Integral University, Lucknow

Effective from Session: 2024-25							
Course Code	DMA-201	**Title of the Course**	APPLIED MATHEMATICS-II	**L**	**T**	**P**	**C**
Year	I[ST]	**Semester**	II[nd]	**03**	**01**	**00**	**-**
Pre-Requisite	DMA-201	**Co-requisite**	NA				
Course Objectives	To know the basic concepts of Mathematics with their Applications in Engineering.						

Course Outcomes	
CO1	Definite and Indefinite integral knowledge makes students wide in solving problems related to big summations and areas related problems.
CO2	Applications of Integration will lead students to get a good knowledge of finding areas, volume etc.
CO3	Some different rules like Newton-Cote's Quadrature formula, Trapezoidal rule, Simpson's 1/3rd rule and 3/8th rule, Students will be able to solve big Integral problems in a very easy pattern.
CO4	2D Coordinate Geometry has application in the field of construction. The sketch of a building is a pure geometry. It is also used for finding the distance between places and in geography also it has many applications. It is also used in Astrophysics to find the distance between planets
CO5	Three dimensional geometry is used in various fields like in computer graphics, biotechnology and medical sciences and in different projects also.

Unit No.	Title of the Unit		Contact Hrs.	Mapped CO
1	i). Integral Calculus-I ii). Indefinite Integral	**Integral Calculus – I:** Definition of Integration (anti-derivative), Integration of standard functions. Rule of integration (Integration of sum, difference and Scalar multiplication). **Indefinite Integral:** Integration by substitution, Integration by parts, Integration by partial fraction.	07	1
2	i). Integral Calculus -II ii). Application of Integral Calculus	**Integral Calculus - II:** **Definite Integral:** Definition of definite integral, properties and evaluation of definite integral. **Application of Integral Calculus:** Finding areas bounded by sample curves.	08	2
3	i). Numerical Integral & Error	**Numerical Integration & Error:** Introduction, Newton-Cote's Quadrature formula, Trapezoidal rule, Simpson's 1/3rd rule and 3/8th rule. Concept of error for simple function.	08	3
4	i). Coordinate Geometry (2Dimention)	**Coordinate Geometry (2-Dimension):** Circle, Equation of circle in standard form. Centre - Radius form, Diameter form, Two intercept form.	08	4
5	i). Coordinate Geometry (3-Dimention)	**Co-ordinate Geometry (3 Dimension):** Straight lines and planes in space, Distance between two points in space, direction cosine and direction ratios, Finding equation of a straight line (without proof).	09	5

References Books:

1. Applied Mathematics: Kailash Sinha, Meerut publication.
2. Applied Mathematics: P. K. Gupta, Asian Publication.
3. Applied Mathematics: H. R. Loothara, Bharat Bharti Publication.
4. Mathematics for Polytechnic: S.P. Deshpande, Pune Vidyarthi Griha.

e-Learning Source:

https://www.youtube.com/watch?v=syLIPtxjN0E&list=PLn78sdsv0QoXBxWmyGp5SQdg-F_AlyB05&pp=iAQB

https://www.youtube.com/watch?v=rBNQ0r7CN2c&list=PLn78sdsv0QoXUdre4aCAobj3cxACkNeLL&pp=iAQB

PO-PSO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4
CO1	3	1	3	--	1	--	--	2	-	1	1
CO2	1	3	1	1	2	--	--	2	1	2	-
CO3	--	1	--	2	3	--	--	3	--	2	1
CO4	2	2	2	1	--	--	--	-	2	1	3
CO5	2	1	1	--	1	--	--	-	1	-	2

1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Name & Sign of Program Coordinator	**Sign & Seal of HoD**

APPLIED PHYSICS(B)
(DPH-201)
[Common to All Engineering Courses]

L T P
3 1 0

UNIT-I **[6]**

Application of Sound Waves :

Acoustics :

Standing waves, Closed and Open organ pipes, Resonance, End correction.Definition of pitch, loudness, quality and intensity of sound waves. Echo and reverberation and reverberation time. Sabine's formula, Control of reverberation time (problems on reverberation time).Accoustics of buildings, defects and remedy.

Ultrasonics,

Generation, Magnetostriction, Piezoelectric effect, Application in new technology

UNIT-II **[8]**

Quantum nature of light, Coherence (Spatial and temporal), Duality of wave and particle, Concept of Interference, Biprism, Fraunhoffer single slit diffraction,grating, Resolving and dispersive power, Elementary concept of polarization.

