Lr. No.CR/WSC/ADMISSION-JANUARY 2014

CIRCULAR

Dr. USHA NATESAN
Director

Sub: Syllabus/pattern for the admission of Ph.D./M.S. programmes in January 2014 session

Selection of the candidates will be based on the following criteria
a) 50 marks for the Written test
b) 20 marks for the Interview
c) 20 marks for the Qualifying degree
d) 5 marks for the Experience @ 1 mark for every 2 Years after PG degree
e) 5 marks for Publication in Journal /Conference /Symposium @ 1 mark for each

Cut off mark for the selection is 50 out of 100

Written test and interview : 08.10.2013 (Tuesday) between 9.30 to 10.45am

Number of questions for Test : 50

Duration of the test : 75 min.

Test and interview will be conducted in the University Department/Centre at CEG/ACT/MIT/SAP Campuses of Anna University, Chennai. Interview will be held on the same day or may be extended to the next day, if the number of candidates is more.

Candidates qualified in GATE, NET/SLET/other National Level Eligibility Test or INSPIRE Fellowship of DST, Rajiv Gandhi and Maulana Azad Fellowships of UGC or similar Fellowships awarded by statutory bodies of Govt. of India are exempted from written test and have to appear for interview only.

Candidate has to appear for test and interview in the respective Department/Centre based on their qualifying PG degree for Ph.D. and UG degree for M.S. Separate call letter for written test and interview will be sent by the convenor of the selection committee. No TA/DA will be paid for attending written test and interview.

Syllabus for the written test is given below.

SELECTION LIST WILL BE POSTED IN THE WEBSITE DURING NOVEMBER 2013.

Sd/-
DIRECTOR (RESEARCH)
Syllabus for the admission of Ph.D./M.S. programmes for January 2014

**Urban /Transportation Engineering**


**Structural Engineering**

Construction Engineering/Management

Advanced Construction Techniques - Construction of special structures, Cooling towers, Silos, Rehabilitation and strengthening techniques, Demolition techniques.
Computer Applications in Construction Engineering and Planning - Optimization techniques, Inventory models, Scheduling application - Sequencing problems - Simulation - Enterprises.
Construction Planning, Scheduling And Control - Construction planning, Scheduling procedures and techniques, Cost control, Quality control and safety during construction, Organization and use of project information.
Quality Control and Assurance In Construction - Quality management, Quality systems, Quality planning, Quality assurance and control, Quality improvement techniques.
Quantitative Techniques in Management - Operations research, Production management, Financial management, Decision theory, Managerial economics.
Soil Mechanics and Foundation Engineering/ Rock Engineering And Underground Structures

**Environmental Engineering**

Environmental chemistry-aquatic chemistry, atmospheric chemistry, soil chemistry-environmental chemicals; Environmental Microbiology - classification and characteristics of Microorganisms-microbes and nutrient cycles- metabolism of microorganisms- pathogens in wastewater- toxicology Fluid flow-continuity principle, energy principle and momentum principle; frictional head loss in free and pressure flow, minor heads losses- Planning of water system - selection of pipe materials, water transmission main design. Design of sanitary sewer; economics of sewer design-sewer appurtenances; material, construction, inspection and maintenance of sewers. Pollution in wastewaters - physical and chemical treatment of waste water- Biological treatment of wastewater - sludge treatment and disposal. Design of water and wastewater treatment systems-Principles of treatment-Design of water treatment plants-Design of wastewater treatment plants-Residual management- construction operation and maintenance aspects; Industrial wastewater management, treatment & disposal-Industrial pollution prevention & waste minimization-Industrial wastewater treatment-Wastewater reuse and residual management. Air pollution & control-Meteorology-Control of particulate contaminants-Control of gaseous contaminants-Indoor air quality management-Noise Pollution and Control; Solid and hazardous waste management-Sources,
Environmental Management


Water Resources Engineering /Irrigation Water Management


Coastal Management/ Ocean Science and Technology

Geoinformatics/Remote Sensing


Mechanical Engineering/ CAD/CAM/Product/ Industrial Design

Design concepts: Design fundamentals, methods and material selection; Design for Quality; Failure mode effect analysis and design for six sigma; Design of experiments; Statistical consideration and

**Energy /Thermal/Refrigeration and Air Conditioning/ Internal Combustion Engineering**


Manufacturing Systems Management/Lean Manufacturing/Project Management

Welding Engineering

Materials /Metallurgy Engineering

**Industrial Engineering**


**Quality Engineering & Management**


**Computer Integrated Manufacturing /Advanced Manufacturing Engineering**

down and bottom-up approach.

