

S.NO.	NAME OF THE PROGRAMME	PROGRAMME OUTCOMES AFTER COMPLETION OF COURSE
01.	B.Sc. (THREE YEARS DEGREE COURSE) BOTANY	PO1.DEVELOP KNOWLEDGE AND UNDERS PO2.DEVELOP INTELLECTUAL SKILLS REC PO3.ENHANCE SCIENTIFIC KNOWLEDGE B PO4. APPLY PRACTICAL SKILLS IN SOLVIN PO5. BECOME TRUE BOTANIST AND PROTI PO6.MAINTAIN GREEN ENVIRONMENT AN PO7.COMMUNICATE LEARNED SKILLS TO PO8.BE HONEST, INTEGRATED & DEVELOP PO9.INCULCATE HABIT OF LIFE-LONG LEA PO10.THINK GLOBALLY FOR THE NATURE PO11.PROCEED FOR HIGHER STUDIES IN F
02.	M.Sc. (FOUR SEMESTERS DEGREE COURSE) BOTANY	PO1.DEVELOP BROAD KNOWLEDGE AND PO2.DEVELOP INTELLECTUAL SKILLS REC PO3.ENHANCE SCIENTIFIC KNOWLEDGE B PO4. APPLY PRACTICAL SKILLS IN SOLVIN PO5. BECOME TRUE BOTANIST AND PROTI PO6.MAINTAIN GREEN ENVIRONMENT AN PO7.COMMUNICATE LEARNED SKILLS TO PO8.BE HONEST, INTEGRATED & DEVELOP PO9.INCULCATE HABIT OF LIFE-LONG LEA PO10.THINK GLOBALLY FOR THE NATURE PO11.APPLY FOR VARIOUS COMPETITIVE PO12. PROCEED FOR RESEARCH IN FIELD C
CLASS	COURSE (PAPER)	COURSE OUTCOMES AFTER COMPLETION OF COURSE
B.Sc PART I	PAPER I DIVERSITY OF VIRUSES,BACTERIA AND FUNGI	CO1—UNDERSTAND THE DIVERSIFIED NA CO2--UNDERSTAND VIRAL INFECTION PURIFICATION TECHNIQUE CO3—KNOW ABOUT BACTERIOPHAGES, V CO4—DIFFERENTIATE BETWEEN PROKAR CO5--UNDERSTAND GENETIC RECOMBINA CO6-- KNOW BACTERIA CULTURE, STAIN CO7—UNDERSTAND SYSTEMATIC POSITI LIFE CYCLE OF CERTAIN GENERAS IN FUN
	PAPER II DIVERSITY OF ALGAE,LICHENS AND BRYOPHYTES	CO1—DIFFERENTIATE ULTRASTRUCTURE CO2— UNDERSTAND GENERAL CHARA PATTERNS AND ECONOMIC IMPORTANCE CO3— UNDERSTAND SYSTEMATIC POSITI LIFE CYCLE OF CERTAIN GENERAS IN ALG CO4—LEARN ABOUT LICHENS, THEIR REPRODUCTION. CO5—ACQUAINT WITH ECONOMIC IMPOR CO8—LEARN ABOUT EVOLUTION OF SPO
	PAPER III DIVERSITY OF PTERIDOPHYTES, GYMNOSPERMS	CO1— ACQUAINT WITH GENERAL FEATU PTERIDOPHYTES AND GYMNASPERMS. CO2—UNDERSTAND STELLAR SYSTEM AN