Fibre Optics :

Critical angle, Total internal reflection, Principle of fiber optics, Optical fiber, Pulse dispersion in step-index fibers, Graded index fiber, Single mode fiber, Optical sensor

UNIT-III

D.C. Circuits :

Principle of Wheat Stone bridge and application of this principle in measurement of resistance (Meter bridge and Post Office Box); potentiometer, Kirchhoff's Law and their simple application. Principle of Carey-Foster's bridge.

Electric potential, potential energy, Energy of a charged capacitor. Charging and Discharging of capacitors,

Dielectrics :

Electric dipole; effect of electric field on dielectrics, polarization.Magnetic Fields & Materials : Dia, Para and Ferro-magnetism, Ferrites, Hysteresis, Hysteresis curve of a ferro magnetic materials and their uses, Basic idea of super conductivity.

UNIT-IV[**10]**

Semiconductor Physics :

classification of solids into conductors, insulators and semiconductors on the basis of energy band structure. Intrinsic and extrinsic semi conductors, Electrons and holes as charge carriers in semiconductors, Effect of temperature in conduction in semiconductors, P-type and N-type semiconductors, P-N junction formation, barrier voltage, Forward and reverse biasing of a junction diode.

Production of X-rays types of X-rays spectra :

Continuous and characteristics of X-rays,Properties & applications of X-rays.

Nuclear Physics :

Radioactivity, Nuclear stability, Radioactive emission, radiation hazards, Nuclear fission and fusion, Nuclear reactors and their application, Mass-energy relation, Atomic mass unit, Mass defect and binding energy.

UNIT-V **[8]**

Lasers and its Applications :

Absorption and Emission of energy by atom, Spontaneous and Stimulated Emission, Population inversion. Main components of laser and types of laser,Ruby Laser, He-Ne laser and their applications.

Non-conventional energy resources.

Wind energy : Introduction, scope and significance,measurement of wind velocity by anemometer, general principle of wind mill, Indian wind energy programme.

Solar energy: Solar radiation and potentiality of solar radiation in India, unit of solar radiation.

Bio fuel and Gobar gas plants

Uses of solar energy: Solar Cooker, solar water heater, solar photo-voltaic cells, solar energy collector, Modern applications in technology. 5

References :

1. Nootan Physics : Kumar & Mittal :
2. Applied Physics :P.K. Gupta :
3. Pradeep Fundamental : Gogia & Gomber.
4. Applied Physics : P.S.Kushwaha, Bharat Bharti Publication.

DCH-201	Applied Chemistry (B)				
Pre-requisite	**Co-Requisite**	**L**	**T**	**P**	**C**
None	**None**	**03**	**01**	**00**	**--**
Objective	To know the basic concept of Chemistry and their Applications in Engineering				
UNIT I	**Fuels:**				07

Definition, its classification, high and low calorific value. Determination of calorific value of solid and liquid fuels by Bomb calorimeter.

Liquid fuel- Petroleum and its refining, distillates of petroleum (Kerosene oil, Diesel and Petrol), Benzol and power alcohol. Knocking, Anti-knocking agents, Octane number and Cetane number.

Cracking and its type, Gasoline from hydrogenation of coal (Bergius process and Fischer Tropsch's process)

Gaseous Fuel- Coal gas, Oil gas, Water gas, Producer gas, Biogas, LPG and CNG.

Numerical problems based on topics.

UNIT II	**Colloidal State of Matter and Lubricants:**	08

Concept of colloidal and its types, different system of colloids, dispersed phase and dispersion medium. Methods of preparation of colloidal solutions, Dialysis and electrodialysis. Properties of colloidal solution with special reference to absorption, Brownian movement, Tyndal effect, Electrophoresis and Coagulation. Relative stability of hydrophilic and hydrophobic colloids. Protection and protective colloids. Emulsion, types, preparation, properties and uses. Application of colloids chemistry in different industries.

Definition, classification, necessity and various kinds of lubricants. Function and mechanism of action of lubricants and examples. Properties of lubricants, importance of additive compounds in lubricants, Synthetic lubricants and cutting fluids. Industrial application, its function in bearing.

