

E.G.S. PILLAY ENGINEERING COLLEGE

(Autonomous)

Approved by AICTE, New Delhi | Affiliated to Anna University, Chennai
Accredited by NAAC with 'A' Grade | Accredited by NBA (CSE, EEE, MECH)

NAGAPATTINAM – 611 002



B.E. Civil Engineering

Full Time Curriculum and Syllabus

First Year – Second Semester

Course Code	Course Name	L	T	P	C	Maximum Marks		
						CA	ES	Total
Theory Course								
1701MA201	Engineering Mathematics II	3	2	0	4	40	60	100
1701PH203	Material Science	3	0	0	3	40	60	100
1701CH201	Environmental Studies	3	0	0	3	40	60	100
1701GEX01	Basic Electrical and Electronics Engineering	3	0	0	3	40	60	100
1701GEX02	Engineering Graphics	2	2	0	3	50	50	100
1701GEX03	Programming in 'C'	3	0	0	3	40	60	100
	Language Elective	3	0	0	3	100	-	100
Laboratory Course								
1701HS251	Physics and Chemistry Lab II	0	0	2	1	50	50	100
1701GEX51	Programming in 'C' Lab	0	0	2	1	50	50	100
1701GEX52	Communication Skill Lab	0	0	2	1	50	50	100

L – Lecture | T – Tutorial | P – Practical | C – Credit | CA – Continuous Assessment | ES – End Semester

1701MA201

ENGINEERING MATHEMATICS II

(Common to all B.E / B.Tech Degree Programmes)

L	T	P	C
3	2	0	4

COURSE OBJECTIVES:

1. To develop an understanding of the standard techniques of Complex variable theory to apply in areas such as heat conduction, elasticity, fluid Dynamics and flow of electric current
2. To train the students with the concepts of Vector calculus needed for problems in all Engineering Disciplines
3. To make the Students apply Laplace Transform to create a new domain in which it is easier to handle the problem that is being investigated

UNIT I ANALYTIC FUNCTIONS

9 Hours

Analytic functions – Cauchy Riemann Equations – Properties – Determination of Analytic function using Milne Thomson’s method, Conformal Mappings – Mappings of $w = z + a$, az , $1/z$ – Bilinear Transformation – Application of Analytic Functions.

UNIT II COMPLEX INTEGRATION

9 Hours

Cauchy’s fundamental theorem (statement only) – Application of Cauchy’s Integral formula – Laurent’s series – Classification of singularities – Cauchy’s Residue theorem (statement only) – Contour integration.

UNIT III MULTIPLE INTEGRAL

9 Hours

Double integration – Cartesian and polar coordinates – Change the order of Integration – Applications: Area of a curved surface using double integral – Triple integration in Cartesian co-ordinates – Volume as triple integral.

UNIT IV VECTOR CALCULUS

9 Hours

Gradient, Divergence and Curl – Directional derivative – Irrotational and solenoidal vector fields – Vector integration: Green’s theorem in a plane, Gauss divergence theorem and Stokes’ theorem (excluding proofs) – Applications of the above theorems to find surface area of a closed region and volume of cube and parallel piped.

UNIT V LAPLACE TRANSFORM

9 Hours

Laplace Transform – Conditions for existence – Transform of Elementary Functions – Basic Properties – Transform of Unit step function and Impulse function – Transform of Periodic function – Inverse Laplace Transform – Convolution Theorem (excluding Proof) – Initial and Final value Theorems – Solution of Linear ODE of Second order with constant coefficient using Laplace Transform techniques.

TOTAL: 45 + 15 HOURS

FURTHER READING:

1. Volume of Cylindrical and spherical polar co ordinates.
2. Application of Integral theorems in finding Volume/Area of Hemispheres, cylinders etc.

COURSE OUTCOMES:

On the Successful completion of the course, Students will be able to

- CO1: Construct Analytic functions and trace the image of a region using transformation.
- CO2: Solve complex integrals.
- CO3: Apply multiple integral technique to find area and volume.
- CO4: Compute surface and volume integral in vector field.
- CO5: Apply Laplace Transform in solving Boundary value problems of second order ODE.

