U.P. TECHNICAL UNIVERSITY
LUCKNOW

Syllabus

[Effective from the Session : 2008-09]

B.TECH. AGRICULTURAL ENGG.
1st Year (I and II Semester)

NEW STUDY & EVALUATION SCHEME

B. Tech. First Year of B .Tech Agricultural Engg.

Effective from the Session 2008-09

Year I, SEMESTER- I

S.No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credit
						SESSIONAL EXAM			ESE		
			L	T	P	CT	TA	Total			
THEORY											
1	EAG-101	Engg. Maths-I	3	1	0	30	20	50	100	150	4
2	EAG-102	Engg. Physics	3	1	0	30	20	50	100	150	4
3	EAG-103	Engg. Chemistry	3	1	0	30	20	50	100	150	4
4	EAG-104	Agriculture for Engineers	3	1	0	30	20	50	100	150	4
5	EAS-105	Environment & Ecology	2	0	0	15	10	25	50	75	2
6	EAG-106	English Language & Technical Writing	3	1	0	15	10	25	50	75	4
PRACTICAL / TRAINING / PROJECT											
7	EAG-152	Engg. Physics Lab	0	0	2	10	10	20	30	50	1
8	EAG-153	Engg. Chemistry Lab	0	0	2	10	10	20	30	50	1
9	EAG-154	Agriculture for Engineers Lab	0	0	2	10	10	20	30	50	1
10	EAS-154	Professional Communication Lab	0	0	2	30	20	50	-	50	1
11	GP-101	G.P.						50		50	1
		Total	**17**	**5**	**8**	**190**	**140**	**380**	**620**	**1000**	**27**

L- Lecture
T- Tutorial
P- Practical
CT- Cumulative Test
TA- Teacher's Assessment
ESE- End Semester Exam.

NEW STUDY & EVALUATION SCHEME

B. Tech. First Year of B .Tech Agricultural Engineering

Effective from the Session 2008-09

Year Ist **Semester IInd**

S.No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credit
						SESSIONAL EXAM			ESE		
			L	T	P	CT	TA	Total			
THEORY											
1	EAG201	Engg. Maths-II	3	1	0	30	20	50	100	150	4
2	EAG202	Engg. Mechanics	3	1	0	30	20	50	100	150	4
3	EAG203	Thermodynamics & Heat Engines	3	1	0	30	20	50	100	150	4
4	EAG204	Surveying & Levelling	3	1	0	30	20	50	100	150	4
5	EAG205	Workshop Technology	2	0	0	15	10	25	50	75	2
6	EAG206	Computer Science	2	1	0	15	10	25	50	75	3
PRACTICAL / TRAINING / PROJECT											
7	EAG254	Surveying & Levelling Lab	0	0	2	10	10	20	30	50	1
8	EAG255	Workshop Practice	0	0	2	10	10	20	30	50	1
9	EAG256	Computer Science Lab	0	0	2	10	10	20	30	50	1
10	EAG257	Engg Drawing Lab	0	1	3	10	10	20	30	50	2
11	GP201	G.P.						50		50	1
		Total	**16**	**6**	**9**	**190**	**140**	**380**	**620**	**1000**	**27**

EAG101- ENGG MATHEMATICS-I

L	T	P
3	1	0

Unit I

Elementary differentiation -Definition, limit and continuity, elementary differentiation, standard forms, methods of differentiation. Elementary integration- standard forms, integration by substitution, integration by parts, integration by partial fraction.

Unit II

Taylor's and Maclaurin's expansions; indeterminate form; curvature ,asymptotes, function of two or more independent variables, partial differentiation, homogeneous functions and Euler's theorem, total derivatives, derivative of an implicit function, change of variables, Jacobians, maxima and minima.

Unit III

Rectification of standard curves, double and triple integrals, change of order of integration, Gamma and Beta functions, application of double and triple integrals to find area and volume.

Unit IV

Ordinary differential equations: Exact and Bernoulli's differential equations, equations reducible to exact form by integrating factors, equations of first order and higher degree, Differential equations of higher orders, methods of finding complementary functions and particular integrals, method of variation of parameters, simultaneous linear differential equations with constant coefficients.

