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, IT, CIVIL, ECE)

NAGAPATTINAM – 611 002

B.Tech. Information Technology

Full Time Curriculum and Syllabus

First Year – First Semester

Course Code	Course Name	L	T	P	C	Maximum Marks		
						CA	ES	Total
Theory Course								
1701MA101	Engineering Mathematics-I	3	2	0	4	40	60	100
1701PH101	Applied Physics for Engineers	3	0	0	3	40	60	100
1701EN101	Technical English	3	0	0	3	100	0	100
1701CH101	Applied Chemistry in Informatics	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
Laboratory Course								
1701HS151	Physics and Chemistry Lab –I	0	0	2	1	50	50	100
1701GEX51	Programming in C Lab	0	0	2	1	50	50	100
1701GEX52	Communication Skills Lab	0	0	2	1	50	50	100
	Total	20	4	6	25	500	500	1000

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

1701MA101	ENGINEERING MATHEMATICS I	L	T	P	C
	(Common to all B.E / B.Tech Degree Programmes)	3	2	0	4

COURSE OBJECTIVES:

1. To educate Matrix Algebra Technique and curvature Theory
2. To impart knowledge of Techniques in solving Ordinary Differential Equations and to apply in solving Modern Engineering Problems
3. To acquaint the students about functions of several variables and also to familiarize the students in infinite series and their convergence

UNIT I   EIGEN VALUE PROBLEMS   **9 Hours**

Characteristic equation - Eigen values and Eigen vectors of a real matrix – Properties - Cayley– Hamilton theorem- Diagonalization of Matrices - Reduction of a quadratic form to a canonical form by orthogonal transformation – Application of Matrices in Structural Engineering and image processing

UNIT II   ORDINARY DIFFERENTIAL EQUATIONS   **9 Hours**

Higher order linear differential equations with constant coefficients – Cauchy"s and Legendre"s linear equations – Method of variation of parameters in solution of ordinary differential equations.

UNIT III   DIFFERENTIATION AND GEOMETRICAL APPLICATIONS   **9 Hours**

Derivative of special functions (Trigonometry, Exponential, Logarithmic), Derivative by rule (Product, Quotient, Chain rule), Curvature in Cartesian co-ordinates – Centre and radius of curvature – Circle of curvature- Evolutes and involutes.

UNIT IV   MULTIVARIABLE CALCULUS   **9 Hours**

Functions of two variables and solutions(Partial derivatives and Euler"s theorem)– Taylor"s series - Maxima and Minima – Application of Partial Derivatives to find the optimum requirement using Lagrangian multipliers.

UNIT V   SEQUENCES AND SERIES   **9 Hours**

Sequences: Definition and examples – Series: Types and Convergence – Series of positive terms – Tests of convergence: Comparison test, Integral test and D"Alembert"s ratio test – Alternating series – Leibnitz"s test – Application of Sequences in real life.

TOTAL: 45 + 15 HOURS

FURTHER READING:

1. Modeling and solutions using Newton"s Law of Cooling of Bodies
2. Differentiation of implicit Functions, Jacobians and Properties

COURSE OUTCOMES:

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

CO1: Analyze the characteristics of a linear system with Eigen value and Eigen Vectors
CO2: Recognize and solve Higher order Ordinary Differential Equations
CO3: Solve Derivative of special functions and apply it in solving Geometrical problems
CO4: Apply Partial Derivatives in finding Maxima and Minima of a function
CO5: Test the convergence of any series

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(p) 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. Erwin Kreyszig, Advanced Engineering Mathematics,9th Edition, Wiley International edition, (2006)
7. Ramana B.V, "Higher Engineering Mathematics",Tata McGrawHill Publishing, New Delhi, (2007).
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

1701PH101	APPLIED PHYSICS FOR ENGINEERS	L	T	P	C
	(Common to all B.E. / B.Tech Degree Programmes)	3	0	0	3

COURSE OBJECTIVES:
1. To impart knowledge in properties of matter, crystallography and ultrasonics.
2. To understand the applications of lasers and fiber optics.
3. To implement the principles of quantum physics in the respective engineering fields.

UNIT I   PROPERTIES OF MATTER   **9 Hours**

Elasticity: elastic and plastic materials – Hooke"s law – elastic behavior of a material – stress – strain diagram – factors affecting elasticity. Three moduli of elasticity – Poisson"s ratio – torsional pendulum – twisting couple on a cylinder. Young"s modulus – uniform bending – non-uniform bending. Viscosity: coefficient of viscosity – streamline and turbulent flow – experimental determination of viscosity of a liquid – Poiseuille"s method.