REFERENCES:

1. Veerarajan R., “Engineering Mathematics”, updated second edition for Semester I and II, 2017.
2. Grewal. B.S, “Higher Engineering Mathematics”, 44th Edition, Khanna Publications, Delhi, 2014.
3. Bali N. P and Manish Goyal, “Text book of Engineering Mathematics”, Sixth edition, Laxmi Publications Pvt. Ltd., 2014.
4. Glyn James, “Advanced Modern Engineering Mathematics”, 3rd Edition, Pearson Education, 2012.
5. P.Kandasamy, K. Gunavathy and K. Thilagavathy, Engineering Mathematics, Volume II, S. Chand & Co., New Delhi, 2009.
6. Ramana B.V, “Higher Engineering Mathematics”, Tata McGraw Hill Publishing, New Delhi, 2007.
7. Veerarajan R., “Engineering Mathematics”, fifth Edition, Tata Mc Graw Hill Publishing Company, New Delhi, 2006.
8. M K Venkataraman, Engineering mathematics, Volume I, 2nd ed., National Publishing Co. 2003.
9. nptel.ac.in/courses/111105035, www.nptelvideos.in/2012/11/Mathematics.html
10. www.learnerstv.com/Free-maths-video lectures - ltv348-page1.htm

1701PH203

MATERIALS SCIENCE
(Common to B.E - Mech. & Civil Programmes)

L	T	P	C
3	0	0	3

COURSE OBJECTIVES:

1. To explain the properties of conducting, semiconducting and dielectric materials.
2. To impart fundamental knowledge in optical materials.
3. To understand the nature and application of different magnetic materials.

UNIT I ELECTRICAL PROPERTIES OF METALS

9 Hours

Quantum free electron theory – Fermi – Dirac distribution function – Fermi energy and its variation with temperature – density of energy states – calculation of density of electrons and Fermi energy at 0 K – mean energy of electrons at 0 K – problem solving.

UNIT II SEMICONDUCTING PROPERTIES OF MATERIALS

9 Hours

Introduction – elemental and compound semiconductors – intrinsic semiconductors: expression for number of electrons and holes – determination of carrier concentration and position of Fermi energy – electrical conductivity – band gap energy determination – carrier concentration in extrinsic semiconductors. Hall Effect theory and experimental determination – uses – problem solving.

UNIT III DIELECTRIC PROPERTIES OF MATERIALS

9 Hours

Introduction – fundamental definitions in dielectrics – expression for electronic and ionic polarizations-orientation polarization – space charge polarization – Langevin – Debye equation – frequency and temperature effects on polarization – internal field – expression for internal field (cubic structure) – Clausius – Mosotti equation and its importance – applications of dielectric materials – problems solving.

UNIT IV OPTICAL PROPERTIES OF MATERIALS

9 Hours

Introduction – optical absorption in metals, semiconductors and insulators. Fluorescence and phosphorescence. Light emitting diode: principle, construction, working and applications. Liquid crystal display: general properties – dynamic scattering display – twisted pneumatic display – applications – comparison between LED and LCD. Blue ray disc – principle – working.

UNIT V MAGNETIC PROPERTIES OF MATERIALS

9 Hours

Introduction – orbital and spin magnetic moments – Bohr magneton – basic definitions – classification of magnetic materials – domain theory of ferromagnetism – process of domain magnetization – explanation of hysteresis curve based on domain theory – hard and soft magnetic materials, ferrites and spinels- applications.

TOTAL: 45 HOURS

FURTHER READING:

1. Giant magnetoresistance.

COURSE OUTCOMES:

On the Successful completion of the course, Students will be able to

- CO1: Distinguish electrical properties of different kinds of conducting materials.
- CO2: Identify the different types of semiconductors and its applications.
- CO3: Categorize the various polarization mechanisms in dielectrics.
- CO4: Choose the suitable material for the construction of display devices.
- CO5: Select appropriate magnetic materials for magnetic storage devices.

