AMRITSAR GROUP OF COLLEGES

Autonomous status conferred by UGC under UGC act-1956, (2f), NAAC-A Grade,

(Formerly Known as Amritsar College of Engineering & Technology | Amritsar Pharmacy College)

Study Scheme for B.Tech 1st & 2nd Semester (2021 onwards)

Physics Group   **B.Tech First Semester**   **Contact Hours 28**

S.No	Course Code	Course Name	Load Allocation			Marks Distribution			Credits
			L	T	P	Internal	External	Total	
1	AGPH-21101	**Engineering Physics**	3	1	0	40	60	100	4
2	AGAM-21101	**Engineering Mathematics-I**	3	1	0	40	60	100	4
3	AGHU-21101	**English-I**	3	0	0	40	60	100	3
4	AGEE-21101	**Basic Electrical & Electronics Engineering**	3	1	0	40	60	100	4
5	AGHV-21101	**Human Values & Professional Ethics**	3	0	0	40	60	100	3
6	AGPH-21102	**Engineering Physics Lab**	0	0	2	30	20	50	1
7	AGHU-21103	**English Lab-I**	0	0	2	30	20	50	1
8	AGEE-21102	**Basic Electrical & Electronics Engineering Lab**	0	0	2	30	20	50	1
9	AGMP-21101	**Manufacturing Practice**	0	0	4	60	40	100	2
Total		**5 Theory Classes +4 Laboratory Classes**	**15**	**3**	**10**	**350**	**400**	**750**	**23**

       B.Tech Second Semester   **Contact Hours :31**

S.No	Course Code	Course Name	Load Allocation			Marks Distribution			Credits
			L	T	P	Internal	External	Total	
1	AGCH-21101	**Engineering Chemistry**	3	1	0	40	60	100	4
2	AGES-21101	**Environmental Studies**	2	0	0	40	60	100	2
3	AGAM-21102	**Engineering Mathematics-II**	3	1	0	40	60	100	4
4	AGCS-21101	**Programming for Problem Solving**	3	0	0	40	60	100	3
5	AGHU-21102	**English-II**	3	0	0	40	60	100	3
6	AGHU-21104	**English Lab-II**	0	0	2	30	20	50	1
7	AGCH-21102	**Engineering Chemistry Lab**	0	0	2	30	20	50	1
8	AGEG-21101	**Engineering Graphics**	1	0	6	30	20	50	4
9	AGCS-21102	**Programming for Problem Solving Lab**	0	0	4	30	20	50	2
10	AGGF-21101	**General Fitness**	0	0	0	100	0	100	1
TOTAL		**5 Theory Classes +4 Laboratory Classes**	**15**	**2**	**14**	**320**	**380**	**800**	**25**

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Study Scheme for B.Tech 1st & 2nd Semester (2021 onwards)

Chemistry Group		B.Tech First Semester							Contact Hours 31
S.No	Course Code	Course Name	Load Allocation			Marks Distribution			Credits
			L	T	P	Internal	External	Total	
1	AGCH-21101	**Engineering Chemistry**	3	1	0	40	60	100	4
2	AGES-21101	**Environmental Studies**	2	0	0	40	60	100	2
3	AGAM-21101	**Engineering Mathematics-I**	3	1	0	40	60	100	4
4	AGCS-21101	**Programming for Problem Solving**	3	0	0	40	60	100	3
5	AGHU-21101	**English-I**	3	0	0	40	60	100	3
6	AGHU-21103	**English Lab-I**	0	0	2	30	20	50	1
7	AGCH-21102	**Engineering Chemistry Lab**	0	0	2	30	20	50	1
8	AGEG-21101	**Engineering Graphics**	1	0	6	30	20	50	4
9	AGCS-21102	**Programming for Problem Solving Lab**	0	0	4	30	20	50	2
TOTAL		**5 Theory Classes + 4 Laboratory Classes**	**15**	**2**	**14**	**320**	**380**	**700**	**24**

Chemistry Group		B.Tech Second Semester							Contact Hours :28
S.No	Course Code	Course Name	Load Allocation			Marks Distribution			Credits
			L	T	P	Internal	External	Total	
1	AGPH-21101	**Engineering Physics**	3	1	0	40	60	100	4
2	AGAM-21102	**Engineering Mathematics-II**	3	1	0	40	60	100	4
3	AGHU-21102	**English-II**	3	0	0	40	60	100	3
4	AGEE-21101	**Basic Electrical & Electronics Engineering**	3	1	0	40	60	100	4
5	AGHV-21101	**Human Values & Professional Ethics**	3	0	0	40	60	100	3
6	AGPH-21102	**Engineering Physics Lab**	0	0	2	30	20	50	1
7	AGHU-21104	**English Lab-II**	0	0	2	30	20	50	1
8	AGEE-21102	**Basic Electrical & Electronics Engineering Lab**	0	0	2	30	20	50	1
9	AGMP-21101	**Manufacturing Practice**	0	0	4	60	40	100	2
10	AGGF-21101	**General Fitness**	0	0	0	100	0	100	1
Total		**5 Theory Classes +4 Laboratory Classes**	**15**	**3**	**10**	**450**	**400**	**850**	**24**

AGPH- 21101 Engineering Physics

B.Tech 1st / 2nd Semester

L	T	P
3	1	0

Objective/s and Expected outcome:

Comprehension of some basic physical concepts will enable graduates to think logically the engineering problems that would come across due to rapidly developing new technologies. The student will be able to understand the various concepts effectively, logically explain the physical concepts and apply the concept in solving engineering problem, realize, understand and explain scientifically the new developments and breakthroughs in engineering and technology, relate the developments on Industrial front to the respective physical activity, happening or phenomenon.

S.No.	Course Outcomes (CO)
CO1	They will develop logical thinking and ability to solve numerical problems which will lead to improve the problem solving ability in students.
CO2	The students will be able to describe new concepts of physics like laser emission, superconductivity, holography etc. which will help the students in engineering and technological applications.
CO3	It will lead to real understanding of need of quantum mechanics and it applications in every branch of engineering.
CO4	Students will be able to analyze and classify different types of electronic materials such as metamaterials, nanomaterials, superconductors, magnetic materials etc,
CO5	The students will be able to understand about the concept of heat, different modes of transfers of heat and thermal expansion of materials which is required for every branch of engineering in upcoming semesters
CO6	. Moreover this curriculum will also throw light on the branches of physics like optics, heat, quantum mechanics, modern physics which will surely help the students in engineering and technology in future.

Syllabus:

Unit 1: Lasers and Optics (11 Lectures)

Lasers, Population Inversion, Properties of Laser Light, Stimulated and Spontaneous Emission, Einstein A and B Coefficients, Pumping, Types of LASER-Ruby Laser, He-Ne Laser, and Applications of LASERS.

Laws of Reflection and Refraction, TIR, Essential conditions of TIR, Applications of TIR, Optical Fibre, Acceptance Angle, Numerical Aperture, Propagation of waves, Attenuation of Optical fibre Signals, Applications of Optical Fibres, Introduction to Holography, Difference between Holography and Photography.

Unit 2: Quantum Mechanics and EM Waves (10 Lectures)

Introduction to Classical Mechanics and Quantum Mechanics, Need of Quantum Mechanics, Uncertainty Principle, Wave-particle duality, Matter Waves, Black Body Radiation, Concept of Wave function, Application of Quantum Mechanics, Davisson Germer Experiment.