Unit V

Matrices: Elementary transformations, rank of a matrix, reduction to normal form, inverse of a matrix, consistency and solution of linear equations, Eigen values and Eigen vectors, Cayley-Hamilton theorem, diagonalisation of matrices.

Text Book

H K Dass, Advanced Engineering Mathematics, S Chand Publication, 2004
B.V.Ramana, Higher Engineering Mathematics, Khanna Publishers, 2005

Reference Book

Erwin Kreyszig ,Advanced Engineering Mathematics, John Wiley & Sons,2005
B.S. Grewal, Engineering Mathematics, Khanna Publishers, 2004
B.S. Grewal, Engineering Mathematics, Khanna Publishers, 2005

EAG- 102 ENGG PHYSICS

L	T	P
3	1	0

UNIT-I

Surface tension-angle of contact, excess of pressure inside a spherical surface, capillary rise, determination of surface tension of jaeger's method.

Viscosity:-stream line and turbulent motion, coefficient of viscosity, critical velocity, poiscullic's equation for flow of liquid through a tube, viscometer

06 Hrs

Unit-II

Interference-Thin films testing of the optical plane ness of surface, young's double slit Experiment coherent sources lasers, intensity in young's experiment. Interference in thin films Newton's and Michelson's interferometer.

Diffraction: Fraunhofer diffraction at single slit, diffraction at circular aperture, diffraction at double slit, diffraction gratings, resolving & dispersive power of a grating 1**0 Hrs**

Unit-III

Polarisation: Production and detection of circularly and elliptically polarised light, Quater and half wave plates, optical activity, specific rotation,Loneniz half shade polarimeter,Determination of specific rotation and strength of sugar solution

Lasers- Spontaneous and stimulated emission, Einstein A and B coefficients, population inversion, he-ne and ruby lasers, **08 Hrs**

Unit-IV

Magnetic properties of Materials:

Para –Dia and Ferromagnetism, Langevinus theory od Dia- Magnetism. B. H –Curve, Hysteresis loss.Quantum theory: wave particle duality , Heisenberg uncertainty principle, wave function. De- Boglie –waves Time dependent and time independent Schrodinger's Wave equations **08 Hrs**

Unit-V

X Rays X- Rays, absorption of X-rays, diffraction of X rays, Bragg"s spectrometer

Electronics- distinction between metals, insulators and semiconductors, intrinsic and extrinsic semiconductors, determination of energy gap in semiconductors, **06 Hrs**

Text Book

A.K. Ghatak : Optics, TMH Publishers, 2006
Mechanics by DS Mathur,2007
Aurthur Beiser : Concepts of Modern Physics, TMH Publications, 2006

References:

Robert Resnick Wiely: Introduction to Special Theory of Relativity
Wehr Richords & Adiav : Physics of Atoms

EAG-103 ENGG. CHEMISTRY

L	T	P
3	1	0

Unit-1

Water: Temporary and Permanent hardness ,Disadvantage of hard water, scale and sludge formation in boilers, boiler corrosion.

Chemical fuels: classification of fuels, calorific values, Advantages of solid, liquid and gaseous fuels

Unit-2

Corrosion: causes, types and method of prevention pitting and stress corrosion.

Lubricants: properties, mechanism classification and tests. Viscosity and viscosity index Flash and Fire point, Cloud Point and Pour Point

Unit-3

Polymers: Types of Polymerization, properties, use and methods for the determination of molecular weight of polymers

Electro chemistry: specific molecular and equivalent conductivity, determination of conductivity, E.M.F and it's measurements. Polarization and Over voltages

Unit-4

chemical kinetics: order and molecularity of reaction, first and second order reaction.Derivation of equation for first order and second order reaction, Determination of order of reaction. Energy of activation and Arrbenus equation. Numerical of first and second order reactions.

Unit-5

Food Chemistry: Principles of food chemistry, Introduction to lipids, Proteins, Carbohydrates, Vitamins, Minerals Preservators, Colouring and Flavoringand reagents of food. Enzymes and their use.