**Printing and Packaging Technology**


**Mechatronics**


**Production / Manufacturing Engineering**


**Aeronautical/Aerospace Engineering / Avionics**

**Aeronautical Engineering**


**Aerospace Technology**

Avionics

M.S.(By Research)

**Automobile / Automotive Engineering**


**Plastic/ Polymer Technology**

Polymers-Classification of polymers - Functionality - Polymerization mechanism - Industrial polymerization techniques - Molecular weight of polymers and their significance - States of aggregation in polymers - T_g - Factors affecting T_g - Crystal nucleation and growth - Spherulite formation - Factors affecting crystallinity. Preparation, Structure - Property relationship and applications of General Purpose Rubbers, Special Purpose Rubbers, Polyurethanes and Thermoplastic Elastomers. Preparation, Structure - Property relationship and applications of Commodity Plastics, Engineering Plastics and Specialty polymers. Test for Processability - Viscosity - Flow characteristics - Vulcanization Tests for rubber. MFI - Gelation and Gel time, Test for Mechanical, Electrical and Optical Properties, Test for durability; Thermal analysis, Molecular weight studies, Spectroscopic and Morphological studies. Flow behavior of Polymers - Compounding and Mixing process, Forming Operations - Extrusion, Injection molding, Blow molding, Compression and Transfer molding, Rotational molding, Thermoforming, Calendaring, Reaction Injection Molding; Latex processing and applications; Composite materials and Fabrication; Polymer recycling. Simple geometries - Spring rates - Creep - Stress relaxation - Design to Specific - Spring rates, Rubber under complex loading, Rubber products under dynamic conditions, Property considerations in designing of Plastics Parts, Design of moulds and dies for Rubber and Plastics products.

**Mining Engineering**

support requirement; exploitation of thick, thin and contiguous coal seams. Working coal seams under water bodies and surface structures. Special methods of coal mining - Coal bed methane, coal gasification, hydraulic mining. Classification, selection and design of stoping methods - shrinkage, cut and fill, sub-level, open stoping, VCR, sub-level caving, block caving. Recent trends in mechanization of development and stoping methods. Cyclic and continuous mining systems. Excavation and Loading - Workings, applications and limitations of: Shovels, Draglines, Front-end loaders, Scrapers, BWEs, Surface Miners, etc. Transportation - Working, applications and limitations of: Dumpers, Conveyors, In-pit crushers, High angle conveyors, etc. Waste Dumps and type of formations. Basic rock mechanics: UCS, tensile and shear strength and their time dependent characteristics; failure theories. Stress distributions around single and multiple openings in rocks. Rock reinforcement and rock bursts. Instrumentation. Mine gases; Natural and Mechanical ventilation; Ventilation planning and survey. Ventilation network analysis; Mine fires and explosions; Mine dust and illumination. Meridian - True and Magnetic; Theodolite traverse; Triangulation EDM traversing; Correlation; Modern surveying equipment - Total station and GPS. Pollution control and remedial measures. Preparation and appraisal of EMP, EIA. Environment laws and legislation. Carbon capturing, Green house effect and global warming. Mine reclamation and mine closure planning.

**Power Systems /Electrical and Electronics Engineering**


**High Voltage Engineering**


**Power Electronics and Drives /Electrical Machines**

Renewable Energy systems, Power Quality

Embedded Systems Technology


Control System/ Instrumentation Engineering


VLSI Design / Electronics and Communication Engineering

Medical Electronics
Biomedical Instrumentation, Biomedical Equipments, Digital Image Processing, Radiological Equipments, Human Assist Devices

Advanced/ Digital/ Optical / Wireless Communication/ Networking Technology
Advanced Digital Communication, Wireless Communication, Antenna and Microwave, Fibre Optic Communication, Communication Networks

Computer Science and Engineering /Software Engineering /Information Technology /Pervasive Computing

Multimedia Technology

Master of Computer Applications (MCA)


Chemical / Petroleum Refining and Petrochemicals Engineering

Process Design

Industrial Safety Engineering/Fire Engineering and Safety Management
Probability and Reliability - random variable, special distributions, sampling, curve fitting, time series analysis, reliability, computer programming and software, safety in chemical industry - concept of safety and safety auditing, hazardous chemicals - precautions in handling, tolerance limits of industrial emissions, carcinogens - health hazards of insecticides, drinking water standards - computer aided hazards analysis, hazard, risk issues and hazard assessment, instrumentation, testing, risk analysis - environmental pollution control and industrial hygiene, eia, impact assessment and documentation - industrial safety and hazards management - fire and explosion, relief systems, toxicology, leaks and leakages - process simulators - safety in engineering industry - metals and wood working machines, guarding, welding and gas cutting, cold forming and hot working, finishing, inspection and testing - regulations for health, safety and environment - safety management - construction - safety in material handling - noise and vibration controls - electrical safety - air pollution control - fire and explosive control and transport phenomena.