Introduction, Properties of EM Waves, Divergence, Gradient and Curl, Applications of EM Waves, Displacement Current, Continuity Equation, Maxwell's Equations in Differential form.

Unit 3: Magnetic, Electronic Materials and Superconductors: (9 Lectures)

Basic Idea of Dia, Para and Ferromagnetic material, Soft and Hard Magnetic Materials, Magnetostriction, Magnetic Anisotropy, Hysteresis curve.

Introduction to Semiconductors, Dielectrics, Metamaterials, Superconductors and Nanomaterials; types and their Applications, Superconductivity, Meissner Effect, Type I and Type II superconductors, Properties of superconductors, Isotope Effect, Cooper Pair, BCS Theory(Qualitative Idea), London Equations (No derivations)

Unit 4: Heat and Temperature: (10 Lectures)

Concept of Heat and Temperature, Units, Difference between Heat and Temperature, Different scales of temperature and their conversions, Expansion of Solids, Linear Expansion, Superficial Expansion and Volume Expansion, Relation between α, β and γ , Coefficient of Thermal Conductivity, Transfer of Heat, Modes of Transfer of Heat (Conduction, Convection and Radiation) .

Suggested Readings / Books:

1. Physics for Scientists & Engineers (Vol. I & II), Serway & Jewett, 9th Edition. Cengage Learning.
2. Engineering Physics, Malik; HK, Singh; AK, Tata McGraw Hill,
3. Concepts of Modern Physics, Beiser; A., Mahajan; S., Choudhary; SR, Tata McGraw Hill.
4. Physics; A calculus based approach (Vol. I & II) Serway; RA & Jewitt; JW, Cengage Learning.Materials Science & Engineering, Callister; WD, John Wiley & Sons.
5. Introduction to Electrodynamics, Griffiths; DJ, Prentice Hall.
6. D.A Neaman, "Semiconductor Physics and devices", Times Mirror High Education Group, Chicago. 1997
7. Laser Theory & Applications, Thygrajan; K, Ghatak; AK, Mc Millan India Ltd.
8. Engineering Mechanics, 2nd ed. — MK Harbola
9. Principles of Mechanics — JL Synge & BA Griffith.
10. Mechanics by D S Mathur, S Chand Publishing,1981
11. Halliday and Resnick, Physics
12. W. Saslow, Electricity, magnetism and light

AGAM- 21101 Mathematics- I

B.Tech 1st Semester

L	T	P
3	0	0

Objective/s and Expected outcome

"Math and basic science are certainly the foundations of any engineering program. This fact will not change in the foreseeable future" said by Ellis et al. Engineering Mathematics is an essential tool for describing and analyzing engineering processes and systems. Mathematics also enables precise representation and communication of knowledge. Core mathematics courses have broader objectives than just supporting engineering programs. The learning objectives of core mathematics courses can be put into three categories: (1) Content Objectives: Students should learn fundamental mathematical concepts and how to apply them. (2) Skill Objectives: Students should learn critical thinking, modeling/problem solving and effective uses of technology. (3) Communication Objectives: Students should learn how to read mathematics and use it to communicate knowledge. The students are expected to understand the fundamentals of the mathematics to apply while designing technology and creating innovations.

S.No.	Course Outcomes (CO)
CO1	Apply partial derivative equation techniques to predict the behavior of certain phenomena.
CO2	To find maxima and minima, critical points and inflection points of functions and to determine the concavity of curves
CO3	To understand the convergence and divergence of infinite series.
CO4	To use systems of linear equations and matrix equations to determine linear dependency or independency. To find the Eigen values and corresponding eigenvectors for a linear transformation.
CO5	To introduce how to use vectors in real world. Vector calculus motivates the study of vector differentiation and integration in two and three dimensional spaces. It is widely accepted as a prerequisite in various fields of science and engineering.
CO6	To introduce how to use vectors in real world. Vector calculus motivates the study of vector differentiation and integration in two and three dimensional spaces. It is widely accepted as a prerequisite in various fields of science and engineering.

Syllabus:

Part-A

1. **Partial Differentiation (10 Lectures)**

   1.1 Partial differentiation;

   1.2 Homogeneous functions and Euler's theorem;

   1.3 Composite functions; Total derivative; Derivative of an implicit function;

   1.4 Change of variable;

   1.5 Jacobians

2. Applications of Partial Differentiation (8 Lectures)

2.1 Tangent and normal to a surface;

2.2 Taylor's and Maclaurine's series for a function of two variables;

2.3 Maxima and Minima of function of several variables.

Part-B

3. Sequence and Series: (8 Lectures)

3.1 Convergence and divergence of series,

3.2 Tests of convergence, Comparison test, Integral test,

3.3 Ratio test, Rabee's test, Logarithmic test,

3.4 Cauchy's root test and Gauss test.

3.5 Convergence and absolute convergence of alternating

Part-C

4. Matrices: (8 Lectures)

4.1 Inverse and rank of a matrix,

4.2 System of linear equations;

4.3 Symmetric, skew-symmetric and orthogonal matrices;

4.4 Determinants; Eigenvalues and eigenvectors;

4.5 Diagonalization of matrices;

4.6 Cayley-Hamilton Theorem.

Part-D

5. Vector Calculus (8 Lectures)

5.1 Scalar and Vector fields;

5.2 differentiation of vectors; velocity and acceleration;

5.3 Vector differential operators: Del, Gradient, Divergence and Curl and their physical interpretations;

5.4 Formulae involving Del applied to point functions and their products;

5.5 Line integral.

Suggested Readings / Books

1. Thomes, G.B, Finney, R.L. Calculus and Analytic Gemetry, Ninth Edition, Peason Education.

2. Kreyszig, E., Advanced Engineering Mathematics, Eighth edition, John wiley

3. Peter. V. O" Nil, Advanced Engineering Mathematics, Wordsworth Publishing Company.

4. Jain, R.K and Lyengar, S.R.K., Advanced Engineering Mathematics, Narosa Publishing Company.

5. Grewal, B.S., Higher Engineering Mathematics, Khanna Publishers, New Delhi.

6. Taneja, H.C., Engineering Mathematics, Volume-I & Volume-II, I.K. Publisher.

7. Babu Ram, Advance engineering Mathematics, Pearson Education.

   Bindra,. J.S., Applied Mathematics, Volume-I, Kataria Publications

AGHU- 21101 English- I
B.Tech 1st Semester

L	T	P
3	0	0

Objective/s and Expected outcome:

The objective is to help the students to become independent users of English language. Students should be able to understand spoken and written English language of varied complexity on most including some abstract topics; particularly the language of their chosen technical field. They must show awareness of appropriate format and a capacity for explaining their views in a rational manner. The students should be able to converse fluently, without strain with international speakers of English in an accent and lexis that is widely understood across the globe. They will be able to produce on their own texts which are clear and coherent.

S.No.	Course Outcomes (CO)
CO1	It will help the students to develop their communicative skills for their forthcoming professional needs.
CO2	The students will be able to think accurately, clearly and deeply to perform well in all communicative contexts. The students would be able to organize the material and present in a concrete and interesting manner before the audience and will become independent users of English Language.
CO3	It will bring about a real understanding in the students of the need to use English in their everyday life.
CO4	In order to make the technical understanding of the language it is imperative to understand the grammatical components of English
CO5	Show awareness of appropriate format and the capacity of explaining the views in a rational manner.
CO6	Understand the relation between language and literature through textual reading and to enhance the readers' interest in Literature.