Text Book

Organic Chemistry, Finar,L.L : Addision –Wesley Longman, Limited,2004
Advance organic Chemistry, by Cotton,F.A., Wilkinson G., Murrillo, C A . and Bochmann Wiley, ehichester,1999
Elements of Physical Chemistry, Glasstonne, Samuel B. ELBS, 2005

References:

Text Book of Polymer Science by F.W.Billmeyer, John Wiley & Sons, 1994
Corrosion Engineering by M.G. Fontana, McGraw Hill Publications.
Inorganic Chemistry (I.D. Lee)

EAG-104 AGRICULTURE FOR ENGINEERS

L	T	P
3	1	0

Unit-I

Soils: Nature and origin of soil; soil forming rocks and minerals, their classification and composition, soil forming processes, classification of soils – soil taxonomy orders; important soil physical properties; and their importance; soil particle distribution; soil inorganic colloids – their composition, properties and origin of charge; ion exchange in soil and nutrient availability; **06 Hrs**

Unit-II

soil organic matter – its composition and decomposition, effect on soil fertility; soil reaction – acid, saline and sodic soils; quality or irrigation water; essential plants nutrients – their functions and deficiency symptoms in plants; important inorganic fertilizers and their reactions in soils. **07 Hrs**

Unit-III Agronomy: Definition and scope of agronomy. Classification of crops, Effect of different weather parameters on crop growth and development. Principles of tillage, tilth and its characteristics. Soil water plant relationship and water requirement of crops, weeds and their control, crop rotation, cropping systems, Relay cropping and mixed cropping. **08 Hrs**

Unit-IV

Horticulture: Scope of horticultural and vegetable crops. Soil and climatic requirements for fruits, vegetables and floriculture crops, improved varieties, **05 Hrs**

Unit-V

Criteria for site selection, layout and planting methods, nursery raising, macro and micro propagation methods, plant growing structures, pruning and training, fertilizer application, fertigation, irrigation methods, harvesting, grading and packaging, post harvest practices, Garden tools, management of orchard, Extraction and storage of vegetables seeds. **06 Hrs**

Text Book

Nyle.C. Brady, The Nature and Properties of Soils, Pearson Prentice Hall, 2007
T.D. Biswas, Text Book of Soil Science, TMH,2006
P.Balasubramaniyan, Principles and Practices of Agronomy, 2004
T.Yellamandra Reddy, Principles of Agronomy, Kalyani Publications, 2007
Jitendra Singh, Basic Horticulture, Kalyani Publications, 200

References:

Hand Book of Agriculture, ICAR,2004

EAS-105 : ENVIRONMENT & ECOLOGY

L	T	P
2	0	0

UNIT-I

Definition, Scope & Importance, Need For Public Awareness- Environment definition, Eco system – Balanced ecosystem, Human activities – Food, Shelter, Economic and social Security. 3

Effects of human activities on environment-Agriculture, Housing, Industry, Mining and Transportation activities, Basics of Environmental Impact Assessment. Sustainable Development. 3

UNIT-II

Natural Resources- Water Resources- Availability and Quality aspects. Water borne diseases, Water induced diseases, Fluoride problem in drinking water. Mineral Resources, Forest Wealth, Material cycles- Carbon, Nitrogen and Sulphur Cycles. 4

Energy – Different types of energy, Electro-magnetic radiation. Conventional and Non-Conventional sources – Hydro Electric, Fossil Fuel based, Nuclear, Solar, Biomass and Bio-gas. Hydrogen as an alternative future source of Energy. 4

UNIT-III

Environmental Pollution and their effects. Water pollution, Land pollution. Noise pollution, Public Health aspects, Air Pollution, Solid waste management. 3

Current Environmental Issues of Importance : Population Growth, Climate Change and Global warming- Effects, Urbanization, Automobile pollution. 3

Acid Rain, Ozone Layer depletion, Animal Husbandry. 3

UNIT-IV

Environmental Protection- Role of Government, Legal aspects, Initiatives by Non-governmental Organizations (NGO), Environmental Education, Women Education. 3

Text Books

1. Environmental Studies – Benny Joseph – Tata McgrawHill-2005
2. Environmental Studies – Dr. D.L. Manjunath, Pearson Education-2006.
3. Environmental studies – R. Rajagopalan – Oxford Publication - 2005.
4. Text book of Environmental Science & Technology – M. Anji Reddy – BS Publication..