UNIT III	**Hydrocarbons:**	08

A. Classification and IUPAC nomenclature of organic compounds homologous series (Functional Groups). B. Preparation, properties and uses of Ethane, Ethene, Ethyne (Acetylene), Benzene and Toluene.		
UNIT IV	**Organic Reactions and Mechanism:**	08
Fundamental aspects- A. Electrophiles and nucleophiles, Reaction intermediates, Free radicals, Carbocation, Carbanion. B. Inductive effect, Mesomeric effect, Electromeric effect. Mechanism- A. Mechanism of addition reaction (Markonicove's Rule, Cyanohydrin and Peroxide effect). B. Mechanism of substitution reactions; (Nucleophillic) hydrolysis of alkyl halide, electrophillic substitution halogenations, Sulphonation, Nitration and Friedel- Craft reaction. C. Mechanism of Elimination reaction- Dehydration of primary alcohol, Dehydrohalogenation of primary alkyl halide.		
UNIT V	**Polymers and Synthetic Materials:**	09
Polymers- Polymers and their classification. Average degree of polymerization, Average molecular weight, Free radical polymerisation (Mechanism). Thermosetting and thermoplastic A. Addition polymers and their industrial applications- Polythene, Polystyrene, PVA, PVC, PAN, PMMA, Buna-S, Buna-N, Teflon. B. Condensation polymers and their industrial applications- Nylon 6, Nylon 6,6, Bakelite, Melamine formaldehyde, Urea formaldehyde, Terylene or Dacron, Polyurethanes. General concept of Bio polymers, Biodegradable polymers and Inorganic polymers (Silicon). Synthetic Materials- A. Introduction- Fats and Oils		

	B. Saponification of fats and oils, Manufacturing of soap C. Synthetic detergents, types of detergents and its manufacturing. Explosives: TNT, RDX and Dynamite Paint and Varnish.	
Reference books:	6. Applied Chemistry: R. S. Katiyar and J. P. Chaudhary 7. Applied Chemistry: Rakesh Kapoor 8. Principles of general and inorganic chemistry: O. P. Tandon 9. Engineering Chemistry: S. Chandra 10. Applied Chemistry: M. Gupta	

Integral University, Lucknow

Effective from Session: 2024-25							
Course Code	DEE-201	**Title of the Course**	BASIC ELECTRICAL ENGINEERING-I	**L**	**T**	**P**	**C**
Year	First	**Semester**	Second	**3**	**1**	**2**	**-**
Pre-Requisite		**Co-requisite**					
Course Objectives	1. Concept of electromagnetic induction laws which is required for electrical engineering 2. Classification of different types of capacitors and Battery.						

Course Outcomes	
CO1	Conceptualize the fundamental of current, voltage and power and would be able to utilize in electrical heating and mechanical work
CO2	Characterization of material on the basis of their conductivity and permeability for the use in the field electrical and electronic engineering.
CO3	Develop the concept of electromagnetic induction laws which is required for electrical engineering
CO4	Battery maintenance, care and grouping of cell to get required Ah.
CO5	Classification of different types of capacitors. And to know influence dielectric as well series parallel combination on capacitance value.

Unit No.	Title of the Unit		Contact Hrs.	Mapped CO
Unit-I	Introduction of Electrical Engineering	Basic Terminology and their concepts of Current, EMF, potential difference (Voltage), resistance, resistivity, their units, conductors & insulators, Insulation resistance of a cable. Effect of temperature on the resistance of conductors, semiconductors (C, Si, Ge) and insulators physical explanation, temperature coefficient of resistance. Electrical power, energy and their units (SI), Heating effect of electric current and its practical examples. Relationship between electrical, mechanical and thermal SI units of work, power and energy, Electrical Safety and precautions.	8	1
Unit-II	Material Classification,	Material Classification, conducting, insulating, Semi Conducting materials with reference to their atomic Structure. Classification of magnetic materials, Ferro Magnetism, domains, permeability, hysteresis loop, Coercive Force & residual magnetism & magnetic saturation, Semi Conductor & Special purpose material, N-type & P-type Materials, application of semi conductor materials, Materials used in transistor & I.C.	8	2
Unit-III	Electromagnetic Induction	Electromagnetic Induction: Faraday's laws of electromagnetic induction. Lenz's law, simple problem. Dynamically induced emf. Self induced emf, inductance, its role in electrical circuits. Simple problems. Mutually induced emf, mutual inductance, its role in electrical circuits. Simple problems. Energy stored in magnetic circuit. Rise and decay of current in inductors. Force on a current carrying conductor placed in a magnetic field and its applications. Elementary idea about eddy current loss.	8	3
Unit-IV	Batteries	Batteries Construction, chemical changes during charging and discharging of lead acid cells. Indications of a fully charged battery. Capacity and efficiency of lead acid cell / battery. Charging of 6 V, 12 V. Commercial batteries. Grouping of cells. Care and batteries maintenance of commercial batteries. Problems/defects in lead acid batteries. Concept of Nickel-Iron and Nickel Cadmium Batteries. Concept of solid sealed maintenance free batteries (SMF batteries), Oxygen recombination principle.	8	4
Unit-V	Capacitors	Capacitors: Concept of capacitor, types of capacity of parallel plate capacitor, Composite capacitor and effect of physical parameters. Energy stored in a capacitor, dielectric and its influence on capacitance of a capacitor, dielectric constant dielectric breakdown and dielectric strength. Dielectric loss. Series and parallel combination of capacitors. Capacitance of multi-plate capacitors. Variable capacitors. Charging and discharging of capacitors. Simple problem on capacitors.	8	5

