DEPARTMENT OF

COMPUTER SCIENCE AND ENGINEERING

COURSE STRUCTURE AND SYLLABUS

FOR

B.Tech CSE (I Sem - II Sem) (R18 Regulations)

(Effective from 2018-19 for Regular students and from 2019-20 for Later Entry students)

KANDULA SREENIVASA REDDY MEMORIAL COLLEGE OF ENGINEERING(AUTONOMOUS)

KADAPA - 516005, AP

(Approved by AICTE, Affiliated to JNTUA, Ananthapuramu, Accredited by NAAC)
(An ISO 9001-2008 Certified Institution)

COMPUTER SCIENCE AND ENGINEERING

I Semester

Subject Code	Subject Category	Course Name	L	T	P	IM	EM	CR
1821101	BSC	Mathematics – I	3	1	0	30	70	4
1822104	BSC	Engineering Physics	3	1	0	30	70	4
1802103	ESC	Basic Electrical Engineering	3	1	0	30	70	4
1803107	ESC	Engineering Graphics & Design	1	0	4	50	50	3
1822108	BSC	Engineering Physics Lab	0	0	3	50	50	1.5
1802109	ESC	Basic Electrical Engineering Lab	0	0	2	50	50	1
1803110	ESC	Workshop and Manufacturing Practices	1	0	4	50	50	3
		TOTAL	**11**	**3**	**13**	**290**	**410**	**20.5**

II Semester

Subject Code	Subject Category	Course Name	L	T	P	IM	EM	CR
1821201	BSC	Mathematics – II	3	1	0	30	70	4
1823202	BSC	Engineering Chemistry	3	1	0	30	70	4
1824203	HSMC	English	2	0	0	30	70	2
1805204	ESC	Programming for Problem Solving	3	0	0	30	70	3
1823207	BSC	Chemistry Lab	0	0	3	50	50	1.5
1805208	ESC	Programming for Problem Solving Lab	0	0	4	50	50	2
1824209	HSMC	English Lab	0	0	2	50	50	1
		TOTAL	**11**	**2**	**9**	**270**	**430**	**17.5**

R18-CSE- I Semester

Course Title	MATHEMATICS – I				B. Tech I Sem (R18) CSE		
Course Code	Category	Hours/Week		Credits	Maximum Marks		
1821101	BSC	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		3	1	--	4	30	70	100
Mid Exam Duration: 2Hrs					End Exam Duration: 3Hrs		

Course Objectives:

- The essential tool of matrices in a comprehensive manner.
- The convergence of series.
- Maxima and minima of a function and the radius of curvature
- The Jacobians and extreme values of a function.
- Evaluate the definite integrals, Beta and Gamma functions. Apply Fourier series in engineering problems.

Course Outcomes :O**n successful completion of this course, the students will be able to**

CO 1	Apply the essential tool of matrices in a comprehensive manner.
CO 2	Describe the convergence of series.
CO 3	Classify the functions of several variables which is useful in optimization techniques.
CO 4	Define Beta and gamma functions and solve definite integrals.
CO 5	Determine the Fourier series of the functions.

UNIT - I

Matrices: (14 Hours)

Basic definitions of Symmetric, skew-symmetric and orthogonal matrices – Elementary transformations – Rank – Echelon form, Normal form– System of linear equations –Eigen values and Eigen vectors for real matrices – Cayley-Hamilton theorem – Diagonalization of matrix by orthogonal transformation.

UNIT - II

Sequences and series: (8 Hours)

Convergence of sequences and series – Comparison test – p test – D'Alemberts ratio test – auchy's root test. Power series – Series for exponential, trigonometric and logarithm functions.

UNIT - III

Differential Calculus: (10 Hours)

Taylor's and Maclaurin's series – Maxima and minima of single variable – Curvature: Curvature of a curve – Curvature of a circle – Radius of a curvature – Centre of Curvature – Equation to the circle of curvature.

UNIT - IV

Multivariable Calculus: (10 Hours)

Functions of two or more variables – Partial derivatives, Total derivative – Jacobians – Maxima and minima of functions of two variables – Lagrange's method of undetermined multipliers.