Reference Books

1. Principles of Environmental Science and Engineering – P. Venugoplan Rao, Prentice Hall of India.
2. Environmental Science and Engineering – Meenakshi, Prentice Hall India.

EAG-106 ENGLISH LANGUAGE & TECHNICAL WRITING

L T P
3 1 0

Unit – I : Technical Communication
Nature; Origin and Scope; Feature and General Writing; Significance; Style: Objective Style as Contrary to Literary Composition.
Forms of Technical Communication:
Reports: Types, Significance, Structure & Style of Report;
Writing of Reports: Project, Thesis, Dissertation Writing;
Technical Paper & Scientific Article Writing: Elements, Methods & Technical Objectives;
Unit-II : Pre-Requisites of Technical Written Communication
Vocabulary Building : Homophones (Words Similar in sound but different in Meanings); Word-formation; One-Word
substitute; New & Select Vocabulary Building (about 500 words)
Functional Grammar : Patterns and Correct usage (Parts of speech); Syntax Concord; Prepositions; Articles.
Requisites of Good Sentence and Paragraph Writing: Requisites of Good Sentence Writing; Paragraph Writing; Unity,
Coherence and Emphasis; Development of Paragraph: Inductive Order, Deductive Order,
Unit : III : Business Correspondence: Principles; Features; Sales and Credit Letters: Letters of Enquiry, Quotation,
Order, Claim, Complaint and Adjustment letters, Bio-Data Making, Resumes/Job Application Processing.
Unit-IV : Dimensions of Spoken English: Using English Language Laboratory :
Stress, Intonation, Rhythm, Phonemes, Allophones, Phonetic Transcription, Listening, Reading & Comprehension of
Speech and Reproduction of Response.

Texts Books/ References
English Grammar& Composition by P.C. Wren & Martin, S.Chand & Co. Ltd., New Delhi,2007
Current English Grammar and Usage with Composition by R.P.Sinha, Oxford Univ.Press, New Delhi
Improve Your Writing by V.N.Arora and Laxmi Chandra, Oxford Univ, New Delhi,2006
Technical Communication –Principles and Practices by Meenakshi Raman & Sangeeta Sharma, Oxford Univ, Press 2007, New Delhi

EAG-201 ENGG. MATHS-II

L	T	P
3	1	0

Unit-I

Vector calculus: Differentiation of vectors, scalar and vector point functions, vector differential operator Del, Gradient of a scalar point function, Divergence and Curl of a vector point function and their physical interpretations, identities involving Del, second order differential operator; line, surface and volume integrals, Stoke's, divergence and Green's theorems (without proofs).

UNIT-II

Functions of a Complex variable: Limit, continuity and derivative of complex functions, analytic function, Cauchy-Reimann equations, conjugate functions, Harmonic functions.

UNIT-III

Fourier series: Infinite series and its convergence, periodic functions, Fourier series, Euler's formulae, Dirichlet's conditions, functions having arbitrary period, even and odd functions, half range series, Harmonic analysis.

UNIT-IV

Partial differential equations: Formation of partial differential equations, agrange's linear equation, Higher order linear partial differential equations with constant coefficients, solution of non-linear partial differential equations, Charpit's method,

UNIT-V

application of partial differential equations (one dimensional wave and heat flow equations, two dimensional steady state heat flow equation (Laplace equation).

Text Book

H K Dass, Advanced Engineering Mathematics, S Chand Publication, 2004
B.V.Ramana, Higher Engineering Mathematics, Khanna Publishers, 2005
R.K.Jain & S.R.K.Iyenger , Advance Engineering Mathematics, Narosa Publications House,2002

Reference Book

Erwin Kreyszig ,Advanced Engineering Mathematics, John Wiley & Sons,2005
B.S. Grewal, Engineering Mathematics, Khanna Publishers, 2004
B.S. Grewal, Engineering Mathematics, Khanna Publishers, 2005

EAG-202 ENGINEERING MECHANICS

L	T	P
3	1	0

Unit I

Two dimensional force systems : Basic concepts, Laws of motion, Principle of Transmissibility of forces, Transfer of a force to parallel position , resultant of a force system simplest resultant of two dimensional concurrent force systems , Distributed force system, free body diagrams , equilibrium and equations of Equilibrium, Applications 5