	AND ELEMENTARY PALAEOBOTANY	CO3—KNOW HETEROSPORY AND SEED HA CO4—UNDERSTAND SYSTEMATIC POSITI SOME OF THE GENERAS STUDIED IN PTER CO5— KNOW ABOUT GEOLOGICAL TIME S
	PRACTICAL	CO1.IDENTIFY VARIOUS LOWER PLANTS S CO2.LEARN SECTION CUTTING, STAINING CO3.LEARN TO COLLECT LOWER PLANT S CO4.LEARN PRACTICAL RECORD MAKING CO5.DEVELOP SKILLS REQUIRED FOR PRE CO6.PERFORM GRAMM STAINING OF BAC
CLASS	COURSE (PAPER)	COURSE OUTCOMES AFTER COMPLETION OF COURSE
B.Sc PART II	PAPER I DIVERSITY OF ANGIOSPERMS, SYSTEMATICS, DEVELOPMENT AND REPRODUCTION	CO1.UNDERSTAND TAXONOMIC CHARAC CO2.LEARN BINOMIAL NAMES OF SOME C CO3.KNOW THE ECONOMIC IMPORTANCE CO4.DIFFERENTIATE AMONG ROOT, SHOOC ANATOMICAL FEATURES. CO5.UDERSTAND COMPLETE MORPHOLOG GAMETOPHYTE, FERTILIZATION, ENDOSP
	PAPER II CYTOLOGY, GENETICS, EVOLUTION AND ECOLOGY	CO1.UNDERSTAND STRUCTURE OF PLANT CO2.KNOW CHROMOSOME STRUCTURE & CO3.ACQUAINT WITH CELL CYCLE, EQUA CO4.UNDERSTAND LAWS OF INHERITANC CO5.UNDERSTAND EVOLUTIONARY SIGN CO6.KNOW ABOUT PRINCIPLES OF ECOLO
	PAPER III PLANT PHYSIOLOGY AND BIOCHEMISTRY	CO1.ACQUAINT WITH VARIOUS PLANT P CO2.UNDERSTAND MECHANISM INVOLVE CO3.KNOW ABOUT PHYSIOLOGICAL ROLE CO4.UNDERSTAND PHOTOSYNTHESIS ANI CO5.KNOW RESPIRATION IN PLANTS. CO6.UNDERSTAND STRUCTURE, PROPERT
	PRACTICAL	CO1.DESCRIBE, IDENTIFY AND CLASSIFY CO2.PREPARE HERBARIUM. CO3. STUDY ABNORMAL ANATOMICAL C CO4.PERFORM, SET AND OBSERVE READI CO5.EMASCULATE SELECTED FLOWERS C CO6.TEST REDUCING SUGAR, PROTEIN, PH CO7.SOLVE PROBLEMS BASED ON MENDE CO8.PERFORM EXPERIMENTS ON MITOSIS
CLASS	COURSE (PAPER)	COURSE OUTCOMES AFTER COMPLETION OF COURSE
B.Sc PART III	PAPER I	CO1.KNOW THE ECONOMIC UTILITY OF C