Environmental Science and Technology

Apparel Technology
Measures of Central tendency, Measures of variation and Skewness, Curve fitting, Rank Correlation

Textile Technology


Ceramic Technology


Leather Technology

Footwear Science and Engineering
Leather Process Technology and Footwear Manufacturing - Technology for Specialty & Non Leather Footwear Manufacturing, Lasting, Good Year Welted Construction, Stitch Down and Other Construction,

Biotechnology / Microbial/ Pharmaceutical Technology (with Technology)
Sequence Analysis - Phylogenetics - Protein Structure, Modeling and Simulations - Machine Learning,
Systems Biology and Other Advanced Topics - Perl For Bioinformatics - Structure of Nucleic Acids and
DNA Replication - Transcription and Translation - Regulation of Gene Expression - Cloning and
Expression of Genes - Construction of DNA Libraries - DNA Sequencing - PCR and Mutagenesis - Gene
Transfer & Gene Therapy - Immunotechnology - Antibodies - Cellular Immunology - Vaccine
Technology and Development of Immunotherapeutics

Bio-Pharmaceutical Technology/ Industrial Pharmacy (with Technology)
Generics and its advantages; Biogenerics and Biosimilars, Protein-based biopharmaceuticals,
Biosimilars development peptides; Recombinant nonglycosylated proteins; Recombinant glycosylated
proteins, Analytical methods for the characterization of biosimilars, Immunogenicity, Case studies:
Erythropoietin, Insulin, Somatotropin, Interleukin-2, Interferon Granulocyte- macrophage-CSF.
Classification of drugs on the basis of sources, structure, site of action and mode of action, drug
metabolism, inactive metabolites, biologically active metabolites, phase I and phase II reactions,
prodrugs - Chemistry, Structure property Relationship and properties of drugs having medicinally
important compounds - therapeutic applications of anti microbial drugs - biological targets and drugs,
Chemistry of Natural products. Foundations of Physiology and Overall Physiology, ANS, CNS,
Cardiovascular system, Gastrointestinal system, Muscle and skeletal system, excretory
system, Chemical & Physical Foundations - Homeostatic control - neural & endocrine mechanisms - Transport across cell
membranes Endocrine control of organic metabolism and growth , Factors effecting drug metabolism ,
Biotransformation of drugs. Mechanisms of drug absorption - passive and active transport - Routes of
drug excretion, clearance; Bioequivalence - Nonlinear pharmacokinetics, Multiple-dose
pharmacokinetics; two-compartment open models - equations for multicompartment models; to recognize
and use integrated equations to calculate pharmacokinetic parameters; metabolite Pharmacokinetics.
Classification of Dosage forms and routes of Administration - Physical and chemical properties of drugs
- Solid dosage forms, Liquid Dosage forms, Semisolid Dosage Forms. Novel Drug delivery systems -
Transdermal delivery systems, Osmotic drug delivery systems, Liposomes, Nanoparticles.
Pharmacogenetics- pharmacogenomics in drug discovery and drug development.- Expressed sequence
Tags (EST) and computational biology, Microbial genomics, computational analysis of whole genomes,
computational genome analysis- Viability and ADR in drug response: contribution of genetic factor,
Multiple inherited genetic factors influence the outcome of drug treatments - Target identification and
validation, Drug candidate identification and optimization. Mutation of drug targets. Basic statistics for
clinical trials; Clinical trials in practice; Reporting and reviewing clinical trials; Legislation and good
clinical practice - International perspectives; Principles of the International Committee on Harmonisation (ICH) - GCP - Drug development and trial planning - pre-study requirements for clinical trials - Regulatory approvals for clinical trials - Legislative requirements for investigational medicinal products - Project management in clinical trials - Application in clinical trial management; Risk assessment; Research ethics and Bioethics - Principles of research ethics; Ethical issues in clinical trials - animal ethics; Animal rights and use of animals in the advancement of medical technology; Introduction to laws and regulation regarding use of animals in research. Informed Consent and data protection - Data management - Introduction to trial master files and essential documents; Data management. Quality assurance and governance - quality control in clinical trials; Monitoring and audit; Inspections; Pharmacovigilance.