Friction : Introduction, Laws of Coulomb Friction , Equilibrium of Bodies involving Dry friction, belt friction , application 3

Unit II

Beam: Introduction, shear force and bending moment , Deferential equations for Equilibrium, Shear force and bending moment diagrams for statically determinate Beams. 5

Trusses: Introduction, Simple truss and solution of simple truss , Method f joints and method of sections. 3

Unit III

Centroid and Moment of Inertia : Centroid of plane, curve , area , volume and composite bodies , moment of inertia of plain area, parallel Axes theorem, Perpendicular axes theorems , principle moment Inertia , Mass Moment of Inertia of Circular ring, Disc, cylinder, Sphere and cone about their axis of symmetry. 6

Unit IV

Simple stress and Strain: Introduction, Normal and shear stresses, stress-strain Diagrams for ductile and brittle material, Elastic constants, One Dimensional Loading of members of varying cross-sections, Strain energy. 3

Unit V

Pure Bending of beams: Introduction, Simple bending theory , Stress in beams of different cross sections. 3

Torsion: Introduction, torsion of circular section , torque and twist, shear stress due to torque 3

Text books:

Strength of Materials by R.K. Rajput,Publication S Chand,2007
Mechanics of Solids by Abdul Mubeen, Pearson Education Asia,2006
Mechanics of Materials by E.P. Popov, Prentice Hall of India Private Limited, 2007
Engineering Mechanics by Irving H.Shames, Prentice-Hall,2005

EAG-203 THERMODYNAMICS AND HEAT ENGINES

L	T	P
3	1	0

Unit-1

Thermodynamics properties, closed and open system, flow and non-flow processes, gas laws, laws of thermodynamics, internal energy. Application of first law in heating and expansion of gases in non-flow processes. First law applied to steady flow processes.

Unit-II

Second Law of Thermodynamics Kelvin-Planck and Claussius statements. Reversible processes, Carnot cycle, Carnot theorem. Entropy, physical concept of entropy, change of entropy of gases in thermodynamics processes.

Unit-III

Difference between gas and vapour, change of phase during constant pressure process. Generation of steam, triple point and critical point. Internal energy and entropy of steam. Use of steam tables heating and expansion of vapour in non-flow processes, measurement of dryness fraction.

Unit-IV

Classification of steam boilers, Lancashire and locomotive boilers. Boiler mountings and accessories. Desirable properties of working fluid used for power plants. Rankine cycle. Introduction to compound steam engines.

Unit-V

Air Standard efficiency, other engine efficiencies and terms. Otto, diesel and dual cycles. Calculation of efficiency, mean effective pressure and their comparison. Measurement of IP, BP and heat balance calculations (not involving combustion). Engine efficiencies and performance.

Text Book

Heat Engines by R. Yadav, CPH Allahabad.2004

Engg. Thermodynamics by P K Nag,TMH Publications,2005

Thermal Engg. By R.K. Rajput, Laxmi Publication,2007

Applied thermodynamics by Onkar Singh, New Age International (P) Publishers Ltd,2005

References :

Thermal Engg. By P.L. Blallaney, Khanna Publisher,2005

Turbine Compressons & Fans by S.M. Yahya, TMH

Internal Combustion Engines, M.L. Mathur, Dhanpat Rai Publications,2005

EAG-204 SURVEYING AND LEVELING **L T P**
3 1 0

Unit-1

Surveying-Definition, principle and basic concepts of surveying-classification basic measurement – units of measurment,plans and maps types of scales-principal of chain surveying –definition ,selection of survey station and lines types of ranging and chaining-types of chains, recording the mesurement,offset measurement, cross staff optical square-prism square –obstacles in chaining and ranging-chain and tape errors & corrections.

Unit-2

Methods of traversing prismatic and surveyors compass angle and bearing,quadrental system ,local attraction magnetic declination dip traversing plotting bow ditch rule ,transit rule ,errors In compass survey.