References Books:

1. Fundamental of Electrical Engg. – Ashfaq Husain
2. Electrical Technology Volume-I – B.L. Thereja

e-Learning Source:

https://nptel.ac.in/

PO-PSO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3	PSO4
CO1		3	2		1	1	1						2	
CO2		2	2		1				2				2	
CO3		2	2	3	2		2	2	1	2			3	
CO4		2	2			2		2	2	1			2	
CO5		2	3				2		2	3			2	

1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Name & Sign of Program Coordinator	Sign & Seal of HoD

Integral University, Lucknow

Effective from Session: 2013-14							
Course Code	DEM-201	**Title of the Course**	Electrical and Electronics Engineering Materials	**L**	**T**	**P**	**C**
Year	First	**Semester**	Second	**3**	**1**	**0**	**-**
Pre-Requisite	-	**Co-requisite**	-				
Course Objectives	1. To make the students familiar with electrical engineering materials. 2. To make the students familiar with electronics engineering materials.						

Course Outcomes	
CO1	Properties of conducting material and its application in Electrical and Electronics engineering.
CO2	Properties and application of insulating materials with respect to the application in engineering fields.
CO3	Selection of magnetic materials and their applications.
CO4	Electrical, mechanical, physical and thermal properties of insulating materials.

Unit No.	Title of the Unit		Contact Hrs.	Mapped CO
1	Classification	Classification of materials into conducting, semiconducting and insulating materials with reference to their atomic structure.	8	1
2	Resistivity	Resistivity and factors affecting resistivity, such as temperature, alloying and mechanical stressing. Super conductivity and super conducting material. Low resistivity materials e.g. copper, aluminium and steel, their general properties as conductor e.g. resistivity, temperature co-efficient, mechanical properties, corrosion, solar ability, contact resistance and practical application. Uses of mercury as conducting material.	8	2
3	Comparison	Comparison of copper, aluminium and steel for various applications as electrical conductor. Low resistivity copper alloys: brass, bronze (cadmium and beryllium), their practical application. High resistivity materials: Manganin, constantan nichrome, carbon, tungsten, their practical applications. Electric lamp materials. Brush contact materials. Soldering materials. Thermocouple materials, Fuse materials.	8	3
4	Insulating Materials	Insulating Materials i. Introduction. ii. Properties of insulating material. Electrical properties: Volume resistivity, Surface resistivity, Dielectric Loss, Dielectric Constant, Dielectric strength. Mechanical properties: Mechanical strength Physical properties: Hygroscopicity tensile and compressive strength, Abrasive resistance brittleness. Thermal properties: Heat resistance, Classification according to high permissible temperature rise, Effect of over loading on the life of an electrical appliances, Increase in rating with the use of insulating materials having higher thermal stability, Thermal conductivity. Chemical properties - Solubility, Chemical resistance, Weather ability.	8	4
5	Magnetic Materials	Magnetic Materials:Classification of magnetic materials into soft and hard magnetic materials.Soft magnetic materials - high silicon alloy steel for transformers and low silicon alloy steel, for electric rotating machine cold rolled grain oriented and non-oriented steel, Nickel iron alloy, soft ferrites, their properties and uses.Hard magnetic materials - tungsten steel, chrome steel, cobalt steel, alnico, hard ferrites, their properties and applications.Semiconductor Materials:Introduction, semiconductor and their applications, Different semiconductor materials used in manufacturing various semiconductor (Si & Ge), Material used for electronic components like resister, capacitor, diode, transistors and inductors.Special Purpose Materials: Materials used in transistor and IC manufacturing, PC BS, computer memory devices (name of such materials to be added) Ferrous and nonferrous materials. Thermistor, Sensistor, Varistor and their practical applications.	8	5