Syllabus:

Part-A

1. **Vocabulary Reading (10 Lectures)**

   1.1 The Concept of word formation. (50 words)

   1.2 Root words from foreign language and their use in English

   1.3 Prefixes, Suffixes and Collocation

Part-B

2. Basic Writing Skills (6 Lectures)

    2.1 Sentence Structure

    2.2 Use of Phrases and clauses in sentences

    2.3 Unity & Coherence in Writing

3. Writing Practices (6 Lectures)

    3.1 Comprehension

    3.2 Essay Writing (250-300words)

Part-C

4. Business Correspondence (8 Lectures)

    4.1 Letter to Editor

    4.2 Sales Letter

5. Grammar (04 Lectures)

    5.1 Parts of Speech

    5.2 Gerund & Infinitive

    5.3 Use of Tenses

Part-D

6. Text Reading (08 Lectures)

    6.1 The Road not taken by Robert Frost

    6.2 The World is too much with us by William Wordsworth

Suggested Readings/ Books

(i)   Practical English Usage. Michael Swan. OUP. 1995.

(ii)   Remedial English Grammar. F.T. Wood. Macmillan.2007

(iii)   On Writing Well. William Zinsser. Harper Resource Book. 2001

(iv)   Study Writing. Liz Hamp-Lyons and Ben Heasly. Cambridge University Press. 2006.

(v)   Communication Skills. Sanjay Kumar and PushpLata. Oxford University Press. 2011.

(vi)   Exercises in Spoken English. Parts. I-III. CIEFL, Hyderabad. Oxford University Press

AGEE- 21101 Basic Electrical & Electronics Engineering

B.Tech 1st / 2nd Semester

	L	T	P
	3	1	0

Objective/s and Expected outcome:

This course is mandatory for all the branches for understanding the basic concepts of Electrical and Electronics Engineering. Students of all branches have to deal with the applications of Electrical Engineering and Electronics Engineering. This course gives a basic knowledge of DC and AC circuits, solar energy, magnetic circuits, electrical machines, transducers, semiconductor devices, etc. with which a building of innovative technology can be created. The students are expected to learn and understand the importance and applications of electrical and electronics engineering. This knowledge gives them a brief outline of the fundamentals that would be the foundations of today's and tomorrow's technology.

S.No.	Course Outcomes (CO)
CO1	Verify the basic laws in electrical and electronics engineering and understand the concepts related to solar energy.
CO2	Understand the concept of DC and AC circuits – both single phase and three phases.
CO3	Understand the basic principles of magnetic fields and transformers.
CO4	Verify the working of DC and AC Motors and generators.
CO5	To understand the applications of various electronic devices like diodes, transistors, rectifiers, etc.
CO6	Understand the concept of transducers and logic gates.

Syllabus:

Part-A

Unit –I. Direct Current (DC) and Alternating Current (AC) Circuits   (14 Lectures)

Circuit elements, Ohm's Law, Kirchoff's Laws, Star-Delta Conversion, Superposition and Thevenin Theorem.

Introduction to Solar Energy: Operating principle of solar cells, photovoltaic effect, environmental impacts and practical applications

Representation of sinusoidal waveforms, Peak and RMS values, Analysis of single phase AC Circuits consisting of R, L, C, RL, RC and RLC, Introduction to balanced three phase system and its different types of connections.

Part-B

Unit -II. Magnetic Circuits and Static Machines   (8 Lectures)

Comparison between magnetic and electric circuits, Faraday's law of Electromagnetic Induction, Self and Mutual Induction

Single Phase Transformer: Working principle, Construction (Core and Shell type), Efficiency, and Autotransformer: Construction, Comparison with single phase transformer and industrial applications.

Part-C

Unit -III. Rotating Electrical Machines (8 Lectures)

D.C. machines (motor and generator), Three phase Induction motor, Single phase Induction motor: construction, working principle and industrial applications.

Part-D

Unit -IV. Transducers and Semiconductor Devices (8 Lectures)

Introduction, classification of transducers, LVDT: working principle, construction and industrial applications.

Application of diodes as rectifiers, Application of transistor as amplifier, Introduction to logic gates and its truth table.

Suggested Readings/ Books

1. Basic Electrical and Electronics and Computer Engineering by R Muthusubramanian, S Salivahanan,K A Muraleedharan, Tata McgrawHill
2. A Textbook of Electrical Techology by B.L Theraja.& A.K Theraja, S Chand publishers.
3. Electrical Technology, Edward Hughes, Addisin Wesley Longman Limited.
4. A Course in electrical and electronic Measurements & Instumentation by A.K Sawhney, Dhanpat Rai & Co.
5. Basic Electrical and Electronics Engineering by S.K. Sahdev, Uneek Publishers.

AGHV- 21101 Human Values and Professional Ethics

B.Tech 1st/ 2nd Semester

L	T	P
3	0	0

Objective/s and Expected outcome:

The objective is to help the students to understand Universal Human Values and the concept of Holistic Development. Students should be able to understand and do Self Exploration to establish harmony at all the levels of their existence. They become aware of Nine Definite Universal Human Values and their Natural Acceptance.

S.No.	Course Outcomes (CO)
CO1	To help the students to discriminate between valuable and superficial in life
CO2	To help students become Self-Aware
CO3	To help students to discriminate between the needs and activities of the "Self" and that of the "Body"
CO4	To help students to understand relationship between "Self-Regulation" and "Health"
CO5	To help students understand relationship in the Family, Society and that with the Nature, mother
CO6	To help students understand that the "Nature is Submerged in Space"

Syllabus:

Part-A

1. **Introduction to Value Education (10 Lectures)**

    1.1. Need for Value Education

    1.2. Self -Exploration as the Process for Value Education

    1.3. The Basic Human Aspirations- Continuous Happiness and Prosperity

    1.4. The Program to fulfil Basic Human Aspirations

Part-B

2. **Understanding the Human Being as Co-existence of Self ('I') and Body and Harmony in the Self ('I') (6 Lectures)**

    2.1. Understanding the Needs of the Body and Self('I')

    2.2. Understanding Body as an instrument of 'I'

    2.3. Understanding Body as an instrument of 'I'

    2.4. Understanding the activities in the Body and Self('I')

3. **Understanding Harmony in the Body and Harmony in the Family (6 Lectures)**

    3.1. Understanding relationship between Sanyama and Swasthya

    3.2. Understanding Nine Definite Values in Human Relationship

Part-C

4. **Understanding Harmony in the Society (8 Lectures)**

    4.1. Extending Relationship from Family to Society

    4.2. The Concept of Comprehensive Human Goal

    4.3. Discussions

5. **Harmony in Nature (04 Lectures)**

    5.1. The Four orders in Nature

    5.2. Recyclability and Self -Regulation in Nature

    5.3. Understanding the four orders in Nature

Part-D

6. **Harmony in Existence (08 Lectures)**

    6.1. Understanding Existence as Co-existence

    6.2. Co-existence of Units in Space

Suggested Readings/ Books

(vii)   A Foundation Course in Human Values and Professional Ethics. R R Gaur R Sangal G P Bagaria. Excel Books 2010.

(viii) Human Values & Professional Ethics. Smriti Srivastava 2011-12

(ix)   Human Values and Professional Ethics. Sanjeev Kumar Bhalla. Rupa Bhalla.Satya Prakashan New Delhi 2011-12

(x)   Human Values and Professional Ethics. Rishabh Anand. Satya Prakashan New Delhi. 2011-12.