Unit-3

Plane tabling instruments and accessories methods and principal ,two points ,three points problem ,errors in plane tabling,minor instruments,band lavel,abney level ,elinometer,sextant,planimeter,pentometer,compulation of areas methods.

Unit-4

Leveling-definition benchmark types of levels optical principales causes telescopes sensitivity of bubble tubes, leveling staves basic principales of leveling temporary adjustment field book entries ,reduction of levels missing entries ,types of levelling simple , differential and profile leveling, check leveling & reciprocating leveling precise levelling, Permanent adjustment of levels.

Unit-5

Theodolite traversing, Theodolite Surveying, Ranging by theodolite, Temporary & Permanent adjustment of theodolite.

Text Books

Surveying and Levelling By B C Punamia Vol-I & Vol-II,Laxmi Publications,2005

Surveying and Levelling By Kanitkar Vol-I & Vol-II, Laxmi Publications,2005

Surveying-III Higher Surveying, B.C Punamia, Laxmi Publications 2004

EAG-205 WORKSHOP TECHNOLOGY

L	T	P
2	0	0

Unit-1

Introduction to welding, types of welding, oxyacetylene gas welding, types of flames, welding techniques and equipment. Principle of arc welding, equipment and tools.

Unit-II

Casting processes. Classification, constructional details of center lathe, Main accessories and attachments. Main operations and tools used on center lathes. Types of shapers, Constructional details of standard shaper. Work holding devices, shaper tools and main operations.

Unit-III

Types of drilling machines. Constructional details of pillar types and radial drilling machines. Work holding and tool holding devices.

Unit-IV

Main operations. Twist drills, drill angles and sizes. Types and classification. Constructional details and principles of operation of column and knee type universal milling machines. Plain milling cutter. Main operations on milling machine. Introduction NC & CNC Machine.

Text Books

Workshop Practice by R K Rajput S Chand,2005

Elements of Workshop Technology, Vol-I, S.K. Hajra Chudhary, Media Promoters & Publications,2002

Workshop Technology Vol-I, B.S. Raghuvanshi, Dhanpat Rai & Co,2001

Workshop Technology, O.P. Khanna, Dhanpat Rai & Co, 2000

EAG-206 COMPUTER SCIENCE

L	T	P
2	1	0

Unit-I

Definition of Electronic Computer, History, Generation, Characteristics and Application of Computers. Classification of Computers, RAM/ROM, Computer Hardware, CPU, Various I/O devices, Peripherals, Storage Media, Software Definition, Role and Categories, Firmware and Human ware.

Unit-II

Computer Language C Generation of Languages, Translators-Interpreters, Compiler/Interpreters, Compilers, Flow, Charts Dataflow Diagram, Assemblers, Introduction to 4GLs Software Development Mythology.

Unit-III

Various codes, Decimal, binary, hexa decimal conversion, floating numbers gates, flip flops, adder Computer Networks, Networking of Computers-Introduction of LAN and WAN. Network Topologies, Basic concepts in Computer Networks.

Unit-IV

Elementary Concepts in operating System. Introduction to DOS, MS Windows, MS Office Tools, MS WORD,MS EXCEL, MS Power Point

Text Book

D S Yadav, "Foundations of IT", New Age, Delhi,2007
Rajaraman, "Introduction to Computers", PHI,2005
CIS tems "Internet, An Introduction", Tata McGraw Hill., 2004
Problem Solving and Program Design in C,by Jeri R. Hanly, Elliot, B.K offman, Pearson Addision –Wesley,2006

References:

Peter Nortans "Introduction to Computers", TMH,2005
Leon & leon "Fundamental of information Technology", Vikas Publications,2006

EAG 152 ENGG PHYSICS LAB

L T P
0 0 2

List of Experiments

(1) To determine the wavelength monochromatic light with the help of Newton"s Rings

(2) To determine the diffraction pattern using plane transmission grating.

(3) To determine the specific rotation of cane sugar solution using half shade polarimeter.

(4) To determine the specific Resistance by carry Foster Bridge.

(5) To determine the viscosity of a liquid by Poisullues method .

(6) To obtain hystesesis curve (B-H Curve)

(7) To study the variation of magnetic field with distance along the axis of a current carrying circular coil and to determine the radius of coil.