References Books:

1. K.B. Raina & S.K. Bhattacharya Publication – S.K. Kataria & Sons

e-Learning Source:

https://nptel.ac.in/

PO-PSO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CO1		2				1	2		2	1						
CO2		2				1	2		2							
CO3		2	2		2		1		2							
CO4		2				2	2		2	2						

1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Name & Sign of Program Coordinator	Sign & Seal of HoD

Integral University, Lucknow

Effective from Session: 2010-11							
Course Code	DPC- 101/ 201	**Title of the Course**	PROFESSIONAL COMMUNICATION	**L**	**T**	**P**	**C**
Year	FIRST	**Semester**	FIRST/ SECOND		**T**		
Pre-Requisite		**Co-requisite**					
Course Objectives	**Enhance Verbal Communication Skills** **Master Written Communication** **Cultivate Interpersonal Skills** **Develop Professional Etiquette Utilize Communication Technologies**						

Course Outcomes	
CO1	Introduction of the concept of communication, types skills, modern tools, etc...
CO2	The CO of this unit is to make inquiry about people, product, price etc. with the expansion of business operations of a business, importance of business letter is also increasing. To take right decisions: Taking right decisions require accurate information.
CO3	The CO of this unit is to control sentence-level error (grammar, punctuation, and spelling). Its outcome is to employ techniques of active reading, critical reading, and informal reading response for inquiry, learning, and thinking.
CO4	Learning objectives focus on student performance. Action verbs that are specific, such as list, describe report, compare, demonstrate, and analyze, should state the behaviors students will be expected to perform in Hindi
CO5	The conclusion of this subject is to increase the student's English communication skills by Improving fluency through regular practice and speaking drills. Understanding of basic grammar structures like nouns, verbs and adjectives through class reading and speaking tasks.

Unit No.	Title of the Unit		Contact Hrs.	Mapped CO
1	Communication in English	Concept of communication, importance of effective communication, types of communication, formal and informal, verbal and nonverbal, spoken and written, Techniques of communication, Listening and reading, writing and speaking, Barriers to communication- Modern tools of communication Fax, e-mail, Telephone, telegram, etc., Techniques for clear, concise, correct and coherent writing, Difference between technical writing and general writing.	8	CO-1
2	Letters	Kinds of letters: Official, demi-official, unofficial, enquiry letter, quotation, tender and order giving letters. Application for a job, Resume, complaint letter and adjustment letter. Report writing, Note making and minutes writing.	8	CO-2
3	Grammar	Transformation of sentences, synthesis, Preposition, Articles, Idioms and Phrases, One word substitution, Abbreviations. Tenses, Active and Passive voice. Composition on narrative, descriptive, imaginative, argumentative, discussion and factual topics.	8	CO-3
4	Spoken English	Phonemes (Speech sound), Consonant sounds, vowels sounds and diphthongs, Phonetic transcription, IPA, word stress and Intonation. Development of comprehension and knowledge of English through the study of text material and language exercises based on the prescribed text book of English.	8	CO-4
5	Letter writing in Hindi	Kinds of letters: Official, demi-official, unofficial, enquiry letter, quotation, tender and order giving letters, Application for a job.	8	CO-5

References Books:

Dr. R.P. Chauhan, Asian Publishers, Muzaffarnagar

S.V. Singh & M. S. Verma: Bharat Bharat Prakashan, Meerut.

R. Thakur & M. Singh, Meerut Publication.

e-Learning Source:

https://www.bbau.ac.in/Docs/FoundationCourse/TM/AECC105/Lecture%20Types%20&%20Modes%20of%20Communication.pdf

https://www.uou.ac.in/sites/default/files/slm/BHMAECC-II.pdf

PO-PSO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4
CO1	3	2									
CO2	2	2									
CO3	1	1									
CO4	2	2									
CO5	3	3									

1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Name & Sign of Program Coordinator	**Sign & Seal of HoD**

APPLIED PHYSICS LAB
(DPH-151/DPH-251)

L T P
0 0 2

Note: Any ten experiments are to be performed.