**Biotechnology / Bio Engineering/ Molecular Biology/ Human Genetic/ Genomics / Biomedical Science/ Biochemistry (with M.Sc.)**

Bioenergetics, Biochemical changes associated with biological processes; Enzyme kinetics and the role of enzymes in metabolism; Classification, biochemical properties, synthesis and metabolism of carbohydrates, proteins and lipids; Structural properties, synthesis and degradation of Nucleic acids. Microscopic examination and classification of microbes; Microbial growth and the medias used; Sterilization techniques; methods to control microbial population; Economical importance of microbes; Mendelian genetics; Sex determination; Disorders linked with chromosomal alterations, Mapping human genes. Cellular organization and functions of prokaryotic and eukaryotic cells; Cell cycle and regulation; Transport processes; DNA structure, Replication and repair; Transcription and translation in prokaryotes and eukaryotes and their regulation; Translation of mRNA in prokaryotes and eukaryotes. Cell signaling principles and the role of receptors in signal transduction; Signal amplification in Oncogenesis; Mutations and cancer; Viral mediated Oncogenesis; Cancer metastasis; Tumor markers and Cancer therapy. Units and abbreviations used in clinical Lab; Collection and preservation of biological samples; Biochemical tests performed for diagnosis; Organ function tests; Recombinant proteins and their clinical applications; Immunotherapy; Gene therapy; Stem Cell therapy. Fundamental concepts of immunology; Immune responses generated by B and T lymphocytes; Antigen-Antibody interactions; Vaccines; Clinical immunology; Transplantation Immunology.

**Microbiology/Botany/Zoology/Biochemistry**

**Botany**

Photosynthesis - Emphasis on mechanisms of electron transport; photoprotective mechanisms; CO2
fixation-C3, C4 and CAM pathways. Respiration and photorespiration - Citric acid cycle; plant mitochondrial electron transport and ATP synthesis; alternative oxidase; photorespiratory pathway. Nitrogen metabolism - Nitrate and ammonium assimilation; amino acid biosynthesis. Plant hormones - Biosynthesis, storage, breakdown and transport; physiological effects and mechanisms of action. Sensory photobiology - Structure, function and mechanisms of action of phytochromes, cryptochromes and phototropins; stomatal movement; photoperiodism and biological clocks. Solute transport and photoassimilate translocation - uptake, transport and translocation of water, ions, solutes and macromolecules from soil, through cells, across membranes, through xylem and phloem; transpiration; mechanisms of loading and unloading of photoassimilates.

Zoology

Developmental biology, Basic concepts of development: Potency, commitment, specification, induction, competence, determination and differentiation; morphogenetic gradients; cell fate and cell lineages; stem cells; genomic equivalence and the cytoplasmic determinants; imprinting; mutants and transgenics in analysis of development. Gametogenesis, fertilization and early development: Production of gametes, cell surface molecules in sperm-egg recognition in animals; zygote formation, cleavage, blastula formation, embryonic fields, gastrulation and formation of germ layers in animals; embryogenesis. Ecology and Evolution. Population Ecology: Characteristics of a population; population growth curves; population regulation; life history strategies (r and K selection); concept of metapopulation - demes and dispersal, interdemic extinctions, age structured populations. Lamarck; Darwin-concepts of variation, adaptation, struggle, fitness and natural selection; Mendelism; Spontaneity of mutations; The evolutionary synthesis.