UNIT II   APPLIED OPTICS   **9 Hours**

Interference: air wedge – theory – uses – testing of flat surfaces – thickness of a thin wire. Laser: introduction – principle of laser – characteristics of laser light– types: CO_2 laser – semiconductor laser (homojunction). Fiber optics: principle of light transmission through fiber – expression for acceptance angle and numerical aperture – types of optical fibers (refractive index profile and modes) – fiber optic communication system (block diagram & description).

UNIT III   ULTRASONICS   **9 Hours**

Ultrasonics: introduction – properties of ultrasonic waves – generation of ultrasonic waves – magnetostriction - piezo electric methods – detection of ultrasonic waves – Determination of velocity of ultrasonic waves (acoustic grating). Applications of ultrasonic waves: pulse echo method, SONAR – measurement of velocity of blood flow – modes of operation (A scan, B Scan & C Scan).

UNIT IV   SOLID STATE PHYSICS   **9 Hours**

Crystal Physics: lattice – unit cell – crystal systems – Bravais lattices – Miller indices – „d" spacing in cubic lattice – calculation of number of atoms per unit cell, atomic radius, coordination number and determination of packing density for SC, BCC, FCC and HCP structures – X-ray diffraction: Laue"s method – powder crystal method.

UNIT V   QUANTUM MECHANICS   **9 Hours**

Quantum Physics: development of quantum theory – de Broglie wavelength – Schrodinger"s wave equation – time dependent and time independent wave equations – physical significance. Application: particle in a box (1D) – degenerate and non-degenerate states. Electron Microscopy-SEM, TEM - principle and working – problem solving.

TOTAL: 45 HOURS

FURTHER READING:
            Neutrino"s – expanding universe

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.

REFERENCES:
1. D.S.Mathur, Elements of Properties of matter, 5th edition, S.Chand & Company Ltd., New Delhi,2012.
2. Charles Kittel, Introduction to Solid State Physics, 8th edition, Wiley India Pvt. Ltd., New Delhi, 2012
3. Arthur Beiser, Shobhit Mahajan and S. Rai Choudhury, Concepts of Modern Physics, 6th edition, Tata McGraw Hill Education Pvt. Ltd., New Delhi, 2010.
4. B.K. Pandey and S. Chaturvedi, Engineering Physics, 1st edition, Cengage Learning India Pvt. Ltd., New Delhi, 2012.
5. Halliday and Resnick, Fundamentals of Physics, John Wiley and Sons, Inc, 2011.
6. Ian Morison, Introduction to Astronomy and Cosmology, John Wiley and Sons, Ltd, 2013.
7. http://nptel.ac.in/

1701EN101	TECHNICAL ENGLISH	L	T	P	C
	(Common to all B.E / B.Tech Degree Programmes)	3	0	0	3

COURSE OBJECTIVES:

   1.To develop the ability to read and comprehend technical texts in the field of Engineering
   2.To develop vocabulary building through the study of word construction
   3. To develop ability to write formal definitions of technical terms and expression.
   4. To recognize various grammatical structures that will aid the student improve his/her theoretical knowledge.

UNIT I   **9 Hours**
Articles-Preposition-Subject-Verb-Object-Adjective-Adverb-Conjunction-Nouns- Usages of Have, has, had-Simple Present-Simple Past-Simple Future-Self introduction-Framing Questions

UNIT II   **9 Hours**
Present Continuous-Past Continuous-Future Continuous-Describing a place, person or thing-Framing negative questions-Gerund-Listening to Articles, speeches and audios

UNIT III   **9 Hours**
Present perfect-past perfect-future perfect-writing short paragraph-sentence pattern- Infinitive-Tag questions-Reading newspaper cutting

UNIT IV   **9 Hours**
Present perfect continuous –Past perfect continuous-Future perfect continuous-writing   an Essay in 100 words-Types of sentences-Prefix-suffix-word formation-Dialogue writing.

UNIT V   **9 Hours**
Active voice-passive voice-impersonal passive voice –Synonyms and Antonyms-phrasal verbs- Punctuation-Common Errors-Letter writing.