REFERENCES:

1. William D. Callister, “Materials Science and Engineering an Introduction”, John Wiley and Sons, Inc, 2010.
2. S.O. Pillai, “Solid State Physics”, New Age International Publications, New Delhi, 2014.
3. M.N. Avadhanulu and P.G. Kshirsagar, “A Text Book of Engineering Physics”, S. Chand & Company Ltd, New Delhi, 2011.
4. P.K. Palanisamy, “Physics for Engineers”, Scitech Publications (India) Pvt. Ltd, Chennai, 2010.
5. V. Raghavan, “Materials Science and Engineering”, Prentice Hall of India, New Delhi, 2010.
6. R.K.Gaur and S.L.Gupta, “Engineering Physics”, Dhanpet Rai publications, New Delhi, 2010.

1701CH201

ENVIRONMENTAL STUDIES
(Common to all B.E. / B.Tech Degree Programmes)

L	T	P	C
3	0	0	3

COURSE OBJECTIVES:

1. Realize the interdisciplinary and holistic nature of the environment.
2. Understand how natural resources and environment affect the quality of life and stimulate the quest for sustainable development.
3. Recognize the socio-economic, political and ethical issues in environmental science.

UNIT I ECOSYSTEMS AND BIODIVERSITY

10 Hours

Concept of an ecosystem – structure and function of an ecosystem – producers, consumers and decomposers – Oxygen cycle and Nitrogen cycle – energy flow in the ecosystem – ecological succession processes – Introduction, types, characteristic features, structure and function of the (a) forest ecosystem (b) grassland ecosystem (c) desert ecosystem (d) aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries) – Introduction to biodiversity definition: genetic, species and ecosystem diversity – value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values – hot – spots 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. Documentation of the medicinal plants in your native place.

UNIT II NATURAL RESOURCES

10 Hours

Forest resources: Use and over – exploitation, deforestation, case studies – timber extraction, mining, dams and their effects on forests and tribal people – Water resources: Use and overutilization of surface and ground water, dams-benefits and problems – Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies – Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer – pesticide problems, water logging, salinity, case studies – Energy resources: Growing energy needs, renewable and nonrenewable energy sources, use of alternate energy sources. Energy Conversion processes – Biogas – production and uses, anaerobic digestion; case studies – 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. Documentation of the effect of modern Agriculture in your nearby Village.

UNIT III ENVIRONMENTAL POLLUTION

9 Hours

Definition – Source, causes, effects and control measures of: (a) Air pollution – Mitigation procedures – Control of particulate and gaseous emission, Control of SO_x, NO_x, CO and HC) – Technology for capturing CO₂ (metallo- organic frame works) (b) Water pollution – Waste water treatment processes. (c) Soil pollution – soil waste management: causes, effects and control measures of municipal solid wastes – (d) Marine pollution (e) Noise pollution (f) Thermal pollution (g) Nuclear hazards – role of an individual in prevention of pollution – pollution case studies. Documentation study of local polluted site – Urban / Rural / Industrial / Agricultural.

UNIT IV SOCIAL ISSUES AND THE ENVIRONMENT

8 Hours

From unsustainable to sustainable development – urban problems related to energy – water conservation, rain water harvesting, watershed management – environmental ethics: Issues and possible solutions – 12 Principles of green chemistry – consumerism and waste products – environment protection act – Air act – Water act – Wildlife protection act – Forest conservation act – The Biomedical Waste (Management and Handling) Rules; 1998 and amendments – scheme of labeling of environmentally friendly products (Ecomark) central and state pollution control boards – disaster management: floods, earthquake – Public awareness. Analyze the recent steps taken by government of India to prevent pollution (Green India and Clean India).

UNIT V HUMAN POPULATION AND THE ENVIRONMENT

8 Hours

Population growth, variation among nations – population explosion – family welfare programme – environment and human health – human rights – value education – HIV / AIDS – women and child welfare – Environmental impact analysis (EIA) – GIS – remote sensing – role of information technology in environment and human health – Case studies. Documentation study of the Human health and the environment in nearby Hospital (Statistical report).

TOTAL: 45 HOURS

FURTHER READING:

Human rights: E – waste and biomedical waste – Identification of adulterants in food materials

COURSE OUTCOMES:

On the Successful completion of the course, Students will be able to

- CO1: Describe the importance of ecosystem and its conservation.
- CO2: Differentiate various natural resources and the urgent need to conserve the natural resources.
- CO3: Explain the different types of pollution and its effects.
- CO4: Describe the various environmental protection acts.
- CO5: Explain the major diseases, women, child development and the impacts of population explosion.