Microbiology


Food Processing / Food And Nutritional Biotechnology

Food Chemistry - Composition of foods Nutrient and non-nutrient components of foods, water activity, lipid, carbohydrates, proteins, bioactive components, functional foods, analytical methods in food analyses; food additives, their functions and applications - Food microbiology - microbial spoilage of foods, food pathogens, food poisoning, food borne infections, microbes in food fermentation. Bioreactor and upstream processing, fermentation processes - batch, continuous, fedbatch, enzymes in food technology, microbial productions of aminoacids, proteins, lipids, flavor components, colouring agents. Types of processing - aseptic processing, drying and ultrafiltration, canning, radiation processing, CAP, MAP, Hurdle technology, newer methods- ohmic heating PEF, High pressure processing, food packaging.
technology. Cereal, Pulse and oilseed technology, meat, fish and poultry technology, dairy product technology, fruit and vegetable technology, flavours, spices, coffee, tea, cocoa. Heat Transfer, mass transfer, fluid mechanics, mass and energy balance, mechanical operations Engineering materials, pumps, principles of refrigeration, Equipments used for milling, extrusion, mixing, blending, filling, heat processing and cooling. Sensory evaluation of foods, consumer testing, food product development, Assessment of food safety, GHP, GMP, HACCP, sanitation and hygiene in food industry, food safety management systems, ISO. GM foods, use of biotechnology in enhancing food production and safety assessment. Food Laws and regulations - National and international, Codex, JECFA, USFDA, EFSA, FFSAi, BIS. Food economics and Trade, public distribution, food security.

**Nano Science and Nano Technology**


**Digital/Landscape /General Architecture**

Evolution and principles of city planning; types of cities & new towns; planning regulations and building byelaws; eco-city concept; Concept of housing and neighborhood; housing standards ,policies and typology , housing infrastructure; housing programs in India; self help housing, settlement system planning; growth of cities & metropolises; rural-urban migration; urban conservation; urban renewal; Traffic and Transportation Planning. Indian architecture from Indus civilization to Modern contemporary period. European architecture from Egyptian modern architectural styles to contemporary period. Vernacular and traditional architecture. Principles of landscape design and site planning; history of landscape styles, elements and materials, plant characteristics. environmental considerations in landscape planning. Application of computers in architecture and planning; understanding elements of hardware and software; computer graphics; programming languages and usage of software packages. Components of Ecosystem and environment, climate responsive and energy efficient building design. Principles of Building Science -lighting, architectural acoustics etc. Building Services on Water supply, sewerage and drainage systems, electrification of buildings, air-conditioning intelligent buildings; fire
fighting systems, building safety and security systems – principles, types, standards and uses; Infrastructure, Services and Amenities in city level planning. Behavioral characteristics of all types of building materials; principles of strength of materials; design of structural and principles of disaster resistant structures. Building Construction and Management: Building construction techniques, methods and details; professional practice; project management techniques. Development Administration and Management: Planning laws; development control and zoning regulations.

**Town and Country Planning**

Process of evolution of human settlement planning - Planning systems in India - Type of planning surveys - Sociological and Economic concepts and frameworks - Social and economic Impacts of urban growth and expansion - City-region, urban sprawl, and urban fringe - Current trends in the traffic and transportation development sector in India. - Pedestrian planning - Parking and Public Transport Surveys - Inventory of Transport facilities - Different modes - Private transport - Scope and function of statistics in planning analysis - Distribution and structure of population - Population projection methods - Research processes and planning processes - Access to Information: nature, types and sources - Hypothesis - Housing character and its information with reference to culture and technological changes and development - Impact of industrialization and urbanization on housing and built environment - Green house and eco friendly housing - Housing market and housing finance - Gated community - emergence and management system - Contemporary theories and concepts in city planning - Concept and need for regional planning and regional development - Multi-level planning, block and District planning. Environmentally concerns at local, regional and global levels - environmental impact assessment practice in India - Sustainability and environmental - Legislative requirements, public awareness and community participation - Evolution, scope and significance of planning legislation - Review of Town and Country Planning Act of Tamil Nadu - Professional role responsibility and planning consultancy service - project cycle - Planning process and project planning - Funding options for urban development projects - Planning Norms and standards - Basic concepts of government and governance - Governance and urban governance - Urban and rural administration in developed, and developing countries - e-Governance - concepts, theories and practices - e-Readiness indices - Approaches to understanding organizations - Human resource planning and management - Participatory governance - Public relations - Introduction to real property ownership - Real estate investment analysis and portfolio management - Classification of spatial and non-spatial data application of spatial data in urban and regional plans - Ecotourism - Leisure, recreation and society - Tourist and local community - Tourist site planning - processes and sustainability - Urban development through Five Year Plans - Budgetary allocation from central and
state governments for urban development - Asset management - Disaster cycle - Disaster-types, causes and consequences - Disaster preparedness and rehabilitation - Spatial planning and technology interface - Socio-economic and environmental Impact of techno cities - communities and people in building smart cities and smart communities - Information need and the role of web in planning - Web sites and information sources in urban and regional planning.