UNIT - V

Integral Calculus: (12 Hours)

Evaluation of definite integrals – Beta and Gamma functions and their properties. Fourier series: Half range Fourier sine and cosine expansions – Parseval's theorem.

Text Books:

1. Higher Engineering Mathematics, Dr. B.S. Grewal, Khanna Publishers-43 edition 2014.
2. Advanced Engineering Mathematics, Erwin Kreyszig, Wiley Publications, 9th edition- 2013.
3. Calculus and Analytic geometry, G.B. Thomas and R.L. Finney, Pearson, 9th Edition, Reprint, 2002.
4. Introductory Linear Algebra with applications, Kolman, Bernard Hill, David R

Reference Books:

1. Higher Engineering Mathematics, B.V. Ramana, Mc. Graw Hill Education (India) Pvt. Ltd, New Delhi, 11th Edition, Reprint 2010.
2. Linear Algebra: A Modern Introduction, D Poole, 2nd Edition, Brooks/Cole, 2005.
3. A Text Book of Engineering Mathematics, N.P. Bali and Manish Goyal, Lakshmi Publications, Reprint 2008.
4. Advanced Engineering Mathematics, Greenberg Michael D, Cengage Publishers

Course Title	ENGINEERING PHYSICS				B. Tech I Sem (R18) CSE		
Course Code	Category	Hours/Week			Credits	Maximum Marks	
1822104	BSC	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		3	1	0	4	30	70	100
Mid Exam Duration: 2Hrs					End Exam Duration: 3Hrs		

Course Objectives:

- Analyze and understand the concepts of waves and optics to prepare the students for advancedlevel courses.
- Expose students to theoretical and mathematical aspects of Interference, Diffraction techniquesand Lasers for testing of materials.
- Develop knowledge and understanding the fundamental concepts of electronic materials.
- Develop knowledge and understanding the fundamental concepts of semiconductors andnano materials.
- Adaptability to new developments in science and technology.

Course Outcomes :**On successful completion of this course, the students will be able to**

CO 1	Apply the knowledge of Sciences to solve engineering problems by using Interference and Diffraction techniques
CO 2	Identify and formulate the working elements of different lasers and estimate laser operation parameters.
CO 3	Understand the idea of Electronic materials & its applications in Engineering.
CO 4	Recognize and Explain the role of semiconductors in different realms of physics and their applications in both science and technology.
CO 5	Identify, formulate and solve Problems.

UNIT - I

Light & Optics

Huygens' Principle, superposition of waves, Young's double slit experiment, expression for fringe width, Interference in thin film by reflection, Newton's rings experiment, Diffraction, Fraunhofer diffraction due to single slit, and Diffraction grating (N-slit).

UNIT - II

Lasers

Introduction to lasers, characteristics of laser, interaction of radiation with matter-spontaneous and stimulated emission, Einstein's coefficients; population inversion, excitation mechanisms, types of lasers: Solid-state lasers – Nd-YAG laser, Gas lasers - He-Ne Laser, Semiconductor p-n junction diode laser, Applications of lasers.

UNIT - III

Electronic materials

Free electron theory, Origin of energy bands, Kronig-Penny model (to introduce origin of band gap), E-k diagram, Energy bands in solids, Direct and indirect band gaps, Types of electronic materials: metals, semiconductors, and insulators, Density of states, Fermi level, Effective mass, Phonons.

UNIT - IV

Semiconductors

Intrinsic and extrinsic semiconductors, Dependence of Fermi level on carrier-concentration and temperature (equilibrium carrier statistics), Carrier generation and recombination, Carrier transport: diffusion and drift, p-n junction, Metal-semiconductor junction (Ohmic and Schottky), Semiconductor materials of interest for optoelectronic devices.

UNIT – V

Engineered Nanomaterials

Introduction, significance of Nano scale and types of nanomaterials, Properties of nanomaterials: physical , optical, thermal, mechanical and magnetic properties. Synthesis of nanomaterials: Ball-milling, Chemical Vapour Deposition and Sol-Gel methods. Applications of nanomaterials.