(8) To find out the wave length of light by prism.

(9) To verify Steffen's law.

(10) Determination of ultrasonic wave velocity in a liquid medium;

(11) To determine the energy band gap in a semiconductor using a p-n Junction diode;

(12) To study the phase relationships in L.R. circuit;

(13) To determine the slit width from Fraunhofer diffraction pattern using laser beam;

(14) To study the induced e.m.f. as a function of velocity of the magnet;

(15) To study the variations of thermo e.m.f. of a copper-constantan thermocouple with temperature;

(16) To find the numerical aperture of optical fiber

EAG 153 ENGG CHEMISTRY LAB

L	T	P
0	0	2

List of Experiments

(1) Determination of temporary and permanent hardness of water by EDTA method;

(2) Estimation of chloride in water;

(3) Determination of BOD in water sample;

(4) Determination of COD in water sample;

(5) Estimation of available chlorine in bleaching powder;

(6) Determination of viscosity of oil;

(7) Estimation of alkalinity of water sample;

(8) Determination of carbonate and noncarbonated hardness by soda reagent;

(9) Determination of coagulation of water and chloride ion content;

(10) Determination of specific rotation of an optically active compound;

(11) Determination of λmax and verification of Beer Lambert Law;

(12) Determination of calorific value of fuel;

(13) Identification of functional groups (alcohol aldelyde, keline, carbonylic acid and amide) by IR; Chromatographic analysis;

(14) Determination of molar refraction of organic compounds.

(15) Estimation of dissolved oxygen in water;

(16) Estimation of activity of water sample;

EAG 154 AGRICULTURE FOR ENGINEERS LAB

L	T	P
0	0	2

List of Experiments

(1) Identification of rocks and minerals;

(2) Examination of soil profile in the field;

(3) Determination of bulk density;

(4) Determination particle density and porosity of soil;

(5) Determination of organic carbon of soil;

(6) Identification of crops and their varieties seeds and weeds;

(7) Fertilizer application methods;

(8) Different weed control methods;

(9) Judging maturity time for harvesting of crop;

(10) Study of seed viability and germination test;

(11) Identification and description of important fruit; flowers and vegetables crops;

(12) Study of different garden tools;

(13) Preparation of nursery bed;

(14) Practices of pruning and training in some important fruit crops.

(15) Planting of lawn grasses

(16) Layout of kitchen garden

EAS 151:PROFESSIONAL COMMUNICATION LAB

L	T	P
0	0	2

Interactive and Communicative Practical with emphasis on Oral Presentation/Spoken Communication based on International Phonetic Alphabets (I.P.A.)

LIST OF PRACTICALS

1. Group Discussion: Practical based on Accurate and Current Grammatical Patterns.
2. Conversational Skills for Interviews under suitable Professional Communication Lab conditions with emphasis on Kinesics.
3. Communication Skills for Seminars/Conferences/Workshops with emphasis on Paralinguistics/Kinesics.
4. Presentation Skills for Technical Paper/Project Reports/ Professional Reports based on proper Stress and Intonation Mechanics.
5. Official/Public Speaking based on suitable Rhythmic Patterns.
6. Theme- Presentation/ Key-Note Presentation based on correct argumentation methodologies.
7. Individual Speech Delivery/Conferences with skills to defend Interjections/Quizzes.
8. Argumentative Skills/Role Play Presentation with Stress and Intonation.
9. Comprehension Skills based on Reading and Listening Practicals on a model Audio-Visual Usage.

Reference Books

1. Bansal R.K. & Harrison: Phonetics in English, Orient Longman, New Delhi.
2. Sethi & Dhamija: A Course in Phonetics and Spoken English, Prentice Hall, New Delhi.
3. L.U.B.Pandey & R.P.Singh, A Manual of Practical Communication, A.I.T.B.S. Pub. India Ltd. Krishan Nagar, Delhi.
4. Joans Daniel, English Pronouncing Dictionary, Cambridge Univ. Press.