(xi)   Human Values & Professional Ethics. K.S Sidhu. New Academic Publishing Co.Jalandhar. 2011

AGPH-21102 Engineering Physics Laboratory

(B. Tech 1ˢᵗ / 2ⁿᵈ Semester)

L	T	P
0	0	2

Note: **1) Each student is required to perform any five practical's from this list.**

2) Each student or a team of two or three students should make one project from the below mentioned list of projects

LIST OF EXPERIMENTS

1. To measure the length and diameter using Vernier caliper, screw gauge and travelling Microscope, use of plumbline and spirit level.

2. To determine the time period of simple pendulum for different length and acceleration due to gravity.

3. To study the laser beam characteristics like wave length using diffraction grating aperture.

4. To find divergence of given laser beam.

5. To determine attenuation & propagation losses in an optical fibre.

6. To determine the grain size of a material using optical microscope.

7. Use a multimeter for measuring (a) resistance (b) ac and dc voltages(c) dc current (d) capacitance (e) checking electrical fuses.

8. To study the dielectric constant and polarizability of dielectric material.

9. To find out the frequency of AC mains using electric-vibrator.

10. To determine the band gap of a semiconductor material.

11. To determine the numerical aperture of given optical fiber and hence to find its acceptance angle.

12. To analyze the suitability of Zener diode as voltage regulator.

PROJECT ORIENTED

Designing and developing demo models of series and parallel circuits.

Design and develop demo model for exploring concepts in current and voltage with a Vande-Graff Generator.

Design and develop demo model of homemade generators and emergency lamps.

Design and develop demo model of Mini Maglev train.

Design and develop demo model of electromagnetic motor.

Design and develop demo model to check speed of sound at Room Temperature.

Design and develop working model of elevator using Magnetic levitation.

Design and develop a portable mobile charger.

Design and develop working model of laser security system

Design and develop working model for studying phenomenon of electromagnetic induction.

Design and develop working model of Electromagnetic suction

Suggested Readings / Books

1. Practical Physics, C.L. Arora, S. Chand & Company Ltd.
2. Practical Physics, R.S. Sirohi, Wiley Eastern.
3. Advanced Practical Physics for students, B.L. Flint and H.T. Workshop, 1971, Asia Publishing House.
4. Practical Physics, G.L.Squires, Cambridge University Press, Cambridge, 1985
5. https://vlab.amrita.edu/index.php?sub=1
6. http://www.vlab.co.in
7. physicsandbox.com/projects/double_pendulum.com
8. 1000sciencefairprojects.com
9. Seminarsonly.com/engineering-projects/physics
10. https://learning-center.homesciencetools.com/article/electromagnetism-science-project/

AGHU-21103 English-I Lab

(B. Tech 1st Semester)

L	T	P
0	0	2

1. Listening Comprehension

Listening comprehension encompasses the multiple processes involved in understanding and making sense of spoken language. These include recognizing speech sounds, understanding the meaning of individual words, and/or understanding the syntax of sentences in which they are presented. Listening comprehension is the precursor to reading comprehension, so it's an important skill to develop. Listening comprehension isn't just hearing what is said—it is the ability to understand the words and relate to them in some way.

2. Communication at Work Place

Workplace communication is the means by which employees exchange information and ideas. Communicating effectively is a critical aspect of getting any job done, whether it occurs in-person or virtually and is part of the internal communications efforts within an organization.

Examples include annual reports, research reports, budgetary reports, or when employees submit their suggestions. Employees also feel important when there is downward communication which is information flowing from superiors to employees.

3. Self Introduction

A self-introduction for interview or otherwise is an extended version of an elevator pitch where you are the 'idea'. A self-introduction for interview, for instance, would comprise your name, your current designation and a few experiences tied in with the job role. It can set you apart in a job interview, make you stand out at a networking event and captivate the audience during a presentation. Your introduction can be what gets your foot in the door. If you want to distinguish yourself in a job interview, your introduction is your best shot.

4. Daily Conversations

There are many people who have a good hold on grammar but when it comes to daily English conversation dialogues, they start fumbling. But this situation can easily be avoided by learning some basic daily life English dialogues and practising those.

AGEE-21102 Basic Electrical & Electronics Engineering Lab
(B. Tech 1st / 2nd Semester)

	L	T	P
	0	0	2

Objective/s and Expected outcome:

OBJECTIVE: The objective of Basic Electrical and Electronics Engineering Laboratory is to learn the practical experience with operation and applications of electromechanical energy conversion devices such as DC machines, transformers, three phase induction motors and alternators. It also aims to get the knowledge of the different electronic devices like diodes, rectifiers, transistors, logic gates and how these devices are used in real time applications. It also makes the students to learn how to measure the electrical quantities with different measuring devices and to check the output from solar panels.

Section A

1. To test the various components using Multimeter.
2. To verify Ohm's Law and its limitations.
3. To verify Kirchoff's Laws.
4. To find voltage-current relationship in a R-L series circuit and to determine the power factor of the circuit.
5. To study the voltage and current from solar panel output.
6. To start and reverse the direction of rotation of a 3-phase Induction motor.
7. To verify the working of LVDT
8. To obtain the characteristics of a P-N junction diode.
9. To verify the various waveforms for rectifier circuits.
10. To verify the truth table of logic gates.

Section B (Project Oriented)

1. Design and develop the demo model for electric fan.
2. Design and develop the demo model for dancing LED lights.
3. Design and develop the demo model for mixer-grinder.
4. Design and develop the demo model to check the continuity of supply.
5. Design and develop the demo model for water irrigation system using solar panel.
6. Design and develop the demo model for home lightning system using solar panel.
7. Design and develop the demo model for mobile charger using solar panel.
8. Design and develop the demo model for clap switch.
9. Electric model for equivalent circuit of logic gates using discrete components.

AGMP- 21101 Manufacturing Practice

B.Tech 1st / 2nd Semester

L	T	P
0	0	4

Expected Objectives:

• To develop a skill in dignity of labour, precision, safety at work place, team working and development of right attitude.

• To acquire skills in basic engineering practice

• To identify the hand tools and instruments

• To gain measuring skills

• To develop general machining skills in the students

S.No.	Course Outcomes (CO)
CO 1	Identify the basics of tools and equipment used in Foundry Shop and welding shop. Also understand the various processes of Foundry shop and welding shop.
CO 2	Identify the basics of tools and equipment's used in Smithy shop and fitting shop. Also understand the basic processes of Smithy shop and Fitting shop.
CO 3	To make an ability to understand the various tools and processes performed in Machine Shop.
CO 4	To make an ability to understand the various tools used in Electrical and Electronic shop. Also make an ability to understand the exercises used in preparing PCB.
CO 5	Identify the basics of tools and equipment's used in carpentry shop. Also familiarize with the production of models in Sheet Metal shop
CO 6	.Identify the basics of tools and equipment's used in carpentry shop. Also familiarize with the production of simple models in carpentry shop

Syllabus:

Part A

Foundry Shop: Introduction to molding materials; moulds; use of cores; melting furnaces; tools and equipment used in foundry shops; firing of a cupola furnace; exercises involving preparation of small sand moulds and castings.

Welding Shop: Introduction to different welding methods; welding equipment; electrodes; welding joints; welding defects; exercises involving use of gas/electric arc welding.