Text Books:

1. Engineering Physics by **K. Thygarajan**, Mac Graw – Hill Publishing Co. New Delhi.
2. Optics- AjoyGhatak, McGraw Hill Publishers,6th edition,
3. Fundamental of Physics- Halliday, Resnick and Walker, Wiley publications.
4. Solid State Physics, Hall H E, paramount Publications.

Reference Books:

1. Engineering Physics – Dr. M.N. Avadhanulu & Dr. P.G. Krishnasagar,S. Chand and Company.
2. S. M. Sze, Semiconductor Devices: Physics and Technology, Wiley (2008).
3. Lasers & Non-linear Optics Nelkon M parker P, Arnold Heinemann Publications.
4. Semiconductor physics and devices- Basic principle – Donald A, Neamen, McGraw Hill.

Course Title	BASIC ELECTRICAL ENGINEERING				B. Tech I Sem (R18) CSE		
Course Code	Category	Hours/Week		Credits	Maximum Marks		
1802103	ESC	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		3	1	--	4	30	70	100
Mid Exam Duration: 2Hrs					End Exam Duration: 3Hrs		

Course Objectives:

- The objective of the course is to learn the concepts of circuit analysis which includes DC excitations and AC excitations, different types of DC generators, motors which are widely used in industry, Construction and working principle of 1-F Transformers & 3-F Induction Motors, Components of low tension switchgear.

Course Outcomes: On successful completion of this course, the students will be able to

CO 1	Understand basic electric circuits and network solving techniques
CO 2	Analyze RL, RC and RLC circuits for AC excitations
CO 3	Understand working principle, operation and construction of DC machines, 3-Ø induction motors and 1-Ø transformers
CO 4	Understand the components of low voltage electrical installations
CO 5	Solve the problems on EMF,Current ,Torque ,Regulation and Efficiency of DC machines ,3-Ø induction motor and 1-Ø transformer

UNIT - I

DC Circuits: Electrical circuit elements (R, L and C), voltage and current sources – source transformation, Series & Parallel networks - Star-Delta transformation, Kirchoff's current and voltage laws, Mesh and Nodal analysis of simple circuits with DC -Problems.

UNIT – II

AC Circuits: Representation of sinusoidal waveforms, average, peak and rms values, Form factor Peak factor for sinusoidal waveform - problems, phasor-phasor representation, impedance, admittance, reactance, susceptance, real power, reactive power, apparent power, power factor. Analysis of 1Φ ac circuits for series & parallel combinations - simple problems.

UNIT – III

DC machines: DC Generators: Construction– working principle – EMF equation – types of DC generators- applications - simple problems.

Working Principle of DC motor, types, Torque Equation, Concept of Back EMF- applications - simple Problems.

UNIT – IV

Transformers & Induction Machines: Single phase transformer - principle of operation, constructional details, emf equation, losses in transformer, regulation and efficiency, equivalent circuit - simple problems.

Three phase Induction Motor: Construction and working principle, slip, rotor frequency, rotor current, and rotor power factor –simple Problems.

UNIT – V

Electrical Installations: Components of LT switchgear: Switch Fuse Unit (SFU), Miniature Circuit Breaker (MCB), Wires and Cables, Earthing. Batteries, Introduction to power converters

Text Books:

1. E. Hughes, "Electrical and Electronics Technology", Pearson, 2010.
2. D. C. Kulshreshtha, "Basic Electrical Engineering", McGraw Hill, 2009.
3. L. S. Bobrow, "Fundamentals of Electrical Engineering", Oxford University Press, 2011.
4. D. P. Kothari and I. J. Nagrath, "Basic Electrical Engineering", Tata McGraw Hill, 2010.

Reference Books:

1. V. D. Toro, "Electrical Engineering Fundamentals", Prentice Hall India, 1989.
2. A. Chakrabarti "Circuit Theory", Dhanapath Roy & Co.
3. Electrical Circuits – N. Sreenivasulu – Reem Publications.