1. Determination of 'g' using simple pendulum.
2. To find the surface Tension of water by the method of capillary rise.
3. To determine the frequency of A.C. mains by using a sonometer and a horse shoe magnet.
4. To determine the value of modulus of rigidity of given material of a wire by statical method using Barton's apparatus.
5. Determination of coefficient of viscosity of water by capillary flow (Poiseuilles method).
6. To determine the height of a tower by Sextant.
7. To determine the moment of Inertia of a flywheel.
8. Determination of velocity of sound by resonance tube.
9. Determination of resistivity of a given wire by Post Office Box.
10. By using Potentiometer, determination of
    (i) E_1/E_2
    (ii) Internal resistance of givn cell.
11. Determination of coefficient of friction on a horizontal plane.
12. Determination of viscosity coefficient of a lubricant by Stoke's law.
13. Determination of Spring Constant.
14. Verification of Kirchoff's laws.
15. To draw the characteristics of a p-n junction diode.

BASIC ELECTRONICS-I LAB
(DEC-251)

L T P
0 0 2

Perform any 10 experiments

1. Semiconductor diode : identification of types of packages,terminals and noting different ratings using data books for various types of semiconductor diodes (germaniun, point contact, silicon low power and high power and switching diode).
2. Rectifier circuits using semiconductor diode measure- ment of input and output voltage and ploting of input and output waveshapes:
   - i) Half wave rectifier
   - ii) Full wave rectifier (centre tapped and bridge rectifer circuits).
3. Plot the waveshapes of a full wave rectifier with shunt capacitor, series inductor, and filter circuit.
4. Transistor Biasing Circuits Measurment of operating point (IC and VCF) for a
   - i) Fixed bias circuit
   - ii) Potential divider biasing circuit. (Measurement can be made by changing the transistor in the circuit(s) by another of same type number.
5. Single stage common emitter amplifier circuit
   - i) Measurement of voltage gain at 1 KHZ for differnet load resistances.
   - ii) Plotting of frequency response of a single stage amplifier circuit.
   - iii) Measurement of input and output impedance of the amplifier circuit.
6. To measure the overall gain of two stage R.C coupled amplifier at 1 KHZ and note the effect of loading of second stage on the first stage.
7. (a) To plot the laod Vs output power characterstic to determine the maximum signal input for undistorted signal output.
   (b) The above experiment is to be performed with single ended power amplifier, transistorized push pull amplifier.
   Complementary symetry power amplifier.
8. To observe the effect of a bye-pass capacitor by measuring voltage gain and plotting frequency response for a single stage amplifier.
9. To measure input and output impedance of a feedback amplifier with and without by-pass capacitor.
10. Measurement of voltage gain, input and output impedance and plotting of frequency response of an emitter follower circuit.
11. Plot the FET characteristics and determination of its parameters from these characteristics.
12. To determine the range of frequency variation of a RC phase shift oscillator.
13. To test adjustable IC regulator and current regulator.
14. Identification of Some Popular IC of 74 and 40 series with Pin Number and other details.
15. Application and use of Multimeter, CRO, Audio Oscillator and Power Supply (D.C.)

Integral University, Lucknow

Effective from Session: 2024-25							
Course Code	DEE-251	**Title of the Course**	BASIC ELECTRICAL ENGINEERING LAB-1	**L**	**T**	**P**	**C**
Year	First	**Semester**	Second			**2**	**-**
Pre-Requisite		**Co-requisite**					
Course Objectives	1. Different electrical measuring instruments (Analog and Digital) 2. Study and verification of electrical laws and network theorems.						

Course Outcomes	
CO1	Familiarization of different electrical measuring instruments (Analog and Digital)
CO2	Verifying laws of series and parallel connection of circuit elements.
CO3	Verifying different DC network theorems and electrical machines.