Part B

Forging Practice: Introduction to forging tools; equipments and operations; forgability of metals; exercises on simple smithy; forging exercises.

Fitting Shop: Introduction of fitting practice and tools used in fitting shop; exercise involving marking, cutting, fitting practice (Right Angles), male- Female mating parts practice, trapping practice.

Part C

Machine Shop: Machines, Grinders etc; cutting tools and operations; exercises involving awareness.

Electrical and Electronics Shop: Introduction to electrical wiring; preparation of PCBs involving soldering applied to electrical and electronic applications; exercises preparation of PCBs involving soldering applied to electrical and electronic applications.

Part D

Sheet Metal: Shop development of surfaces of various objects; sheet metal forming and joining operations, joints, soldering and brazing; exercises involving use of sheet metal forming operations for small joints.

Carpentry and Pattern Making: Various types of timber and practice boards,defects in timber, seasoning of wood; tools, wood operation and various joints; exercises involving use of important carpentry tools to practice various operations and making joints.

AGCH- 21101 Engineering Chemistry

B.Tech 1st / 2nd Semester

	L	T	P
	3	1	0

Objective/s and Expected outcome:

The objective of Engineering Chemistry is to acquaint the students with the basic phenomenon/ concepts, and resolve their doubts which they doubts which they face during course of their study in the industrial and engineering fields. Some new topics have been introduced to the syllabus for the development of the right attitudes in the engineering students so that they may be made abreast with the continuous flow of new technology. The students with the knowledge of the basic chemistry will understand and scientifically explain the problems related to chemistry in the industrial/engineering field. The students will be able to understand the new developments and breakthroughs efficiently in engineering. The introduction of the new topics will make the Engineering students upgraded with the new technological innovations.

S.No.	Course Outcomes (CO)
	Students will be able to understand
CO1	Periodic properties and arrangement of elements in periodic table according to electronic configuration.
CO2	Types of polymers, application of Polymers and their properties
CO3	Difference between hard & soft water, Different treatments for Purification of municipal water
CO4	Understand the causes of corrosion, its consequences and methods to minimize corrosion to improve industrial designs.
CO5	Properties and Separation techniques of petrochemicals, Use of Nanomaterial's in various fields i.e. medicines, data storage and electronics, Importance of Engineering Materials (Cement, Adhesives etc.)
CO6	Students will be able to evaluate fundamentals of electrochemistry, electrodes and cell.

Syllabus:

Part-A

Unit-1 Periodic Properties (4 Lectures)

Effective Nuclear charge, penetration of orbitals, variations of s, p, d & f orbital, energies of atoms in periodic table, electronic configurations, atomic & ionic sizes, Ionization energies, electron affinity and electronegativity, polarizability, oxidation states, coordination numbers and geometries, hard & soft acids & bases, Molecular geometries based on VSEPR theory.

Unit-II Polymers:

Introduction; Functionality; Types of polymerization; Specific features of polymers-Structure, regularity and irregularity; Tactility of polymers; Average molecular weights and its determination by different methods; Effect of molecular weight on the properties of polymers; Organic conducting and Biodegradable Polymers (PMMA, Polystyrene, Teflon, Neoprene, Buna-S, Buna-N, Nylon 6, Nylon 6 6, Terylene); Vulcanization of rubber; Applications of polymers.

Part-B

Unit-III Water and its Treatment:

Introduction; Hardness of water- Types, units and estimation. Boiler feed water-Specification, Scales and sludge formation; Priming & foaming; Boiler Corrosion; Caustic Embrittlement; Treatment of Boiler Feed Water- External and Internal treatment; Different methods of the water softening- Lime soda process, Zeolite process and Ion exchange process; Desalination of water; Water for domestic use- Specification, Disinfection of water.

Unit-IV Corrosion and its Prevention:

Introduction; Different types of corrosion - Wet and Dry corrosion; Different types of surface films; Mechanisms of wet corrosion; Galvanic Series; Types of Electrochemical Corrosion: Galvanic corrosion; Differential aeration corrosion; Pitting corrosion; waterline; stress corrosion; Crevices corrosion; Protective Measures against corrosion- Metallic coatings; Electrochemical Protection; Organic Coatings; Cathodic protection: Sacrificial anodic protection; Impressed current cathodic protection

Part-C

Unit-V Engineering Materials, Nanomaterials and Applications:

Introduction to Engg. Materials; Cementing and Binding materials; lime; Gypsum; Cement; Ceramics; Lubricants; Adhesives; Properties and Uses; Nanomaterials; Nanoscience and Nanotechnology and Applications.
Introduction; Primary Raw Materials for Petrochemicals; First, second & third generation petrochemicals. Crude oil: Classification of crude oil; Physical separation processes; Natural gas: Properties; Applications; Benefits; Production of ethylene.

Part-D

Unit-VII Electrochemistry

Introduction, types of electrolytes, Electrolysis-Definition, Mechanism and Industrial application of Electrolysis. Industrial applications of Electrolysis. Electrochemical Cell, galvanic cell, Primary battery (construction , working and use of dry cell), Secondary battery (Construction & working of lead acid storage battery), Non-Conventional Energy sources-Solar Cell–Definition- Principle, Construction, Working & uses. Free energy and EMF. Cell potentials, the Nernst equation and applications.

Suggested Readings/ Books

(xii)   Engg.Chemistry by Jain & Jain.

(xiii) Engg.Chemistry by R.S Grewal..

(xiv)   Jones, Denny, Principles and prevention of corrosion, Upper Saddle River, New Jersey:

Prentice Hall, 2nd edition, 1996.

(xv)   Engg. Chemistry by B.Sivasankar, Mc Geaw Hill.

(xvi)   C.P. Poole, Jr, F.J Owens, Introduction to Nanotechnology, Wiley Interscience.2003.

AGES-21101 Environmental Studies

B.Tech 1st / 2nd Semester

L	T	P
2	**0**	**0**

Objective/s and Expected outcome:

(a) Creating the awareness about environmental problems among people.

(b) Imparting basic knowledge about the environment and its allied problems.

(c) Developing an attitude of concern for the environment.

(d) Motivating public to participate in environment protection and environment improvement.

(e) Acquiring skills to help the concerned individuals in identifying and solving environmental problems.

(f) Striving to attain harmony with Nature.

S.No.	Course Outcomes (CO)
	Students will be able to understand
CO1	To understand the multidisciplinary nature of environmental sciences.
CO2	Understanding of natural resources, Different types of natural resources, & role of individual in conserving natural resources.
CO3	Explain the interlink between biotic & abiotic components of ecosystem. Energy flow & nutrition flow in ecosystem.
CO4	Understanding the existence of different species in ecosystem, Value of biodiversity, India as a mega biodiversity.
CO5	Understanding of different types of pollutions, their causes, Nuclear hazards & role of individual in prevention of air pollution.
CO6	Students will be able to recognize the social issues related to environment, they will understand how to transform from unsustainable to sustainable development.

Part-A

Unit 1: Multidisciplinary nature of environmental studies   (2 lectures)

Definition, scope and importance need for public awareness.

Unit 2: Natural Resources: (8 lectures)

Renewable and non-renewable resources:

Natural resources and associated problems. a) Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forest and tribal people. b) Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems. c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies. d) Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies. e) Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources. Case studies. f) Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification.• Role of an individual in conservation of natural resources. • Equitable use of resources for sustainable lifestyles.

Part-B

Unit 3: Ecosystems (6 lectures)

• Concept of an ecosystem.