Course Title	ENGINEERING GRAPHICS & DESIGN				B. Tech I Sem (R18) CSE		
Course Code	Category	Hours/Week			Credits	Maximum Marks	
1803107	ESC	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		1	0	4	3	50	50	100
					End Exam Duration: 3Hrs		

Course Objectives:

- To Increase ability to communicate with people
- To Learn to sketch and take field dimensions.
- To Learn to take data and transform it into graphic drawings.
- To Learn basic Auto Cad skills.
- To Learn basic engineering drawing formats
- To Prepare the student for future Engineering positions

Course Outcomes :**on successful completion of this course, the students will be able to**

CO 1	Use CAD drafting and editing tools along with page templates ,title block & print settings
CO 2	Describe the geometric details of Engineering objects & Become familiar with Auto Cad 2D,3D drawings.
CO 3	Understand Engineering drawing basic theory of projections related to points lines, planes and solids in different orientations and drafting them in cad software
CO 4	Analyze various sectional views related to Engineering Drawings and Create isometric drawings with 3d tools along with basic theory& procedures in engineering drawing

UNIT- I

Overview of CAD:

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), Status Bar, Different methods of zoom as used in CAD, Select and erase objects, copy, move, scaling objects, mirror, rotate, offset, polar array, rectangular Array.

UNIT - II

Customization & 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; Orthographic, constraints, Snap to objects manually and automatically; Producing drawings by using various coordinate input entry methods , Applying various ways of drawing circles; Annotations, layering & other functions, Diagrams for practice covering drafting and editing commands.

UNIT - III

Introduction to Engineering drawing

Principles of Engineering Graphics and their significance, Conic sections including the Rectangular Hyperbola (General method only); Cycloid, Epi cycloid, Hypocycloid and In volute.

UNIT - IV

Projection of Points, lines, Planes & solids:

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

Projections of Regular Solids

Projections of solids inclined to both planes.

Floor plans that include: windows, doors, and fixtures such as WC, bath, sink, shower, etc.

UNIT - V

Sections and Sectional Views of Right Angular solids

Sections of Prism, Cylinder, Pyramid and Cone and representation of hatching for various sectional views in cad Development of surfaces of Right Regular Prism, Pyramid, Cylinder and Cone.

Isometric & ortho Graphic Projections

Principles of Isometric projection – Isometric Scale, Isometric Views, Orthographic projection and isometric projection techniques with 3d commands, Boolean operations(Union, Region, subtract etc…,)Representation of orthographic projections with viewports, Ucs orientation for representing dimensions for isometric diagrams, scaling.

Text Books:

1. Bhatt N.D., Panchal V.M. & Ingle P.R., (2014), Engineering Drawing, Charotar Publishing House.
2. Agrawal B. & Agrawal C. M. (2012), Engineering Graphics, TMH Publication.
3. Engineering Drawing with an Introduction to to CAD by DhananjayJolhe ,Mc Graw hill.
4. Engineering Drawing + AutoCAD Paperback by K. Venugopal,New age publishers,3rd Edition ,2011.

Reference Books:

1. Shah, M.B. &Rana B.C. (2008), Engineering Drawing and Computer Graphics, Pearson Education.
2. Narayana, K.L. & P Kannaiah (2012), 5th Edition, Text book on Engineering Drawing, Scitech Publishers.
3. Corresponding set of CAD Software Theory and User Manuals.

Course Title	ENGINEERING PHYSICS LAB				B. Tech I Sem (R18) CSE			
Course Code	Category	Hours/Week			Credits	Maximum Marks		
1822108	BSC	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		0	0	3	1.5	50	50	100
					End Exam Duration: 3Hrs			

Course Objectives:

- To explore the application of interference and diffraction by doing concerned experiments.
- Elucidate the concepts of Physics through involvement in the experiment by applying theoretical knowledge.
- Develop an ability to apply the knowledge of physics experiments in the later studies.
- To understand the concept of energy gap, B-H curve, and synthesis of nano material by performing the experiments**.**

Course Outcomes: On successful completion of this course, the students will be able to

CO 1	Evaluate of the application of interference, diffraction phenomena along with laser
CO 2	Support the scientific process in the conduct and reporting of experimental investigations.
CO 3	Formulate the measurement technology, usage of new instruments and real time applications in engineering studies
CO 4	Justify the theoretical ideas and concepts covered in lecture by doing hands on in the experiments.
CO 5	Develop the characteristics of various materials in a practical manner and gain knowledge about various optical technique methods
CO 6	Compose experimental data to examine the physical laws.