**Electronic Media/ Journalism and Mass Communication/ Visual Communication**


**Mathematics**


**Computer Science Information Technology (with M.Sc.)**

Physics/Astrophysics


**Laser and Electro Optical Engineering**


Materials Science (with M.Sc)

Nanoparticles - basic properties - nanotubes, nanowies and nanofibers - synthesis of nanostructure material - nanomaterial characterization.

**Medical Physics**

Basic Radiation Physics: Atomic Structure, radioisotopes, radioactivity, radioactive equilibrium, artificial radioactivity, production of radioisotopes. Interaction of charged particles with matter, Interaction of X- and gamma rays with matter attenuation, modes of interactions, attenuation and mass energy absorption coefficients, buildup correction, shielding materials. Interaction of neutrons with matter, scattering, absorption, neutron induced nuclear reactions, radioactive capture reactions (n, p), (n, γ), moderation, shielding materials. Basic X-ray Physics characteristics and continuous spectra, basic requirements of medical diagnostic and therapeutic tubes, safety devices in X-ray tubes, technology of modern X-ray tubes, insulation and cooling of X-ray tubes, filtration and beam quality, mobile and dental units, malfunctions of X-ray tubes, limitations on loading, control panels, image intensifiers; technology of electron accelerators. Radiation Quantities and Units w-value, exposure (rate), Kerma (rate), Terma, absorbed dose (rate), activity, energy, rate constants, charged particle equilibrium (CPE), radiation weighting factors, tissue weighting factors, equivalent dose, effective dose, collective effective dose. Radiation Dosimetry Absorbed dose, Kerma, exposure, activity, rate constants, Charged Particle. Equilibrium (CPE), relationship between Kerma, absorbed dose and exposure under CPE; determination of exposure and air kerma, ionization chambers for low, medium and high energy, X-rays and gamma rays, electrometers, determination of absorbed dose. Basic principles of radiation detection, Gas Filled detectors: Ionisation chambers- Theory and design; Construction of condenser type chambers Radiochromic films; Thermoluminescent Dosimeters (TLD), Optically stimulated Luminescence dosimeters (OSLD), radiophotoluminescent dosimeters, neutron detectors, nuclear track emulsions for fast neutrons, solid state nuclear track (SSNTD) detectors, calorimeters. Radiation Measuring & Monitoring Instruments Dosimeters based on condenser chambers, pocket chambers, dosimeters based on current measurement, different types of electrometers-MOSFET, farmer dosimeters, multipurpose dosimeter, water phantom dosimetry systems, brachytherapy dosimeters, Thermoluminescent dosimeter readers for medical applications, calibration and maintenance of dosimeters. Radiation Biology mutations, potentially lethal and sub-lethal damages, modification of radiation damage, LET, RBE, dose rate, dose fractionation, stochastic and deterministic effects of radiation, acute radiation sickness, LD50/60, effects of radiation on skin, blood forming organs, digestive tract and reproductive system; effects of chronic and acute exposure to radiation, induction of leukemia and radiation carcinogenesis. Nuclear Medicine Clinical radioisotope
laboratory and its organization, use of open isotopes including 99Tc in functional studies, measurement of radioactivity, design aspects of collimators, use of whole body counters, physical principles of isotope dilution analysis, circulation time, radioisotope scanners and cameras, cyclotron produced radionuclides, SPECT, PET, radio-Immunoassay (RIA), therapy. Radiation Hazard Evaluation and Control. Radiation monitoring instruments, calibration check of monitoring instruments, radiation monitoring procedures for radiation generating equipment and installations, protective measures to reduce radiation exposures to patients and occupational workers, radiation hazards in radioisotope laboratories, protective equipment.

Chemistry

Geology

**Agro Chemistry**

Manufacture of Agrochemicals, Resource Management, Pesticide Biochemistry, Pesticides Formulations, Crop Pathology & Pest Management, Weed management, Modern Techniques in agriculture, Food processing, Dairy Technology, Advanced Agrochemicals, Biopesticides and Fertilizers

**Agriculture (with M.Sc.)**

History and Principles of Plant Pathology, Laboratory and Analytical Techniques, Physiological and Molecular Plant Pathology, Mycology, Plant Bacteriology, Plant Virology, Plant Disease Epidemiology, Phanerogamic parasites and Non-parasitic Diseases, Fungal Diseases of Crop Plants, Bacterial and Viral Diseases of Crop Plants, Management of Plant diseases
English/Linguistics


Master of Business Administration with any specialisation