REFERENCES:

1. Trivedi. R.K., “Handbook of Environmental Laws, Rules, Guidelines, Compliances and Standards”, Vol. I and II, Enviro Media, 3rd edition, BPB publications, 2010.
2. Cunningham, W.P.Cooper, T.H. Gorhani, “Environmental Encyclopedia”, Jaico Publishing House, Mumbai, 2001.
3. Dharmendra S. Sengar, “Environmental law”, Prentice Hall of India PVT LTD, New Delhi, 2007.
4. Rajagopalan. R, “Environmental Studies-From Crisis to Cure”, Oxford University Press, 2005.
5. Benny Joseph, “Environmental Science and Engineering”, Tata McGraw-Hill, New Delhi, 2006.
6. https://en.wikipedia.org/wiki/Carbon_capture_and_storage
7. Ravikrishnan. A., “Environmental Science and Engineering”, Sri Krishna Hi-tech Publishing Company Pvt. Ltd.

1701GEX01	BASIC ELECTRICAL AND ELECTRONICS ENGINEERING	L	T	P	C
	(Common to B.E. / B.Tech. – CSE, IT, CIVIL & MECH)	3	0	0	3

COURSE OBJECTIVES:

1. To introduce basic electrical terminologies and laws
2. To impart knowledge on solving series and parallel circuits
3. To introduce about the three phase system
4. To explain the working principle of dc and ac machines, power plants
5. To familiarize about basic electronic components, circuits, transducers, digital logic and communication systems

UNIT I DC AND AC CIRCUIT FUNDAMENTALS 9 Hours

Definition of terms - voltage, current, power, energy, active and passive elements; Ohm's law and Kirchhoff's laws; Series and parallel circuits; source transformation; equivalent resistance; star/delta conversion; Concepts of AC circuits - RMS and average values, form and peak factors, real and reactive power, power factor.

UNIT II THREE PHASE SYSTEM 9 Hours

Introduction to three phase circuits; balanced and unbalanced system; phase and line parameters - relations; power measurement - voltmeter and ammeter method, two and three watt meter methods; Components of AC transmission and distributions systems (single line diagram approach).

UNIT III ELECTRICAL MACHINES AND POWER PLANTS 9 Hours

Operating principle, classification and applications of DC generator, DC motor, transformer and induction motor (single phase); Power plants - Thermal power plant, hydroelectric power plant and nuclear power plant (Block diagram approach only).

UNIT IV SEMICONDUCTOR DEVICES AND TRANSDUCERS 9 Hours

Characteristics of PN junction diode and zener diode; Rectifiers- Half wave and full wave rectifiers (qualitative treatment only); BJT – configurations; Amplifiers & Oscillators - definition, classification and applications; Transducers – classification, resistance temperature detector (RTD), linear variable differential transformer (LVDT).

UNIT V DIGITAL ELECTRONICS AND COMMUNICATION SYSTEMS 9 Hours

Boolean algebra - Reduction of Boolean expressions; De-Morgan's theorem; Logic gates - Implementation of Boolean expressions; Model of communication system - Analog and digital, Wired and wireless channel; Block diagram of various communication systems - Microwave, satellite, optical fiber and cellular mobile system.

TOTAL: 45 HOURS

FURTHER READING:

1. Working principle and operation of Fax and ISDN
2. LED lightings

COURSE OUTCOMES:

On the successful completion of the course, students will be able to

- CO1: Remember the basic laws and fundamental concepts related to electrical, electronics and communication engineering
- CO2: Apply basic concepts to solve problems in DC and AC circuits
- CO3: Recall the principle of operation of DC & AC machines and power plants
- CO4: Summarize the Boolean algebra and digital logic gates
- CO5: Elucidate the characteristics of diode, BJT and applications of amplifiers and oscillators
- CO6: Explain the operation of functional blocks of various communication systems

REFERENCES:

1. Smarajit Ghosh, "Fundamentals of Electrical and Electronics Engineering", 2nd Edition, PHI Learning, 2010.
2. R.Muthusubramaniam, S.Salaivahanan and K.A.Mureleedharan, "Basic Electrical Electronics and Computer Engineering", Tata McGraw Hill, 2004.
3. D.P.Kothari and I.J.Nagrath, "Theory and Problems of Basic Electrical Engineering", PHI learning, New Delhi, 2004.
4. J.B.Gupta, "Fundamentals of Electrical Engineering and Electronics", S K Kataria and Sons, Reprint 2012 Edition.
5. R.L.Boylestad and L.Nashelsky, "Electronic Devices and Circuit Theory", Pearson, 11th Edition, 2013.
6. George Kennedy and Bernard Davis, "Kennedy's Electronic communication Systems", McGraw Hill Education, 5th Edition, 2011.
7. Donald P.Leach, Albert Paul Malvino and GoutamSaha, "Digital Principles and Applications", McGraw-Hill Education, 8th Edition, 2014.
8. <http://nptel.ac.in/>

1701GEX02

ENGINEERING GRAPHICS
(Common to all B.E. / B.Tech Degree Programmes)

L	T	P	C
2	2	0	3

COURSE OBJECTIVES:

1. To develop in students, graphic skills for communication of concepts, ideas and design of Engineering products.
2. To expose them to existing national standards related to technical drawings.

CONCEPTS AND CONVENTIONS (Not for Examination)

2 Hours

Importance of graphics in engineering applications – Use of drafting instruments – BIS conventions and specifications – Size, layout and folding of drawing sheets – Lettering and dimensioning.

UNIT I PLANE CURVES AND FREE HAND SKETCHING

10 Hours

Basic Geometrical constructions, Curves used in engineering practices: Conics – Construction of ellipse, parabola and hyperbola by eccentricity method – Construction of cycloid – construction of involutes of square and circle – Drawing of tangents and normal to the above curves, Scales: Construction of Diagonal and Vernier scales.

Visualization concepts and Free Hand sketching: Visualization principles –Representation of Three Dimensional objects – Layout of views- Free hand sketching of multiple views from pictorial views of Objects

UNIT II PROJECTION OF POINTS, LINES AND PLANE SURFACES

10 Hours

Orthographic projection- principles-Principal planes-First angle projection-projection of points. Projection of straight lines (only First angle projections) inclined to both the principal planes - Determination of true lengths and true inclinations by rotating line method and traces Projection of planes (polygonal and circular surfaces) inclined to both the principal planes by rotating object method.

UNIT III PROJECTION OF SOLIDS

10 Hours

Projection of simple solids like prisms, pyramids, cylinder, cone and truncated solids when the axis is inclined to one of the principal planes by rotating object method and auxiliary plane method.

UNIT IV PROJECTION OF SECTIONED SOLIDS AND DEVELOPMENT OF SURFACES

10 Hours

Sectioning of above solids in simple vertical position when the cutting plane is inclined to the one of the principal planes and perpendicular to the other – obtaining true shape of section. Development of lateral surfaces of simple and sectioned solids – Prisms, pyramids cylinders and cones. Development of lateral surfaces of solids with cut-outs and holes.

UNIT V ISOMETRIC AND PERSPECTIVE PROJECTIONS

10 Hours

Principles of isometric projection – isometric scale –Isometric projections of simple solids and truncated solids - Prisms, pyramids, cylinders, cones- combination of two solid objects in simple vertical positions and miscellaneous problems. Perspective projection of simple solids-Prisms, pyramids and cylinders by visual ray method.

COMPUTER AIDED DRAFTING (Demonstration Only)

8 Hours

Basics commands of AutoCAD- two dimensional drawing, editing, layering and dimensioning - coordinate Systems-Drawing practice - orthographic views of simple solids using AutoCAD.

FURTHER READING:

Applications of engineering graphics in students' discipline

TOTAL: 60 HOURS

COURSE OUTCOMES:

On the successful completion of the course, students will be able to

- CO1: Perform free hand sketching of basic geometrical constructions and multiple views of objects.
- CO2: Do orthographic projection of lines and plane surfaces.
- CO3: Draw projections and solids and development of surfaces.
- CO4: Prepare isometric and perspective sections of simple solids.
- CO5: Demonstrate computer aided drafting.