LIST OF EXPERIMENTS

Any 7 of the following experiments has to be performed in a semester:

1. Determination of wavelengths of spectral lines of mercury spectrum using diffraction grating in normal incidence method.
2. Determination of dispersive power of the prism.
3. Rigidity Modulus- Torsonal Pendulum.
4. Study of resonance effect in series and parallel LCR circuit.
5. Determination of thickness of thin object by wedge method.
6. Determination of radius of curvature of lens by Newton’s Rings.
7. Laser: Determination of wavelength using diffraction grating.
8. Energy gap of a semiconductor using p-n junction diode.
9. Hysteresis: B-H curve.

10. Magnetic field along the axis of a current carrying coil – Stewart and Gee's method.
11. Frequency of the tuning fork - Melde's apparatus.
12. Spring constant - Coupled Pendulums.

Text books:

1. S. Balasubramanian, M.N. Srinivasan "A Text book of Practical Physics"- S Chand Publishers,
2. Physics Laboratory Manual by Loyd D H, Cengage learning, 4Th International Edition 2014.
3. Et.Al. Engineering Physics Lab Manual by Madhusudhana Rao, SCITECH PUBLICATIONS (INDIA) PVT.LTD, 2015.
4. Practical Physics by K.Venugopalan (Author), VimalSaraswat (Author), Himanshu Publications.

Reference Books:

1. Physics Laboratory Experiments, by Jerry Wilson (Author), Cecilia A. Hernandez Hall (Author),Brooks/cole; 7th edition (11 June 2009).
2. Lab manual Physics, R Rangarajan, R P Manchanda, R K Gupta, Rajesh Kumar NeenaSinha-NewSaraswati House.
3. Practical Physics by Kumar P. R. Sasi, Prentice-Hall of India Pvt.Ltd.

Web link:

1. http://vlab.amrita.edu/index.php - Virtual Labs, Amrita University.

Course Title	BASIC ELECTRICAL ENGINEERING LAB				B. Tech I Sem (R18) CSE			
Course Code	**Category**	**Hours/Week**			**Credits**	**Maximum Marks**		
1802109	**ESC**	**L**	**T**	**P**	**C**	**Continuous Internal Assessment**	**End Exams**	**Total**
		--	**--**	**2**	**1**	**50**	**50**	**100**
						End Exam Duration: 3Hrs		

Course Objectives:

To enable the students to apply the knowledge of mathematics in various engineering fields bymaking them to learn the following:

- The objective of the course is to to verify theoretically and practically Kirchhoff's laws, determination of R, L, and C Parameters, measure the power for RL, RC circuits, speed-torque characteristics of DC shunt motor, speed control of 3-F IM, performance of transformer.

Course Outcomes: On successful completion of this course, the students will be able to

CO 1	Understand the Kirchhoff's laws by theoretically and practically.
CO 2	Determine the active and reactive power for RL, RC and RLC circuits.
CO 3	Determine equivalent circuit parameters on no-load and its performance on load of a 1- Ø transformer.
CO 4	Analyze the characteristics of DC shunt motor and 3-Ø Induction motor
CO 5	Identify various parts of DC and AC machines, fuse, MCB & Batteries.

LIST OF EXPERIMENTS

1. Determination of values of R, L and C parameters of a given R-L-C series circuit.
2. Verification of KCL and KVL.
3. Determination of Active, reactive and apparent power for R-L circuit (series & parallel).
4. Determination of Active, reactive and apparent power for R-C circuit (series & parallel).
5. Load test on 1-phase transformer.
6. OC & SC tests on 1-phase transformer to obtain equivalent circuit.
7. Torque-speed characteristics of DC shunt motor.
8. Speed Control of three –phase induction motors using pole changing method
9. Demonstration of cut out sections of DC & AC machines
10. Study of fuse, MCB, Batteries.

Text Books:

1. E. Hughes, "Electrical and Electronics Technology", Pearson, 2010.
2. D. C. Kulshreshtha, "Basic Electrical Engineering", McGraw Hill, 2009.
3. L. S. Bobrow, "Fundamentals of Electrical Engineering", Oxford University Press, 2011.
4. D. P. Kothari and I. J. Nagrath, "Basic Electrical Engineering", Tata McGraw Hill, 2010.