EAG-254 SURVEYING AND LEVELING LAB

L	T	P
0	0	2

List of Experiments

(1) Chain survey of an area and preparation of map;

(2) Compass survey of an area and plotting of compass survey;

(3) Plane table surveying;

(4) Leveling. L-section and X-sections and its plotting;

(5) Contour survey of an area and preparation of contour map;

(6) Introduction of software in drawing contour;

(7) Theodolite surveying;

(8) Ranging by theodolite,

(9) Height of object by using theodolite;

(10) Setting out curves by theodolite; Minor instruments.

(11) Advancement of Total stations.

EAG-255 WORKSHOP TECHNOLOGY LAB

L	T	P
0	0	2

List of Practicals

(1) Introduction to welding equipment, processes tools, their use and precautions;

(2) Jobs on ARC welding – Lap joint, butt joint;

(3) T-Joint and corner joint in Arc welding;

(4) Gas welding Practice – Lab, butt and T-Joints;

(5 Introduction to metal casting equipment, tools and their use;

(6) Mould making using one-piece pattern and two pieces pattern;

(7) Demonstration of mould making using sweep pattern, and match plate patterns;

(8) Practical test; Introduction to machine shop machines and tools;

(9) Demonstration on Processes in machining and use of measuring instruments;

(10) Practical jobs on simple turning, step turning;

EAG-256 COMPUTER SCIENCE LAB

L	T	P
0	0	2

List of Experiments

1. Study of Computer Components.
2. Computer practice of DOS commands.
3. Study of Basic using READ,DATA,PRINT,statement,etc.
4. Numerical integration and differentiation using BASIC language.
5. Basic Program program for t test.
6. Basic program for random number geneneration in different papers.
7. Fortran program READ WRITE and PRINT statement.
8. Free formate and formatted INPUT and OUTPUT ststements.
9. Soluation of an quadratic equation using C language.
10. Use of function sub programes in the main program .
11. Use of sub routines in the main program.
12. Trapezoidal Simptions rule.

EAG-257 ENGINEERING DRAWING LAB

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Unit I

Construction of isometric scales, projections of simple objects. Selection of solids an developments of surfaces.
Forms of screw threads-BSW square metric, representations of threads, bolts, headо counter sunk – stud, screws and set screws . nuts ,hexagonal – square, keys types, taper sunk taper ,hollow saddle, flat saddle, round gib bead, feather and woodruff keys, splm shaft **2- Sheet**

Unit II

Orthographic projections: Introduction, definitions- planes of projection, reference line and conventions employed , projections of points in all the four quadrants, projections of straight lines (located in First Quadrant/first angle only)
True and apparent lengths , True and apparent inclines to reference planes (No application problems) **2- Sheet**

Unit III

Orthographic projections of Plane Surfaces
(first Angle projection Only): Introduction definitions-projections of plane surface – triangle, square rectangle, rhombus, pentagon, hexagon and circle, planes in different positions by change of position method only (No problems on punched plates and composite plates.) **1- Sheet**

Unit IV

Projections of solids (first Angle projection Only)Introduction, definitions – projections of right regular – tetrahedron (cube), prisms, pyramids , cylinders and cones in different positions . (No problems on octahedrons and combination solid)
Sections and development of Lateral surfaces of Solids
Introduction, sections planes, sections, section views, sectional views, apparent shapes and True Shapes of sections of right regular prisms, pyramids, cylinders and cones resting with base on HP. (No Problem on section of solids)
Development of lateral surface of above solids, their frustums and truncations. (No problem on lateral surface of trays , Tetrahedrons spheres and transition pieces) **2- Sheet**

Unit V

Isometric Projection (Using isometric scale only)
Introduction , Isometric scale , Isometric Projection of simple plane figures, isometric Projection of tetrahedron , hexahedron (cube), right regular prisms, pyramids , cylinders, cones, spheres, cut spheres and combination of solids (maximum of three solids). **2- Sheet**

Text Book

Engineering Drawing – N.D.Bhatt & V.M.Panchal, Charotar publishing House, Gujarat .
A Primer on Computer Aided Engineering Drawing - Published by VTU, Belgaum

Reference Book

Computer Aided Engineering Drawing – S. Trymbaka Murthy,- I.K International publishing House Pvt. Ltd., New Delhi, 3rd revised edition
Engineering Graphics – K.R. Gopalakrishna ,32nd edition, Subash Publishers Bangalore .