REFERENCES:

1. Gopalakrishna K.R., "Engineering Drawing" (Vol. I&II combined), Subhas Stores, Bangalore, 2007.
2. Luzzader, Warren.J. and Duff, John M., "Fundamentals of Engineering Drawing with an introduction to Interactive Computer Graphics for Design and Production, Eastern Economy Edition, Prentice Hall of India Pvt. Ltd, New Delhi, 2005.
3. Shah M.B., and Rana B.C., "Engineering Drawing", Pearson, 2nd Edition, 2009.
4. Venugopal K. and Prabhu Raja V., "Engineering Graphics", New Age International (P) Limited, 2008.
5. Natrajan K.V., "A text book of Engineering Graphics", Dhanalakshmi Publishers, Chennai, 2009.
6. Basant Agarwal and Agarwal C.M., "Engineering Drawing", Tata McGraw Hill Publishing Company Limited, New Delhi, 2008.
7. Bhatt N.D. and Panchal V.M., "Engineering Drawing", Charotar Publishing House, 50th Edition, 2010.

PUBLICATION OF BUREAU OF INDIAN STANDARDS:

1. IS 10711 – 2001: Technical products Documentation – Size and lay out of drawing sheets.
2. IS 9609 (Parts 0 & 1) – 2001: Technical products Documentation – Lettering.
3. IS 10714 (Part 20) – 2001 & SP 46 – 2003: Lines for technical drawings.
4. IS 11669 – 1986 & SP 46 – 2003: Dimensioning of Technical Drawings.
5. IS 15021 (Parts 1 to 4) – 2001: Technical drawings – Projection Methods.

SPECIAL POINTS APPLICABLE TO UNIVERSITY EXAMINATIONS ON ENGINEERING GRAPHICS:

1. There will be five questions, each of either or type covering all units of the syllabus.
2. All questions will carry equal marks of 20 each making a total of 100.
3. The answer paper shall consist of drawing sheets of A3 size only. The students will be permitted to use appropriate scale to fit solution within A3 size.

1701GEX03

PROGRAMMING IN C
(Common to all B.E. / B.Tech Degree Programmes)

L	T	P	C
3	0	0	3

COURSE OBJECTIVES:

1. To prepare students to comprehend the fundamental concepts
2. To demonstrate fine grained operations in number system
3. To gain exposure in programming language using C
4. To develop programming skills using the fundamentals and basics of C Language

UNIT I BASIC CONCEPTS

8 Hours

Organization and Classifications of Computer - Generations of Computers- Number System- Problem Solving Techniques – Algorithm Design– Flowchart– Pseudocode

UNIT II INTRODUCTION TO C LANGUAGE

10 Hours

Overview of C - Constants, Variables and Data Types- Compilation and Linking - Operators and Expressions- Decision Making and Branching – Looping statements

UNIT III ARRAYS AND STRINGS

9 Hours

Arrays-One Dimensional Array- Declaration and Initialization-Two Dimensional Array-Declaration and Initialization- Programs using Arrays- Strings- String Handling Functions, Programs using Strings- Managing I/O Operations

UNIT IV FUNCTIONS & STRUCTURES

10 Hours

Functions-Function Prototypes-Declaring, Defining and Calling Functions-Call by value and Call by Reference-Recursive Functions-Structures- Declaration and Definition -Accessing Structure Members-Arrays of Structures-Unions- Programs using Structures and Unions

UNIT V POINTERS & FILES

8 Hours

Pointers-Dynamic Memory Allocation-Arithmetic Operations using Pointers, Files – File Manipulation-I/O Operations, Preprocessor Directives, Storage Classes

TOTAL: 45 HOURS

FURTHER READING:

Object Oriented Programming Approach.