• Structure and function of an ecosystem.

• Producers, consumers and decomposers.

• Energy flow in the ecosystem.

• Ecological succession.

• Food chains, food webs and ecological pyramids.

• Introduction, types, characteristic features, structure and function of the following ecosystem :-

a. Forest ecosystem

b. Grassland ecosystem

c. Desert ecosystem

d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

Unit 4: Biodiversity and its conservation (8 lectures)

• Introduction – Definition: genetic, species and ecosystem diversity.

• Bio geographical classification of India

• Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values

• Biodiversity at global, National and local levels.

• India as a mega-diversity nation

• Hot-sports of biodiversity.

• Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts.

• Endangered and endemic species of India

• Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

Part-C

Unit 5: Environmental Pollution (8 lectures)

Definition, Cause, effects and control measures of:-

a. Air pollution

b. Water pollution

c. Soil pollution

d. Marine pollution

e. Noise pollution

f. Thermal pollution

g. Nuclear hazards

• Solid waste Management: Causes, effects and control measures of urban and industrial wastes.

• Role of an individual in prevention of pollution.

• Pollution case studies.

• Disaster management: floods, earthquake, cyclone and landslides.

Unit 6: Social Issues and the Environment (7 lectures)

• From Unsustainable to Sustainable development

• Urban problems related to energy

• Water conservation, rain water harvesting, watershed management

• Resettlement and rehabilitation of people; its problems and concerns. Case Studies

• Environmental ethics: Issues and possible solutions.

• Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust.

Case Studies.

• Wasteland reclamation.

• Consumerism and waste products.

• Environment Protection Act.

• Air (Prevention and Control of Pollution) Act.

• Water (Prevention and control of Pollution) Act

• Wildlife Protection Act

• Forest Conservation Act

• Issues involved in enforcement of environmental legislation.

• Public awareness.

Part-D

Unit 7: Human Population and the Environment   (6 lectures)

• Population growth, variation among nations.

• Population explosion – Family Welfare Programme.

• Environment and human health.

• Human Rights.

• Value Education.

• HIV/AIDS.

• Women and Child Welfare.

• Role of Information Technology in Environment and human health.

• Case Studies.

Unit 8: Field work (Field work Equal to 5 lecture hours)

• Visit to a local area to document environmental assets river/ forest/grassland/hill/mountain

• Visit to a local polluted site-Urban/Rural/Industrial/Agricultural

• Study of common plants, insects, birds.

• Study of simple ecosystems-pond, river, hill slopes, etc.

Suggested Readings/ Books

I.   Agarwal, K.C. 2001 Environmental Biology, Nidi Publ. Ltd. Bikaner.

II.   Bharucha Erach, The Biodiversity of India, Mapin Publishing Pvt. Ltd.,

      Ahmedabad – 380 013, India, Email:mapin@icenet.net (R)

III. Brunner R.C., 1989, Hazardous Waste Incineration, McGraw Hill Inc. 480p

IV.   Clark R.S., Marine Pollution, Clanderson Press Oxford (TB)

V.   Cunningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 2001,

VI.   Environmental Encyclopedia, Jaico Publ. House, Mumabai, 1196p

VII. De A.K., Environmental Chemistry, Wiley Eastern Ltd.

VIII. Down to Earth, Centre for Science and Environment (R)

AGAM-21102 Mathematics-II

(B. Tech 2nd Semester)

	L	T	P
	3	0	0

Objective/s and Expected outcome: The learning objectives of core mathematics courses can be put into three categories: Content Objectives: Students should learn fundamental mathematical concepts and how to apply them. Skill Objectives: Students should learn critical thinking, modeling/problem solving and effective uses of technology. Communication Objectives: Students should learn how to read mathematics and use it to communicate knowledge. The students are expected to understand the fundamentals of the mathematics to apply while designing technology and creating innovations.

S.No.	Course Outcomes (CO)
CO1	Recognize partial derivative and multiple integral concepts that are encountered in the real world, understand and be able to communicate the underlying mathematics involved to help another person gain insight into the situation.
CO2	To set up and evaluate multiple integrals for regions in the plane. To find Area of the region bounded by curves and to find volume, surface area,
CO3	To be able to apply the knowledge of first order ordinary differential equation in different engineering applications.
CO4	To understand the formation of Differential equation from the given physical problems and to solve first orders ordinary differential equation by various methods.
CO5	To understand how quadratic equations lead to complex numbers. To write complex numbers in polar form, compute exponential and integrals powers of complex numbers. To apply De-Moivre's theorem to determine roots of polynomial and can express hyperbolic, inverse hyperbolic functions.
CO6	Understand the significance of differentiability for complex functions and be familiar with the Cauchy-Riemann equations

Syllabus:

Part-A

1. **Multiple Integrals (10 Lectures)**

1.1 Multiple Integration:

1.2 Double integrals (Cartesian),

1.3 Change of order of integration in double integrals,

1.4 Change of variables (Cartesian to polar),

1.5 Applications: areas and volumes.

1.6 Triple integrals (Cartesian), scalar surface integrals, vector surface integrals,

1.7 Theorems of Green, Gauss and Stokes

Part-B

2. Ordinary Differential Equations (8 Lectures)

2.1 Exact differential equation

2.2 reducible to exact form by integrating factors;

2.3 Equations of the first order and higher degree.

2.4 Clairaut's equation.

2.5 Leibniz's linear and Bernoulli's equation

Part-C

3. Linear Ordinary Differential Equations (10 Lectures)

3.1 Solution of linear Ordinary Differential Equations of second and higher order;

3.2 Methods of finding complementary functions and particular integrals.

3.3 Special methods for finding particular integrals:

3.4 Method of variation of parameters, Operator method.

3.5 Cauchy's homogeneous and Legendre's linear equation

Part-D

4. Complex Numbers and elementary functions of complex variable (8 Lectures)

4.1 De-Moivre's theorem and its applications.

4.2 Real and Imaginary parts of exponential, logarithmic functions of complex variables.

4.3 Summation of trigonometric series. (C+iS method)

5. Complex Variable (6 Lectures)

5.1 Differentiation, Cauchy-Riemann equations,

5.2 Analytic functions,

5.3 Harmonic functions, finding harmonic conjugate; elementary analytic functions,

5.4 Conformal mappings

Suggested Readings / Books:

1. Kreyszig,E., Advanced Engineering Mathematics, Eighth edition, John Wiley.

2. Michael D. Greenberg., Advanced Engineering Mathematics, Second Edition, Pearson Education.

3. Peter. V. O'Nil, Advanced Engineering Mathematics, Wadsworth- Publishing Company.

4. Jain, R.K. and Iyengar, S.R.K., Advanced Engineering Mathematics, Narosa Publishing House, New Delhi.

5. Grewal, B.S., Higher Engineering Mathematics, Khanna Publishers, Delhi.

6. Pipes, L.A. and Harvill, L.R., Applied Mathematics for Engineers and Physicists, McGraw Hill

7. Taneja, H. C., Engineering Mathematics, Volume-I & Volume-II, 1. K. Publisher.

8. Babu Ram, Advance Engineering Mathematics, Pearson Education.

9. Bindra, J. S., Applied Mathematics, Volume-II, Kataria Publications.

AGCS- 21101 Programming for Problem Solving

B.Tech 1st / 2nd Semester

L	**T**	**P**
3	**0**	**0**

Objective/s and Expected outcome:

S.No.	Course Outcomes (CO)
CO1	To understand the basic building blocks of general purpose digital computer system like computer hardware/software, memory and peripheral devices.
CO2	To understand the program development life cycle using various tools like flowcharts and algorithms and pseudo-code.
CO3	Identify solution for a problem and apply control structures & UDFs to solve it.
CO4	To understand the concept of modular programming and code reusability using library functions.
CO5	Understand the concept of structures, unions and pointers.
CO6	To develop small application related to real world using the concept of file handling.