Reference Books:

1. V. D. Toro, "Electrical Engineering Fundamentals", Prentice Hall India, 1989.
2. Chakrabarti "Circuit Theory", Dhanapath Roy & Co.
3. Electrical Circuits – N. Sreenivasulu – Reem Publications.

Internal Assessment: Record - 10M, Observation - 15M, Day to Day Assessment - 15M, Viva - 10M, Total Internal Marks - 50M
End Exam: If the question is based on conventional mode: circuit diagram - 10M,connections - 10M, procedure - 10M, result - 10M, viva-10M, total external marks - 50M

Course Title	WORKSHOP AND MANUFACTURING PRACTICES				B. Tech I Sem (R18) CSE			
Course Code	**Category**	**Hours/Week**			**Credits**	**Maximum Marks**		
1803110	**ESC**	**L**	**T**	**P**	**C**	**Continuous Internal Assessment**	**End Exams**	**Total**
		1	**0**	**4**	**3**	**50**	**50**	**100**
						End Exam Duration: 3Hrs		

Course Objectives:

- To understand the basic knowledge of Workshop Practice and Safety.
- To identify and use of different hand tools and other instruments like Hack Saw, Jack Plane, Chisels etc. and operations like Marking, Cutting etc.
- To expose students to different types of manufacturing/fabrication processes
- To develop a skill in dignity of labour, precision, safety at work place, team working and development of right attitude.

Course Outcomes: On successful completion of this course, the students will be able to

CO 1	Identify different manufacturing processes which are commonly employed in the industry
CO 2	Analyze the practical knowledge about fabricate components using different materials with their own hands
CO 3	Understand the knowledge of the dimensional accuracies and tolerances applicable for different manufacturing processes
CO 4	Experiment various basic House Wiring techniques such as connecting one lamp with one switch, connecting two lamps with one switch, connecting a fluorescent tube, Series wiring

Workshop and manufacturing practices:

LIST OF EXPERIMENTS IN THE SYLLABUS

LIST OF EXPERIMENTS IN THE SYLLABUS

1. MACHINE SHOP:
1. STEP TURNING OPERATION
2. TAPER TURNING OPERATION

2. FITTING SECTION:
1. SQUARE FITTING
2. STEEPED FITTING

3. CARPENTRY SECTION:
1. TEE HALVING JOINT
2. DOVETAIL TEE HALVING JOINT

4. HOUSE WIRING SECTION:

1. TO CONTROL TWO LAMPS BY ONE SINGLE WAY SWITCH (IN SERIES)
2. TO CONTROL TWO LAMPS BY ONE SINGLE WAY SWITCH(PARALLEL)

5. WELDING SECTION:
1. SINGLE V BUTT JOINT
2. LAP JOINT

6. FOUNDRY SECTION:	1. SINGLE PIECE SQUARE PATTERN 2. SINGLE PIECE ROUND PATTERN
7. SHEET METAL SECTION	1. SQUARE TRY 2. CYLINDER

Text Books:

1. Hajra Choudhury S.K., Hajra Choudhury A.K. and Nirjhar Roy S.K., ―Elements of Workshop Technology‖, Vol. I 2008 and Vol. II 2010, Media promoters and publishers private limited, Mumbai.

2. Roy A. Lindberg, ―Processes and Materials of Manufacture‖, 4th edition, Prentice Hall India, 1998.

3. Rao P.N., ―Manufacturing Technology‖, Vol. I and Vol. II, Tata McGrawHill House, 2017.

Reference Books:

1. (Kalpakjian S. And Steven S. Schmid, ―Manufacturing Engineering and Technology‖,4th edition, Pearson Education India Edition, 2002.

2. Gowri P. Hariharan and A. Suresh Babu,‖Manufacturing Technology – I‖ Pearson Education, 2008.

R18-CSE- II Semester

Course Title	MATHEMATICS – II				B. Tech II Sem (R18) CSE			
Course Code	Category	Hours/Week			Credits	Maximum Marks		
1821201	BSC	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		3	1	--	4	30	70	100
Mid Exam Duration: 2Hrs					End Exam Duration: 3Hrs			

Course Objectives:

To enable the students to apply the knowledge of mathematics in various engineering fields by making them to learn the following:

- First order differential equations.
- Linear differential equations with constant coefficients.
- Laplace transforms in engineering problems.
- Evaluate multiple integrals.
- Understand Vector Calculus concepts and their applications.