                                                                            TOTAL: 45 HOURS

FURTHER READING:
         Letters from a Father to His Daughter- Jawaharlal Nehru

COURSE OUTCOMES:
          On the successful completion of the course, Students will be able to
   CO1: Read and comprehend technical texts in the field of Engineering
   CO2: Acquire vocabulary building and write effectively in technical writing
   CO3: Write formal definitions of technical terms and expression in both verbal and written form.
   CO4: Understand grammatical structures and use flawless English in the professional documents

REFERENCES:
1. Meenakshi Raman, Sangeetha Sharma, "***Technical Communication : English Skills for Engineers"*** Oxford University Press: New Delhi, 2016.
2. Rizvi Ashrav.M, "***Effective Technical Communication***" Tata McGraw Hill: New Delhi, 2017
3. Herbert, A.J, "***Structure of Technical English***", London English Language Society. https://archive.org/details/in.ernet.dli.2015.136456
4. J.D. O'Connor, Better ***English Pronunciation*** Paperback, 2nd edition, 162 pages, Published September 16th 2013 by Cambridge University Press,October 23rd 1967
5. Nehru, Jawaharlal. ***Letters from a Father to His Daughter***, Puffin Books, 2004
6. ***Technical English*** by faculty of English –published by EGS Pillay press 2017

1701CH101	APPLIED CHEMISTRY IN INFORMATICS	L	T	P	C
	(Common to B.E. CSE & B.Tech. IT Programmes)	3	0	0	3

COURSE OBJECTIVES:
1. Recall the terminologies of electrochemistry and explain the function of batteries and fuel cells.
2. Choose appropriate instrumentation technique for interpreting analytical data.
3. Understand the fundamentals of corrosion, its types and polymers with its applications with its electrochemical reactions.

UNIT I   ELECTROCHEMISTRY   **9 Hours**
Cell terminology-Electrochemical cells- Electrolytic cells- Cell reactions- Daniel cell-Difference between electrolytic cells and electrochemical cells. Reversible cells and irreversible cells -types- EMF series and its applications - Nernst equation (derivation and problems).Single electrode potential - Hydrogen electrode - Calomel electrode - Glass electrode - pH measurement using glass electrode.

UNIT II   CORROSION AND ITS CONTROL   **9 Hours**
Corrosion – types-chemical, electrochemical corrosion (galvanic, differential aeration) - factors influencing corrosion -corrosion control – material selection and design aspects - electrochemical protection – sacrificial anode method and impressed current cathodic method. protective coatings: electroplating of gold and electroless plating of nickel. paints - constituents and functions.

UNIT III   NONCONVENTIONAL ENERGY RESOURCES AND STORAGE DEVICES   9 Hours
Introduction- nuclear energy- nuclear fission, nuclear fusion- nuclear chain reactions- breeder reactor- Nuclear Reactor-solar energy conversion- solar cells- wind energy. Batteries and fuel cells: Types of batteries- alkaline battery- lead storage battery nickel- cadmium battery- lithium battery- fuel cell H_2 -O_2 fuel cell- applications

UNIT IV   POLYMER AND ITS APPLICATION   **9 Hours**
Introduction: Classification of polymers – Natural and synthetic; Thermoplastic and Thermosetting. Functionality – Degree of polymerization. Addition (Free Radical Mechanism) condensation and copolymerization. Fabrication of Plastics. Application –Conducting polymer.

UNIT V   CHEM-INFORMATICS   **9 Hours**
Definition – coordinate – Bonds - Bond length - Bond angles - Torsional angles -Polypeptide conformation and representation by Ramachandran map -– Chemical structure –- Conformation –Representation of structural information – Linear format - SMILEYS notation – MOL format – PDB format – Storage of structural data in a data base –Canonical structure – Similarity search – Sub structure search - Structural keys – Finger print - molecular data base-Cambridge structural database (protein data bank)-noting data bank-Application of chem-informatics in drugs designing.

TOTAL: 45 HOURS

FURTHER READING:
1. Alloys-ferrous and nonferrous alloys
2. Cambridge structural database (protein data bank)-noting data bank
3. Unique properties of nano material- introduction to quantum materials, quantum dots, supramolecular materials and molecular crystal engineering – molecular machines and devices- Logic gate using electronics material for molecular electronic

COURSE OUTCOMES:
On the successful completion of the course, students will be able to
CO1: Construct an electrochemical cell and measure its potential
CO2: Identify the components and processes in batteries and infer the selection criteria for commercial battery systems with respect to different applications
CO3: Utilize electrochemical data to formulate an electrochemical half-cell and cell reactions for corrosion control processes
CO4: Differentiate the polymers used in day to day life based on its source, properties and applications
CO5: Identify the applications of analytical methods for the estimation of elements in aqueous media