	PLANT RESOURCE UTILIZATION	CO2.UNDERSTAND SUSTAINABLE DEVELOPMENT CO3.DEVELOP KNOWLEDGE HOW TO CONSERVE CO4.UNDERSTAND BASICS OF PALYNOLOGY CO5.DEVELOP BASIC UNDERSTANDING OF
	PAPER II MOLECULAR BIOLOGY AND BIOTECHNOLOGY	CO1.UNDERSTAND STRUCTURE, PROPERTIES CO2.ACQUAINT WITH GENE CONCEPT, GENETICS CO3.UNDERSTAND BIOENERGETICS. CO4.LEARN BIOTECHNOLOGY AND ITS VARIATIONS CO5.UNDERSTAND PLANT TISSUE CULTURE
	PAPER III ENVIRONMENTAL BOTANY AND PLANT PATHOLOGY	CO1.LEARN ENERGY RESOURCES AND ITS UTILIZATION CO2.UNDERSTAND ENVIRONMENTAL POLLUTION CO3.KNOW DIVERSIFIED VEGETATION OF INDIA CO4.UNDERSTAND BASIC PLANT PATHOLOGY CO5.KNOW THE MEASURES FOR CONTROL
	PRACTICAL	CO1.IDENTIFY PLANT SPECIMEN/PLANT PARTS CO2.STUDY POLLEN GERMINATION & VIABILITY CO3. SOLVE BIOSTATISTICAL PROBLEMS CO4.TEST THE ACTIVITY OF ENZYME AMYLASE CO5.IDENTIFY AND KNOW THE WORKING OF CO6.STUDY ECOLOGICAL ADAPTATIONS. CO7.CALCULATE DENSITY, RELATIVE DIVERSITY METHOD. CO8.IDENTIFY BACTERIAL, VIRAL & FUNGAL
M.Sc. semester I	PAPER I : PHYCOLOGY AND BRYOLOGY	CO1.UNDERSTAND CLASSIFICATION, CHARACTERISTICS EVOLUTIONARY TRENDS IN SUB-PHYLA OF CO2.KNOW ABOUT DISTRIBUTION & ECOLOGY CO3.LEARN ABOUT MORPHOLOGY, ANATOMY CO4.UNDERSTAND CHEMISTRY OF BRYOPHYTES CO5.COMPARE VARIOUS SUB-PHYLA OF ALGAE WALL, FLAGELLATION, CHLOROPLASTS, STARCH
	PAPER II: MYCOLOGY AND LICHENOLOGY	CO1. UNDERSTAND GENERAL CHARACTERISTICS IMPORTANCE OF FUNGI. CO2. KNOW HETEROTHALLISM, PARASEXUALITY CO3. UNDERSTAND VARIOUS ORDERS OF FUNGI CLASSIFICATION, REPRODUCTION AND ECOLOGY CO4. UNDERSTAND SYMBIOTIC RELATIONSHIPS REPRODUCTION, ECOLOGY AND CONSERVATION
	PAPER III: PTERIDOLOGY AND GYMNOSPERMS	CO1. ACQUAINT WITH PECULIER FEATURES OF BRYOPHYTES AND GYMNASPERMS. CO2. CLASSIFY PTERIDOPHYTES AND GYMNASPERMS CO3. UNDERSTAND APOGAMY, APOSPORY CO4. LEARN DISTRIBUTION, CONSERVATION CO5. STUDY MONOGRAPHY OF VARIOUS SPECIES CO6. UNDERSTAND DISTRIBUTION, SALICACEAE AFFINITIES OF GYMNASPERMS ALONG WITH
	PAPER IV: TAXONOMY OF ANGIOSPERM	CO1. UNDERSTAND BASIC TAXONOMIC TECHNIQUES PHYLOGENETIC SYSTEMS OF CLASSIFICATION CO2. UNDERSTAND APG AND TAXONOMIC CO3. KNOW RULES OF BOTANICAL NOMENCLATURE CO4. LEARN INDIGENOUS FLORA OF THE WORLD CO5. UNDERSTAND INTERRELATIONSHIP BETWEEN NUMERICAL TAXONOMY.
	PRACTICAL-I	CO1. IDENTIFY VARIOUS GENERAS OF ALGAE

