means in assignments and examinations.

15.2. The invigilator or **the course teacher** concerned shall report to the DODL on the day of the occurrence of each case of unfair means with full details of the evidence and written explanation of the student concerned.

15.3. Amending or Canceling **the Result:** If it is established that the result of a candidate has been vitiated by malpractice, fraud or any other improper conduct and that the candidate has been a party to or connived at malpractice or improper conduct of another candidate, the Vice Chancellor shall have the powers at any time to amend the results of such a candidate and to make such declaration as the Vice Chancellor 'may deem necessary and to cancel the results of the candidate in such a manner as the Vice Chancellor may decide.

15.4. Removal of Difficulties: If any difficulty arises in giving effect to the provisions of these regulations, the Vice Chancellor may issue necessary orders which appear to him to be necessary or expedient for removing the difficulty.

Every order issued by the Vice Chancellor under this provision shall be laid before the Academic Council of the University immediately after the issuance. Not-withstanding anything contained in the rules and regulations, the Academic Council shall make changes whenever necessary.

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