Experiment No.	Experiment	Contact Hrs.	Mapped CO
Experiment-1	Use of ammeter, voltmeter and multimeter	2	1
Experiment-2	To verify the laws of series and parallel connections of resistance.	2	2
Experiment-3	To verify the laws of series and parallel connections of capacitance.	2	2
Experiment-4	Verification of Ohm's law.	2	2
Experiment-5	To verify Kirchhoff's first laws: The algebric sum of the currents at a junction is zero.	2	2
Experiment-6	To verify Kirchhoff's second laws: The algebric sum e.m.f. in any closed circuit is equal to the algebric sum of IR products (drops) in that circuit.	2	2
Experiment-7	To measure the resistance an ammeter and a voltmeter and to conclude that ammeter has very low resistance whereas voltmeter has very high resistance.	2	2
Experiment-8	To verify Thevenin's theorems.	2	3
Experiment-9	Study of 1-phase Energy meter.	2	3
Experiment-10	Study of running and reversing of a 3-phase Induction motor.	2	3
Experiment-11	Measurement of Efficiency of a 1- phase transformer by load test.	2	3
Experiment-12	Study of phenomenon of resonance in RLC series circuit.	2	3

PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3	PSO4
CO1			2					3	1	3			2	
CO2		1	3		2				1				2	
CO3		1	3		2				1				3	

1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Name & Sign of Program Coordinator	**Sign & Seal of HoD**

Integral University, Lucknow

Effective from Session: 2010-11							
Course Code	DPC151/ 251	**Title of the Course**	Professional Communication	**L**	**T**	**P**	**C**
Year	FIRST	**Semester**	FIRST/ SECOND				
Pre-Requisite		**Co-requisite**					
Course Objectives	Develop Effective Verbal and Non-Verbal Communication Skills Enhance Written Communication Abilities Foster Active Listening and Interpersonal Skills Master Communication Tools and Technology Understand and Adapt to Diverse Communication Styles						

Course Outcomes	
CO1	Introduction of International Phonetic Alphabet and Pronunciation practice.
CO2	From a psychological perspective, objective and outcome of self-description in formal communication situations means that you are focusing attention on you and your behavior, which allows you to evaluate what you see based on the standards and expectations that you have developed throughout your life.
CO3	The CO of this unit is breeding fresh ideas and taking inputs from a particular group of students... Identify a solution to a specific problem or issue. Selecting candidates after their written test for hiring in a company.
CO4	The key objectives outcomes that underline a good presentation often include the following: To establish credibility with your audience. To communicate information clearly to your audience. To persuade and/or influence your audience. The CO of this unit is to establish credibility with your audience. To communicate information clearly to your audience. To persuade and/or influence your audience.
CO5	The CO of this unit is to differentiate between views and facts, to formulate and delineate useful questions, to choose and apply suitable research methods, to look critically at acquired information and to doubt information that has been offered

Unit No.	**Title of the Unit**		**Contact Hrs.**	**Mapped CO**
1	Introduction to speech sounds	Introduction to speech sounds through (IPA) International Phonetic Alphabet. - Pronunciation practice emphasizing the articulation of vocal sounds & Word stress. - Pronunciation Practice emphasizing the words with spelling pronunciation Mismatch.	4	1
2	Techniques of giving focused self-description	Techniques of giving focused self-description in formal communication Situations. - Practice in describing objects.	4	2
3	The basics of group discussion	The basics of group discussion. - Common pitfalls in group discussion. - Techniques for making a claim & supporting it in group discussion. - Techniques for offering polite but firm counter arguments. - Participating in a Debate.	4	3
4	The essentials of Seminar Presentation	The essentials of Seminar Presentation. - Techniques for preparing a Seminar Presentation. - Mock Interview: Preparation, unfolding of personality and expressing Ideas effectively. - Role Play/General Conversation, Making polite enquiries at Railway station, Post Office and other Public Places.	4	4
5	Project	Project: At the beginning of the Semester each student in the class will be given topics for one informative & one persuasive speech to be delivered by him/her towards the end of the semester. The students will research for, organize and finalize the speeches under the guidance of the subject teacher. For each speech, the student will submit a one-page written outline.	4	5

References Books:

Grant Taylor: English Conversation Practice (T.M.H.) 2. Grathe King: Colloqnial English Routledge London

Grant Taylor : English Conversation Practice (T.M.H.) 2. Grathe King: Colloqnial English Routledge London

e-Learning Source:

https://siayainstitute.ac.ke/wp-content/uploads/2021/05/COMM-SKILLS-NOTES.pdf

https://mrcet.com/downloads/MBA/Professional%20Communication%20Skills.pdf

https://www.scribd.com/document/389612555/COMMUNICATION-SKILLS-SELF-STUDY-NOTES-1-pdf

PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4
CO1	3	1									
CO2	2	1									
CO3	2	1									
CO4	1	2									
CO5	1	1									

1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Name & Sign of Program Coordinator	**Sign & Seal of HoD**