MAL-203 APPLIED STATISTICS
(For odd semester) 3rd Semester

L T P	Marks for External Exam : 80
4 0 0 (4 Credits)	Marks for Internal Exam : 20
	Total : 100
	Time : 3 Hours

Note:

The examiner is requested to set **nine** questions in all taking two questions from each unit and one **compulsory** question. The compulsory question will consist of four parts and will be distributed over the whole syllabus. The candidate is required to attempt **five** questions selecting one from each unit and the compulsory question.

Objectives: To familiarize students with Basic Statistics and their applications.

UNIT–1

Measures of Central Tendency: Mean, Median, Mode, Dispersion, Range, Quartile deviation, Standard Deviation, Moments, Skewness and Kurtosis.

UNIT–2

Introduction to theory of Probability. The concept of probability, Additive and Multiplicative Laws of Probability, Sampling Theory – Population and sample, Types of Sampling, Null Hypothesis, Type II and I errors, Levels of significance

UNIT–3

Solution of Linear Programming Problems (LPP): Feasible solution, Basic feasible solution, Convex Set and their properties. Solution of LPP using Graphical Method & Special Cases.

UNIT– 4

Correlation & Regression: Karl Pearson's coefficient of correlation, correlation coefficient and lines of regression, Regression Cofficients and their properties.

Suggested Text Books & References:

1. Spiegel M. R.,"Theory and problems of Probability, Statistics". (Schaum's Outline Series) - McGraw Hill Book Co.
2. Gupta S C and Kapur V K, Fundamentals of Mathematical Statistics - Sultan Chand & Sons.
3. Grewal B S, Higher Engineering Mathematics, 40th Edition, Khanna Publisher
4. Robert E Stine and Dean Foster, Statistics for Business- Decision making and analysis, Pearson.

MAL-204 Basics of Calculus
(For even semester) 2nd Semester

L T P	Marks for External Exam : 80
4 0 0 (4 Credits)	Marks for Internal Exam : 20
	Total : 100
	Time : 3 Hours

Note:

The examiner is requested to set **nine** questions in all taking two questions from each unit and one **compulsory** question. The compulsory question will consist of four parts and will be distributed over the whole syllabus. The candidate is required to attempt **five** questions selecting one from each unit and the compulsory question.

UNIT–1

Limit, Continuity and differentiability, derivatives of composite functions, Chain rule, derivatives of inverse trigonometric functions, derivatives of implicit functions, concept of exponential and logarithmic functions and their derivatives, Logarithmic differentiation, derivatives of parametric function.

UNIT–2

Application of derivatives: rate of change, increasing and decreasing functions, tangent and normals, maxima and minima, Rolle's and Lagrange's theorem.

UNIT–3

Integral calculus, Integration as reverse process of differentiation, integration by substitution, by partial fraction , by parts, definite integrals.

UNIT– 4

Applications of definite integrals, area under simple curves, especially lines, circles, parabolas, ellipses(in standard form only),area between the two above said curves, Multiple Integrals.

.

References:

1. Elements of Mathematics, M. L. Bhargava and Janardhan dinodia, Jeevansons publications

2. Differential and Integral calculus by Shanti Narayan

Bhagat Phool Singh Mahila Vishwavidyalaya, Khanpur Kalan (Sonipat)
Department of Basic & Applied Sciences

ENV-100 ENVIRONMENTAL POLLUTION (ODD SEMESTER)

L	T	P		
4	0	0 (4 Credits)	Marks for External Exam	: 80
			Marks for Internal Exam	: 20
			Total	: 100
			Time	: 3 Hours

Note: The examiner is requested to set **nine** questions in all taking two questions from each unit and one **compulsory** question. The compulsory question will consist of four parts and will be distributed over the whole syllabus. The candidate is required to attempt **five** questions selecting one from each unit and the compulsory question.

Objective: To educate the students about the environmental concerns and various topics related to global environmental issues and pollution.

UNIT - I

Air pollution – definition, sources of air pollution, classification of air pollutants, history of air pollution, effects of air pollutants on human, plants, materials and environment, air quality standards, control of air pollution.

UNIT - II

Water pollution – definition, sources and type of water pollution, classification of water pollutants, waste water characteristics, effects of water pollution, drinking water standards, control of water pollution.

UNIT - III

Soil pollution – definition, formation of soil, sources of soil pollution, detrimental effects of soil pollutants, disease caused by soil pollution, causes and control of soil pollution, soil erosion, control of soil erosion.

UNIT - IV

Noise pollution – definition, sources of noise pollution, effects of noise pollution on human, control of noise pollution, noise levels standard in India, Marine pollution – sources, effects, oil spill, control of marine pollution.

SUGGESTED TEXT BOOKS AND REFERENCES:

1. Introduction to environmental engineering and science - Gilbert Masters
2. Air pollution and control - K.V.S.G. Murlikrishan
3. Environmental Chemisry - A. K. De
4. Industrial noise control - Bell & Bell
5. Soil chemistry-Bolt and Buggenwert

ENV-200 SOLID WASTE MANAGEMENT (EVEN SEMESTER)

L	T	P		
4	0	0 (4 Credits)	Marks for External Exam	: 80
			Marks for Internal Exam	: 20
			Total	: 100
			Time	: 3 Hours

Note: The examiner is requested to set **nine** questions in all taking two questions from each unit and one **compulsory** question. The compulsory question will consist of four parts and will be distributed over the whole syllabus. The candidate is required to attempt **five** questions selecting one from each unit and the compulsory question.

Objective: To educate the students about the environmental problems caused by solid waste and its management.

UNIT - I

Solid waste – sources, generation, composition, classification, types of solid wastes, environmental and health effects of solid waste, collection, storage, transport and disposal of solid wastes.

UNIT - II

Solid waste management methods - sanitary land filling, composting, vermicomposting, incineration, energy recovery, reuse and recycling, legal measures regarding solid waste management.

UNIT - III

Hazardous Waste Management- definition, history of hazardous substances, types and classification of hazardous waste, disposal and treatment of hazardous waste, E-waste: an overview.

UNIT - IV

Biomedical waste management - sources, colour coding system, impacts on health and environment, disposal of biomedical waste, Biomedical Waste (Management and Handling) Rules, 1998, generation and utilization of fly ash in India.

SUGGESTED TEXT BOOKS AND REFERENCES:

1. Ecotechnology for pollution control & environmental management - RK Trivedi & Arvind Kr.
2. Environmental Hazards - M. Iqbal, AS Srivastava and TQ Siddiqu.
3. Fundamentals of Environmental Chemistry - S.E. Manahan.
4. Basic Environmental Technology - J.A. Nathanson.
5. Solid Waste Management CPCB. New Delhi.