		CO2. PREPARE DOUBLE STAINED PERMANENT CO3. DEVELOP SCIENTIFIC OBSERVATION
	PRACTICAL-II	CO1. IDENTIFY VARIOUS GENERAS OF PT CO2. PREPARE DOUBLE STAINED PERMANENT CO3. DEVELOP SCIENTIFIC OBSERVATION CO4. IDENTIFY, DESCRIBE AND CLASSIFY CO5. PREPARE HERBARIUM.
M.Sc. SEMESTER II	PAPER I : PLANT MORPHOLOGY,ANATOMY AND EMBRYOLOGY	CO1. UNDERSTAND PLANT MORPHOLOGICAL DESCRIPTIVELY. CO2. DIFFERENTIATE BETWEEN RAM AND CO3. COMPARE PALNTS ANATOMICALLY. CO4. KNOW ANOMALOUS SECONDARY GR
	PAPER II: PLANT RESOURCE UTILIZATION	CO1. UNDERSTAND ECONOMIC UTILITY OF CO2. UNDERSTAND AND LEARN CERTAIN CO3. DEVELOP UNDERSTANDING ABOUT CO4. DIFFERENTIATE BETWEEN PLANTS A
	PAPER III: ECOLOGY & PHYTOGEOGRAPHY	CO1.ACQUAINT WITH ENVIRONMENT, ECO CO2.UNDERSTAND r- AND k- SELECTION. CO3.LEARN ABOUT ENVIRONMENTAL IMP CO4.KNOW REMOTE SENSING AND ITS AP CO5.KNOW MAJOR TERRESTRIAL BIOMES
	PAPER IV: MICROBIOLOGY & PLANT PATHOLOGY	CO1.ACQUAINT WITH DIVERSIFIED WORL CO2.UNDERSTAND GENERAL TECHNIQUE CO3.KNOW GROWTH, GROWTH –KINETICS CO4.UNDERSTAND ROLE OF MICROBES IN CO5.KNOW EPIDEMIOLOGY AND CONTRO
	PRACTICAL I	CO1.CUT FINE SECTIONS OF ROOT /STEM I CO2.IDENTIFY FLORAL MORPHOLOGY AN CO3.STUDY POLLEN GERMINATION. CO4.EMASCULATE THE FLORAL BUD & DI CO5.IDENTIFY AND COMMENT ON VARIO CO6.PREPARE SMEAR OF GAMETOPHYTES
	PRACTICAL II	CO1.PERFORM GRAM S STAINING IN BACT CO2.IDENTIFY DISEASES CAUSED BY VIRU CO3.STUDY VEGETATION BY QUADRANT CO4.STUDY ENVIRONMENTAL FACTORS. CO5.STUDY HOST-PARASITE RELATIONSH PREPARATION.
M.Sc. SEMESTER III	PAPER I : HISTORY OF BOTANY & MICROTECHNIQUE	CO1.KNOW BRIEF INTRODUCTION OF MAJ INDIAN & FOREIGN SCIENTISTS. CO2.UNDERSTAND TECHNIQUES LIKE MIC RESPECT TO THEIR PRACTICAL APPLICAT CO3.KNOW REAGENTS USED FOR MICROS
	PAPER II: PLANT PHYSIOLOGY	CO1.UNDERSTAND TRANSPORT AND TRA CO2.KNOW NITROGEN METABOLISM, RES CO3.UNDERSTAND PHOTOCHEMISTRY AN CO4.ACQUAINT WITH SECONDARY META CO5. KNOW SIGNALLING AND GENE EXPR
	PAPER III: CYTOGENETICS,PLANT BREEDING AND BIOSTATISTICS	CO1.UNDERSTAND BASIC CONCEPT AND CO2.ACQUAINT WITH MENDELIAN AND N CO3.UNDERSTAND CYTOGENETICS AND I CO4.UNDERSTAND PLNT BREEDING SYST CO5.LEARN IMPORTANCE AND SCOPE OF