COURSE OUTCOMES:

On the successful completion of the course, students will be able to

- CO1: Describe basic concepts of computers
- CO2: Paraphrase the operations of number system
- CO3: Describe about basic concepts of C-Language
- CO4: Understand the code reusability with the help of user defined functions
- CO5: Analyze the structure concept, union, file management and preprocessor in C language

REFERENCES:

1. E. Balagurusamy, “Programming in ANSI C”, McGraw Hill Education India Private Limited; Seventh Edition, 2017.
2. Pradip Dey, Manas Ghosh , “Computer Fundamentals and Programming in C”, Second Edition, Oxford University Press, 2013.
3. Ashok N. Kamthane, “Programming in C”, Pearson Education India, 3rd Edition, 2015.
4. Yashavant P. Kanetkar, “Let Us C”, BPB Publications, 15th Revised and Updated Edition, 2016.
5. <http://nptel.ac.in/>

1701GEX51

PROGRAMMING IN C LABORATORY
(Common to all B.E. / B.Tech. Degree Programmes)

L	T	P	C
0	0	2	1

COURSE OBJECTIVES:

1. To prepare students to comprehend the fundamental concepts.
2. To demonstrate fine grained operations in number system.
3. To gain exposure in programming language using C.
4. To develop programming skills using the fundamentals and basics of C Language.

LIST OF EXPERIMENTS:

1. Working with word and style sheets.
2. Write a C program to implement basic concepts.
3. Write a C program to implement Decision Making and Branching statements.
4. Write a C program to implement looping statements.
5. Write a C program to implement Arrays.
6. Write a C program to implement Strings.
7. Write a C program to implement pointers.
8. Write a C program to implement Structures.
9. Write a C program to work with files in C.

TOTAL: 30 HOURS

ADDITIONAL EXPERIMENTS:

1. Write a c program to remove the occurrence of "the" word from entered string.
2. Create two files test1.txt and test2.txt and write a C program to read the file text1.txt character by character on the screen and paste it at the end of test2.txt

COURSE OUTCOMES:

On the successful completion of the course, students will be able to

- CO1: Understand basic concepts of computers.
- CO2: Implement basic concepts of c-language.
- CO3: Implement arrays, strings and pointers.
- CO4: Implement the basics of structures, unions, file management and preprocessor in C language.

REFERENCES:

1. E. Balagurusamy, "Programming in ANSI C", McGraw Hill Education India Private Limited; Seventh Edition, 2017.
2. Pradip Dey, Manas Ghosh, "Computer Fundamentals and Programming in C", Second Edition, Oxford University Press, 2013.
3. Ashok N. Kamthane, "Programming in C", Pearson Education India, 3rd Edition, 2015.
4. Yashavant P. Kanetkar, "Let Us C", BPB Publications, 15th Revised and Updated Edition, 2016.
5. <http://nptel.ac.in/>

1701GEX52

COMMUNICATION SKILLS LAB
(Common to all B.E. / B.Tech Degree Programmes)

L	T	P	C
0	0	2	1

COURSE OBJECTIVES:

This Lab focuses on using multi-media instruction for language development to meet the following targets:

1. To improve the students' fluency in English, through a well-developed vocabulary and enable them to listen to English spoken at normal conversational speed by educated English speakers and respond appropriately in different socio-cultural and professional contexts
2. Further, they would be required to communicate their ideas relevantly and coherently in writing.
3. To prepare all the students for their placements.

LIST OF EXPERIMENTS: The following course content to conduct the activities is prescribed for the Communication Skills Lab:

- 1. Activities on Fundamentals of Inter-personal Communication and Building Vocabulary** - Starting a conversation - responding appropriately and relevantly - using the right body language - Role Play in different situations & Discourse Skills- using visuals - Synonyms and antonyms, word roots, one-word substitutes, prefixes and suffixes, study of word origin, business vocabulary, analogy, idioms and phrases, collocations & usage of vocabulary.
- 2. Activities on Reading Comprehension** - General Vs Local comprehension, reading for facts, guessing meanings from context, scanning, skimming, inferring meaning, critical reading & effective googling.
- 3. Activities on Writing Skills** - Structure and presentation of different types of writing - letter writing/ Resume writing/ e-correspondence/ Technical report writing/ Portfolio writing - planning for writing - improving one's writing.
- 4. Activities on Presentation Skills** - Oral presentations (individual and group) through JAM sessions / seminars / PPTs and written presentations through posters/ projects/ reports/ e-mails/ assignments etc.
- 5. Activities on Group Discussion and Interview Skills** - Dynamics of group discussion, intervention, summarizing, modulation of voice, body language, relevance, fluency and organization of ideas and rubrics for evaluation- Concept and process, pre-interview planning, opening strategies, answering strategies, interview through tele-conference & video-conferencing and Mock Interviews.