Course Outcomes: On successful completion of this course, the students will be able to

CO 1	Solve the first order linear differential equations (L3)
CO 2	Solve the higher order linear differential equations with constant coefficients.(L3)
CO 3	Apply Laplace Transforms in engineering problems.(L3)
CO 4	Evaluate multiple integrals.(L5)
CO 5	Understand Vector Calculus concepts and analyze their applications in engineering problems. (L4)

UNIT - I

First order ordinary differential equations: (**10 Hours)**

Linear, Bernoulli equations, Exact and equations reducible to Exact. Applications: Orthogonal trajectories, Newton's law of cooling, Law of natural growth and decay.

UNIT - II

Ordinary differential equations of higher order: (10 Hours)

Linear differential equations of second and higher order with constant coefficients – R.H.S term of the type e^{ax}, sinax, cosax, polynomials in x, e^{ax} V(x), xV(x) – Method of variation of parameters.

UNIT - III

Laplace transforms: **(12 Hours)**

Laplace transforms of standard functions – Properties of Laplace Transforms – Transforms of derivatives and integrals – Evaluation of integrals by Laplace transforms – Laplace transform of periodic functions. Convolution theorem. Inverse Laplace Transforms – Applications of Laplace transforms to ordinary differential equations.

UNIT - IV

Multiple Integrals: **(10 Hours)**

Evaluation of double integrals in Cartesian coordinates and polar coordinates – Change of variables in double integrals – Change the order of integration in double integrals – Evaluation of triple integrals in Cartesian and polar coordinates – Change of variables in triple integrals.

UNIT - V

Calculus: (12 Hours)

Vector differentiation: Scalar point function - Vector point function – Vector operator Del – Gradient – Divergence – Curl. Vector integration: Line, Surface and Volume integrals. Green's theorem in a plane, Stoke's theorem and Gauss-divergence theorems (Statements only). Applications of Green's, Stoke's and Gauss divergence theorems.

Text Books:

1. Higher Engineering Mathematics, Dr. B.S. Grewal, Khanna Publishers-43 edition 2014.
2. Advanced Engineering Mathematics, Erwin Kreyszig, Wiley Publications, 9th edition-2013
3. Calculus and Analytic geometry, G.B. Thomas and R.L. Finney, Pearson, 9th Edition, Reprint, 2002.
4. Advanced Calculus, Widder V David, Pearson Publishers

Reference Books:

1. Higher Engineering Mathematics, B.V. Ramana, Mc. Graw Hill Education (India) Pvt. Ltd, New Delhi, 11th Edition, Reprint 2010.
2. A Text Book of Engineering Mathematics, N.P. Bali and Manish Goyal, Lakshmi Publications, Reprint 2008.
3. Advanced Engineering Mathematics, Greenberg Michael D, Cengage Publishers.
4. Advanced Engineering Mathematics, Neil Opeter V

Course Title	ENGINEERING CHEMISTRY				B. Tech II Sem (R18) CSE			
Course Code	Category	Hours/Week			Credits	Maximum Marks		
1823202	BSC	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		3	1	--	4	30	70	100
Mid Exam Duration: 2Hrs					End Exam Duration: 3Hrs			

Course Objectives:

- Knowledge in Chemistry serves as basic nutrient for the understanding and thereby design of materials of importance in life. Thus the advancement in Engineering depend on the outcome of basic sciences.
- The Engineering Chemistry course for undergraduate students is framed to strengthen the fundamentals of chemistry and then build an interface of theoretical concepts with their industrial! Engineering applications.
- The course main aim is to impart in-depth knowledge of the subject and highlight the role of chemistry principles (or) applications in the field of engineering.
- After the completion of the course, the student would understand about the concepts of chemistry

Course Outcomes: On successful completion of this course, the students will be able to

CO 1	Analyze microscopic chemistry in terms of atomic and molecular orbitals and properties of complexes.
CO 2	Rationalize periodic properties such as ionization potential, electro negativity and oxidation states.
CO 3	Illustrate the concept of various intramolecular interactions, Properties of metals, water, thermodynamic considerations& application of Nernst equation.
CO 4	Distinguish the ranges of the electromagnetic spectrum used for exciting different molecular energy levels in various spectroscopic techniques.
C O 5	Remember the major chemical reactions that are used in the synthesis and stereochemistry of molecules.