Syllabus:

Part-A

Unit 1 (5 Lectures)

Introduction to Computers, Components of a computer system along with block diagram of a computer. Disks, memory, processor, where a program is stored and executed, Operating system- its need and functions, interpreters and compilers .

Idea of Algorithm: Steps to solve logical and numerical problems. Representation of Algorithm, Flowchart/Pseudo code with examples.

Part-B

Unit 2

Introduction to Programming: From algorithms to programs; source code, variables and memory locations, Syntax and Logical Errors in compilation, object and executable code, Data types in C, Operators: Unary and binary. Categories of operators: Arithmetic, relational, logical, conditional, increment/decrement. Arithmetic expressions and precedence of operators. Data input/output using scanf() and printf() functions along with their different formats. Examples on Operators. (5 lectures)

If, If else, if else if ladder, nested if statements, Switch case statement (3 lectures)

Iteration and loops using while, do-while and for loops. Concept of nested loops concept, continue statement, break statement (3 lectures)

Arrays: Arrays (1-D, 2-D) declaration, initialization, accessing elements, searching and sorting of elements (3 Lectures)

Characters in C: getchar() and putchar() functions along with their variations. Examples based on these. Strings in C: String handling functions such as strupr(), strlwr(), strcat(), strrev(), strlen(), strcpy() (3 Lectures)

Part-C

Unit 3

Functions in C : Functions (including using built in libraries), parameter passing in functions, call by value and call by reference, Passing arrays to functions, passing strings to functions, Storage Classes in C (4 Lectures).

Recursion : Concept and usage of Recursion, examples on recursion (2 Lectures)

Structures : Defining structures, initialising a structure, structure assignment, array of Structures, Nesting of Structures (3 lectures).

Unions: Defining a union, Structures Vs Unions. (1 Lecture).

Pointers: Idea of pointers, Defining pointers, Pointer arithmetic, void pointer, pointer with arrays, pointer with strings, pointer with structures. Array of Pointers malloc(), calloc(),realloc() and free() functions usage (3 Lectures).

Part-D

Unit 4

File handling: File opening modes, writing in a file, reading from a file, copying a file to anotherfile. Errors in file handling. (6 Lectures).

Suggested Text Books

    (i)   Byron Gottfried, Schaum's Outline of Programming with C, McGraw-Hill

    (ii)   E. Balaguruswamy, Programming in ANSI C, Tata McGraw-Hill Suggested

AGHU-21102 English-II

(B. Tech 2nd Semester)

L	**T**	**P**
3	**0**	**0**

Objective/s and Expected outcome:

The objective is to help the students to become independent users of English language. Students should be able to understand spoken and written English language of varied complexity on most including some abstract topics; particularly the language of their chosen technical field. They must show awareness of appropriate format and a capacity for explaining their views in a rational manner. The students should be able to converse fluently, without strain with international speakers of English in an accent and lexis that is widely understood across the globe. They will be able to produce on their own texts which are clear and coherent.

S.No.	Course Outcomes (CO)
CO1	It will help the students to develop their communicative skills for their forthcoming professional needs.
CO2	The students will be able to think accurately, clearly and deeply to perform well in all communicative contexts. The students would be able to organize the material and present in a concrete and interesting manner before the audience and will become independent users of English Language.
CO3	It will bring about a real understanding in the students of the need to use English in their everyday life.
CO4	In order to make the technical understanding of the language it is imperative to understand the grammatical components of English
CO5	Show awareness of appropriate format and the capacity of explaining the views in a rational manner.
CO6	Understand the relation between language and literature through textual reading and to enhance the readers interest in Literature.

Syllabus:

Part-A

1. **Vocabulary Reading (10 Lectures)**

    1.1 The Concept of word formation. (other 50 words)

    1.2 Root words from foreign language and their use in English

    1.3 Synonyms & Antonyms

    1.4 Homonyms, Homophones & Homographs

Part-B

2. **Writing Practices (6 Lectures)**

    2.1 Article Writing

    2.2 Comprehension

3. **Business Correspondence (5 Lectures)**

    3.1 Office Correspondence Writing

    3.2 Precis Writing

Part-C

4. **Text Reading (12 Lectures)**

    4.1 The School for Sympathy by E V Lucas

    4.2 The Beauty and the Beast by R K Narayan

Part-D

5. **Grammar (8 Lectures)**

    5.1 Common Errors in English

    5.2 Active & Passive Voice

    5.3 Direct & Indirect Speech

Suggested Readings/ Books

(i) Practical English Usage. Michael Swan. OUP. 1995.

(ii) Remedial English Grammar. F.T. Wood. Macmillan.2007

(iii)On Writing Well. William Zinsser. Harper Resource Book. 2001

(iv)Study Writing. Liz Hamp-Lyons and Ben Heasly. Cambridge University Press. 2006.

(v) Communication Skills. Sanjay Kumar and PushpLata. Oxford University Press. 2011.

(vi)Exercises in Spoken English. Parts. I-III. CIEFL, Hyderabad. Oxford University Press.

AGHU-21104 English-II Lab

(B. Tech 2nd Semester)

L	T	P
0	0	2

1. Listening Comprehension

Listening comprehension encompasses the multiple processes involved in understanding and making sense of spoken language. These include recognizing speech sounds, understanding the meaning of individual words, and/or understanding the syntax of sentences in which they are presented. Listening comprehension is the precursor to reading comprehension, so it's an important skill to develop. Listening comprehension isn't just hearing what is said—it is the ability to understand the words and relate to them in some way.

2. Pronunciation

Rhythm is about how we use a combination of stressed and unstressed words in sentences. Sentences have strong beats (the stressed words) and weak beats (the unstressed words). Intonation is the way the pitch of a speaker's voice goes up or down as they speak. We use intonation to help get our message across. Stress refers to an increased loudness for a syllable in a word or for a word in a phrase, sentence, or question. Intonation and stress are important because they assist in communicating additional meaning to an utterance.

3. Group Discussion

Group Discussion or GD is a type of discussion that involves people sharing ideas or activities. People in the group discussion are connected with one basic idea. Based on that idea, everyone in the group represents his/her perspective. GD is a discussion that tests the candidate's skills, such as leadership skills, communication skills, social skills and behavior, politeness, teamwork, listening ability, General awareness, confidence, problem-solving skills, etc.

4. Formal Presentations

Formal presentations usually include a PowerPoint or slideshow of some sort so your audience can follow along. -Include questions for audience interaction. A formal presentation should engage the audience. You can end a formal presentation with a Q&A session or you can ask questions along the way after each point.