TOTAL: 30 HOURS

ADDITIONAL EXPERIMENTS:

Phonetics

COURSE OUTCOMES:

On the successful completion of the course, students will be able to

- CO1: Accomplishment of sound vocabulary and its proper use contextually.
- CO2: Flair in Writing and felicity in written expression
- CO3: Enhanced job prospects.
- CO4: Effective Speaking Abilities.

REFERENCES:

1. Technical Communication by Meenakshi Raman & Sangeeta Sharma, Oxford University Press 2009
2. Advanced Communication Skills Laboratory Manual by Sudha Rani, D, Pearson Education 2011.
3. Technical Communication by Paul V. Anderson, 2007. Cengage Learning pvt. Ltd. New Delhi
4. English Vocabulary in Use series, Cambridge University Press 2008.
5. Management Shapers Series by Universities Press (India) Pvt Ltd., Himayatnagar, Hyderabad 2008.
6. English for Technical Communication for Engineering Students, Aysha Vishwamohan, Tata Mc Graw Hill 2009.
7. Books on TOFEL/ GRE/ GMAT/ CAT/ IELTS by Barron's/ DELTA/ Cambridge University Press.

1701HS251

PHYSICS AND CHEMISTRY LABORATORY-II
(Common to all B.E. / B.Tech Degree Programmes)

L	T	P	C
0	0	2	1

COURSE OBJECTIVES:

1. The Objective of this course is to make the students gain practical knowledge to co-relate with the theoretical studies.
2. To achieve perfectness in experimental skills.
3. To bring confidence and ability to develop and fabricate engineering and technical equipments.
4. To make the student acquire practical skills in the wet chemical and instrumental methods for quantitative estimation of hardness, alkalinity, metal ion content, corrosion in metals and cement analysis.

PHYSICS

LIST OF EXPERIMENTS:

1. Using lees disc apparatus, determine the coefficient of thermal conductivity of a bad conductor.
2. Find the band gap value of the given semiconductor diode. Based on the band gap value, identify the given semiconductor.
3. With the aid of spectrometer, find the angle of Prism and refractive index of the medium.
4. Determine the wavelengths of polychromatic source in the visible region using spectrometer grating.
5. Find the depression at the midpoint of the given wooden beam subjected to non-uniform bending and determines the Young's modulus of the material of the beam.
6. Find the given unknown resistance using Carey-Foster's Bridge.

CHEMISTRY

LIST OF EXPERIMENTS:

1. Conductometric Precipitation titration of BaCl_2 Vs Na_2SO_4
2. Estimation of dissolved oxygen in a water sample/sewage by Winklers method.
3. Estimation of chloride content in water by argentometric method.
4. Conductometric titration of mixture of acids.
5. Comparison of alkalinities of the given water samples.

Additional Experiments:

1. Estimation of heavy metals in the given solution by EDTA method.
2. Determination of concentration of unknown colored solution using spectrophotometer.

TOTAL: 30 HOURS

COURSE OUTCOMES:

On the successful completion of the course, students will be able to

- CO1 : Realize the concept of properties of matter and apply the same for practical applications.
- CO2 : Identify the suitable laser source for fiber optic communication applications.
- CO3 : Determine the velocity of ultrasonic waves and apply the same for day today applications.
- CO4 : Classify the different types of crystal structures and analyze their properties.
- CO5 : Comprehend the efficacy of quantum equations in modern areas.
- CO6 : Illustrate the EMF of the Redox reaction.
- CO7 : Compare the Alkalinity of given water Sample with their standards.
- CO8 : Identify the Concentration of metal ion present in water sample.
- CO9 : Outline the precipitation titration using Conductivity meter.
- CO10: Interpret the dissolved oxygen present in the water.

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