REFERENCES:
1. Ashima Srivastava and Janhavi N N., "Concepts of Engineering Chemistry", ACME Learning Private Limited., New Delhi, 2010.
2. Ravikrishnan A., "Engineering Chemistry", Sri Krishna Hi-tech Publishing Company Pvt. Ltd. Chennai, 2016.
3. RenuBapna and Renu Gupta., "Engineering Chemistry", Macmillan India Publisher Pvt Ltd, 2010.
4. Willard Merritt and Dean Settle, Instrumental methods of analysis, CBS publishers, Seventh edition, 2012.
5. DaraS.S, Umare S.S."Engineering Chemistry", S. Chand & Company Ltd., New Delhi., 2010.
6. https://www.ccdc.cam.ac.uk/solutions/csd-system/components/csd/

7. https://link.springer.com/chapter/10.1007/978-3-642-28030-6_2
8. www.santarosa.edu/~yataiiya/4D/QuantumDotsMk2.ppt
9. onlinelibrary.wiley.com/doi/10.1002/9780470661345.smc107/pods
10. https://en.wikipedia.org/wiki/Molecular_electronics.
11. Jain and Jain, "Engineering Chemistry", Sixteenth edition, Dhanpatrai publications, 2012.

1701GEX01	BASIC ELECTRICAL AND ELECTRONICS ENGINEERING	L	T	P	C
		3	0	0	3

(Common to B.E. / B.Tech. – CSE, IT, CIVIL & MECH)

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	L	T	P	C
	(Common to all B.E. / B.Tech Degree Programmes)	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	L	T	P	C
	(Common to all B.E. / B.Tech Degree Programmes)	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/

1701HS151	PHYSICS AND CHEMISTRY LABORATORY-I	L	T	P	C
	(Common to all B.E. / B.Tech Degree Programmes)	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 train the students to analyses the water sample
5. To make the student to acquire practical skills in the determination of water quality parameters through volumetric and instrumental analysis

PHYSICS
LIST OF EXPERIMENTS:
1. Determine the moment of inertia of the disc and calculate the rigidity modulus of a given wire using torsion pendulum (symmetrical masses method).
2. Find the elevation of the given wooden beam at the midpoint by loading at the ends and hence calculate the Young"s modulus of the material by uniform bending.
3. Determine the coefficient of viscosity of the given liquid by Poiseulle"s method.
4. From the interference fringes from the air wedge setup and calculate the thickness of the given wire.
5. By applying the principle of diffraction, determine the wavelength of given laser light and the average particle size of lycopodium powder using laser source.
6. Determine the
   (i) Wavelength of ultrasonic in a liquid medium
   (ii) Velocity of ultrasonic waves in the given liquid
   (iii) Compressibility of the given liquid using ultrasonic interferometer.

CHEMISTRY
LIST OF EXPERIMENTS:
1. Determination of total, temporary & permanent hardness of water by EDTA method
2. Determination of strength of given hydrochloric acid using pH meter
3. Estimation of iron content of the given solution using potentiometer
4. Estimation of sodium present in water using flame photometer
5. Corrosion experiment – weight loss method
6. Determination of molecular weight of a polymer by viscometry method
7. Conductometric titration of strong acid Vs strong Base

TOTAL: 45 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: Identify the pH of the solution.
CO7: Find the iron content of the water sample using potentiometer.
CO8: Explain and demonstrate the conductance of the solution.
CO9: Interpret the hardness and metal ions present in the water.

REFERENCES:
1. D.S.Mathur, Elements of Properties of matter, 5th edition, S.Chand & Company Ltd., New Delhi,2012.
2. Charles Kittel, Introduction to Solid State Physics, 8th edition, Wiley India Pvt. Ltd., New Delhi, 2012.
3. Arthur Beiser, Shobhit Mahajan and S. Rai Choudhury, Concepts of Modern Physics, 6th edition, Tata McGraw Hill Education Pvt. Ltd., New Delhi, 2010.
4. B.K. Pandey and S. Chaturvedi, Engineering Physics, 1st edition, Cengage Learning India Pvt. Ltd., New Delhi, 2012.
5. Halliday and Resnick, Fundamentals of Physics, John Wiley and Sons, Inc, 2011.

6. Ian Morison, Introduction to Astronomy and Cosmology, John Wiley and Sons, Ltd, 2013.
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1701GEX51	PROGRAMMING IN C LABORATARY	L	T	P	C
	(Common to all B.E. / B.Tech. Degree Programmes)	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:
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1701GEX52	COMMUNICATION SKILLS LAB	L	T	P	C
	(Common to all B.E. / B.Tech Degree Programmes)	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.

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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.