AGCH- 21102 Engineering Chemistry Lab

B.Tech 1st / 2nd Semester

	L	T	P
	0	0	2

Objective/s and Expected outcome:

The chemistry laboratory course will consist of experiments illustrating the principles of chemistry relevant to the study of science and engineering. The students will learn to:

S.No.	Course Outcomes (CO)
CO1	Synthesize a small drug molecule and analysis a salt sample
CO2	To Acquire knowledge about the nature of hardness of water
CO3	To give knowledge about the separation techniques such as chromatography
CO4	Measure molecular/ system properties such as surface tension, viscosity, conductance of solution, redox potentials, Chloride content of water etc
CO5	To understand the concept of Conductivity

Choice of 08-09 experiments from the following

1. Synthesis of a polymer/drug (Urea formaldehyde & phenol formaldehyde resin.)

2. To separate Red & blue ink mixture using Paper Chromatography.

3. Determination of surface tension of unknown liquid using stalagmometer.

4. Determination of viscosity of unknown liquid using Ostwald Viscometer.

5. Determination of hardness of water using EDTA method.

6. Determination of strength of acid using conducto meter.

7. Determination of cell constant and conductance of solutions

8. Determination of Flash and Fire point by Abbe's Apparatus.

9. Determination of dissolved oxygen in given water sample.

AGME-21101 (Engineering Graphics & Design)

B.Tech 1ˢᵗ Semester

L	T	P
1	0	6

Objective/s and Expected outcome:

Main objective of the Engineering Drawing is to introduce the students to visual science in the form of technical graphics. General instructions related to Theory of Orthographic Projection of points, lines, planes and solids as per the BIS codes prevalent to drawing practice will be introduced initially. Section of solids, intersection and development of surfaces, isometric projection and orthographic projection of simple solids/blocks will further upgrade the basic understanding and visualization of geometrical objects and to certain extent the machine parts

S.No.	Course Outcomes (CO)
CO1	It will help the students to know and understand the different type of lines and use the drawing instruments effectively
CO2	The students will be able to know how to represents letters, numbers and scale in drawing sheets
CO3	It will help the students to know and understand the projection of points, lines, planes and sectional view of solid
CO4	The students will be able to draw the views related to isometric projections
CO5	The students will comes to know about how to Create and modify two-dimensional orthographic drawings using AutoCAD software, complete with construction lines, dimensions, and layers.
CO6	To know about how to Create three-dimensional solid models using AutoCAD software, and set up of drawing page and printer

Syllabus:

Part-A

Module 1: Introduction to Engineering Drawing

Principles of Engineering Graphics and their significance, usage of Drawing instruments. Symbols and conventions in drawing Practice. Types of lines and their use, lettering,; Scales – Plain and Diagonal Scales;

Module 2: Orthographic Projections covering,

Principles of Orthographic Projections-Conventions - Projections of Points and lines inclined to both planes; Projections of planes inclined Planes - Auxiliary Planes;

Part-B

Module 3: Projections of Regular Solids

Those inclined to both the Planes- Auxiliary Views; Draw simple annotation, dimensioning and scale. Floor plans that include: windows, doors, and machine parts

Module 4: Sections and Sectional Views of Right Angular Solids

Prism, Cylinder, Pyramid, Cone – Auxiliary Views; Development of surfaces of Right Regular Solids - Prism, Pyramid, Cylinder and Cone; Draw the sectional orthographic views of geometrical solids,

Part-C

Module 5: Isometric Projections

Principles of Isometric projection – Isometric Scale, Isometric Views, Conventions; Isometric Views of lines, Planes, Simple and compound Solids; Conversion of Isometric Views to Orthographic Views and Vice-versa, Conventions;

Module 6: Overview of Computer Graphics

listing the computer technologies that impact on graphical communication, Demonstrating knowledge of the theory of CAD software [such as: The Menu System, Toolbars (Standard, Object Properties, Draw, Modify and Dimension), Drawing Area (Background, Crosshairs, Coordinate System), Dialog boxes and windows, Shortcut menus (Button Bars), The Command Line (where applicable), The Status Bar, Different methods of zoom as used in CAD, Select and erase objects.; Isometric Views of lines, Planes, Simple and compound Solids

Part-D

Module 7: Customizations & CAD Drawing

consisting of set up of the drawing page and the printer, including scale settings, Setting up of units and drawing limits; ISO and ANSI standards for coordinate dimensioning and tolerancing; Orthographic constraints, Snap to objects manually and automatically; Producing drawings by using various coordinate input entry methods to draw straight lines, Applying various ways of drawing circles;

Module 8: Annotations, layering & other functions

applying dimensions to objects, applying annotations to drawings; Setting up and use of Layers, layers to create drawings, Create, edit and use customized layers; Changing line lengths through modifying existing lines (extend/lengthen); Printing documents to paper using the print command; orthographic projection techniques; Drawing sectional views of composite right regular

geometric solids and project the true shape of the sectioned surface; Drawing annotation, Computer-aided design (CAD) software modeling of parts and assemblies. surface, wireframe models. Part editing and two-dimensional documentation of models, isometric, multiview, auxiliary, and section views. Dimensioning guidelines, tolerancing techniques;

Suggested Text/Reference Books:

(i) Bhatt N.D., Panchal V.M. & Ingle P.R., (2014), Engineering Drawing, Charotar Publishing House

(ii) Gill P S, "Engineering Graphics and Drafting", Katria and Sons, Delhi.

(iii) Shah, M.B. & Rana B.C. (2008), Engineering Drawing and Computer Graphics, Pearson Education

(iv) Agrawal B. & Agrawal C. M. (2012), Engineering Graphics, TMH Publication

(v) Narayana, K.L. & P Kannaiah (2008), Text book on Engineering Drawing, Scitech Publishers Corresponding set of) CAD Software Theory and User Manuals

AGCS- 21102 Programming for Problem Solving Lab

B.Tech 1st / 2nd Semester

	L	T	P
	0	0	4

Course Outcomes:

CO1 Understand the programming in IDE (Integrated Development Environment) and write, execute and debug

CO2 Interpret the programming tasks logically and understand making the pseudo-code

CO3 Design and implement basic programming solutions including statements, macros, control

CO4 Understand and apply the concept of Array and Strings to solve problem statement.

CO5 Understand the concepts of Function modules, its usage and memory allocation using Pointers

CO6 Understand and apply the concepts of structures and unions: declaration, initialization

Detailed Lab Syllabus:

- **Fundamentals & Decision Control Statements:** Familiarization with programming environment, Simple computational problems using arithmetic expressions . Problems involving if-then-else structures: If, If else, If else if ladder, nested if. Switch case statement Iterative problems : Programs using While, Do while and For loops.

- **Arrays & Strings**: 1D Arrays: Creation, initialisation, accessing, searching, sorting. 2D arrays : Creation, initialisation, accessing , matrix problems. Strings : Creation, accessing and implementation of all string operations

- **Function and Pointers**: Functions (including using built in libraries), Parameter passing in functions, call by value, call by reference, Passing arrays to functions, passing strings to functions. Defining pointers, Pointer arithmetic, void pointer, pointer with arrays, pointer with strings, pointer with structures. Array of Pointers, Storage Classes.

- **Structures and Unions**: Structures, Defining structures, initialising a structure, structure assignment and Array of Structures, Nesting of Structures, Implementing Unions.

- **File handling**: implementation of all File modes, writing in a file, reading from a file, copying a file to another file.

  One Minor Project using File handling in a group of 2-3 students

  (Insert, Delete, Update, Display and Search modules should be covered by each project)

  Choose any theme from below

  - E Commerce
  - Flight Reservations system

- Restaurant Management system
- Railway Reservation system
- Inventory Management system
- Book store management system
- Cineplex Management system
- Hotel booking management system
- Medical Store management system
- Library Management system
- Banking management system