	PAPER IV: MOLECULAR BIOLOGY AND MOLECULAR TECHNIQUES	CO1.ACQUAINT WITH STRUCTURE OF NUC CO2.UNDERSTAND MECHANISM OF PROT TRANSLATIONAL LEVEL. CO3.KNOW VARIOUS METHODS OF DNA S CO4.LEARN DNA-PROTEIN INTERACTION CO5.UNDERSTAND WAYS OF ANALYSING CO6.UNDERSTAND VARIOUS MOLECULAR
	PRACTICAL I	CO1.WRITE BIOGRAPHY OF STUDIED SCIE CO2.SEPARATE MAJOR PLANT PIGMENTS CO3.COMPARE R.Q. OF DIFFERENT PLANT CO4.FIND OUT O.P. OF PLANT CELL BY PL CO5.MEASURE RATE OF PHOTOSYNTHESE METHOD.
	PRACTICAL II	CO1.STUDY VARIOUS STAGES OF MITOSIS CO2.SOLVE NUMERICAL PROBLEMS ON M CO3.PERFORM EXERCISE ON EMASCULAT CO4.SOLVE BIOSTATISTICAL PROBLEMS CO5.PREPARE ACETOCARMINE SMEAR & CO6.COMMENT ON MOLECULAR TECHNIC
M.Sc. SEMESTER IV	PAPER I : PLANT BIOTECHNOLOGY	CO1.UNDERSTAND RECOMBINANT DNA T CO2.KNOW MOLECULAR MARKERS AND T CO3.LEARN SCOPE OF BIOTECHNOLOGY I CO4.ACQUAINT WITH GENOMICS AND PR CO5.UNDERSTAND PLANT TISSUE CULTU
	PAPER II: PLANT BIOCHEMISTRY	CO1.UNDERSTAND LAWS OF THERMODYN SIGNIFICANCE IN BIOLOGICAL SYSTEMS. CO2.COMPARE CARBOHYDRATES, PROTE BIOSYNTHESIS, CATABOLISM & BIOLOGI CO3.UNDERSTND MECHANISM OF ACTION CO4.KNOW WATER BIOCHEMISTRY & NU CO5.UNDERSTAND REACTION MECHANIS
	PAPER III: DISSERTATION/PROJECT WORK AND TOUR	CO1.SELECT TOPIC. CO2.IDENTIFY LITERATURE FOR REVIEW. CO3. STATE RESEARCH QUESTIONS. CO4.DESIGN THE RESEARCH. CO5.EXPERIMENT/FIELD STUDY. CO6.GENERATE THE DATA, COMPILE, ANA CO7.DEVELOP PRESENTATION SKILL.
	PAPER IV: ELCTIVE PAPER I. APPLIED PHYCOLOGY	CO1.UNDERSTAND CULTIVATION OF MICR CO2.ASSESS EFFECT OF POLLUTANTS, SA CO3.LEARN EUTROPHICATION, ALGAL BL CO4.UNDERSTAND ALGAE OF UNUSUAL H CO5.KNOW ROLE OF ALGAE IN HUMAN W
	II. ADVANCED PLANT PATHOLOGY	CO1.ACQUAINT WITH CHEMICAL WEAPON CO2.UNDERSTAND PLANT DISEASE EPIDE CO3.LEARN PLANT DISEASE MANAGEMEN CO4.KNOW DISEASES CAUSED BY FUNGI, CO5.UNDERSTAND MOLECULAR ASPECTS
	III. ADVANCED CYTOGENETICS	CO1.UNDERSTAND ULTRASTRUCTURE OF CO2.LEARN MENDELIAN, NON-MENDELIA CO3.UNDERSTAND MUTAGENESIS & MEC CO4.UNDERSTAND GENE CONCEPT, GENE CO5.LEARN PLANT GENETIC ENGINEERIN
	IV. ADVANCED PLANT	CO1.UNDERSTAND MEMBRANE DYNAMIC

	PHYSIOLOGY	CO2.KNOW NUTRIENT ASSIMILATION IN F CO3.LEARN RESPIRATION UNDER AEROBI MECHANISM. CO4.UNDERSTAND PROCESS OF PHOTOSY REGULATION OF C3 AND C4 CYCLE. CO5.UNDERSTAND SIGNALING PATHWAY PHYSIOLOGY.
	V. APPLIED MICROBIOLOGY	CO1.UNDERSTAND MICROBIAL ECOLOGY CO2. LEARN FOOD MICROBIOLOGY. CO3.KNOW INDUSTRIAL MICROBIOLOGY. CO4.UNDERSTAND ASPECTS OF AGRICUL CO5.UNDERSTAND MEDICAL MICROBIOL
	PRACTICAL I	CO1.PERFORM PLANT TISSUE CULTURE. CO2.DESCRIBE RECOMBINANT DNA TECH CO3. COMMENT ON DNA SEQUENCING. CO4.PERFORM TESTS FOR IDENTIFYING C CO5.OBSERVE ENZYME ACTIVITY IN LAB.
	PRACTICAL II	CO1.DEVELOP SCIENTIFIC & RESEARCH A CO2.PERFORM EXPERIMENTS RELEVANT CO3.DEVELOP CRITICAL THINKING. CO4.PRACTICALLY INTROSPECT THE ELE

MRS. HOSITA GUPTA

H.O.D.

DEPARTMENT OF BOTANY

H.N.B. GOVERNMENT P.G. COLLEGE

NAINI, PRAYAGRAJ.