UNIT-I: Atomic and molecular structure

Schrodinger wave equation. Particle in a box (one dimensional) and their applications .Molecular orbital's of diatomic molecules and plots of the multicenter orbital's. Equations for atomic and molecular orbital's.Crystal field theory and the energy level diagrams for transition metal ions and their magnetic properties.Band structure of solids and the role of doping on band structures.

Learning Outcomes: At the end of this unit, the student will be able to

*****apply Schrodinger wave equation to particle in a box.

*****illustrate the molecular orbital energy diagrams of diatomic molecules.

*****get knowledge on properties of conductors, semiconductors and insulators and role of doping.

*****discuss the magnetic behavior of transition metal complexes.

UNIT-II: Periodic properties

Effective nuclear charge, penetration of orbital's, variations of s, p, d and f orbital energies of atoms in the periodic table, electronic configurations, atomic and ionic sizes, ionization energies, electron affinity and electro negativity, polarizability, oxidation states, coordination numbers and geometries, hard, soft acids and bases.

Learning Outcomes: At the end of this unit, the student will be able to

*Describe the arrangement of the elements in the periodic table.

*Explains the discovery of electron ,proton and neutron and their characteristics.

*Explains the rules of electron filling in atoms and writes the electronic configuration.

* Explains the energies of s ,p, d, f orbitals & identifies the periodic properties and can explain how they vary in group and period.

*Illustrate the geometries of complex structures and explains the acid- base nature

UNIT- III :Intermolecular forces

Ionic, dipolar and van Der Waals interactions. Equations of state of real gases and critical phenomena.

Use of free energy in chemical equilibria

Thermodynamic functions: Introduction, define energy, entropy, Free energy. Free energy and emf. Cell potentials, Nernst equation and applications. Water chemistry-types of water and Boiler troubles. Corrosion-types of corrosion and factors influencing corrosion.

Learning Outcomes: At the end of this unit, the student will be able to

***Explains the formation of ionic bond and dipolar interactions.**

*Explains the behavior of real gases and describe the conditions required for liquification and gases and critical phenomenon.

*Illustrate the definitions of energy and entropy and apply Nernst equation for calculating cell potentials.

*List the differences between temporary and permanent hardness and illustrate problems associated with use of hard water in boilers

*Demonstrate corrosion types and factors influencing corrosion.

UNIT - IV: Spectroscopic techniques and applications

Principles of spectroscopy and selection rules. Electronic spectroscopy. Fluorescence and its applications in medicine. Vibrational and rotational spectroscopy of diatomic molecules.

Learning Outcomes: At the end of this unit, the student will be able to

*****Explains principles of spectroscopy and explains different types of spectral series in electromagnetic spectrum.

*****Illustrate the principle of fluorescence and its application in medicine

*Derive equation for rotational and vibrational spectra and its application for diatomic molecules.

UNIT - V: Stereochemistry

Representations of 3 dimensional structures, structural isomers and stereo isomers, configurations and symmetry and chirality, enantiomers, diastereomers, optical activity, absolute configurations and conformational analysis of Cyclohexane.

Simple Organic Reactions

Introduction to reactions involving Substitution (SN^1 &SN^2), Addition Reactions involving C=C(Markonikoffreaction)&C=O(Grignardreagent), Elimination(E_1&E_2)Oxidation(Baeyervilliger reaction),Reduction(Clemmensen reduction).

Learning Outcomes: At the end of this unit, the student will be able to

*Represent the organic molecule in 3-dimensional structure.

*Explains different types of isomers with examples.

*Illustrate the mechanisms of substitution, addition and elimination reaction.

*Explains oxidation and reduction reactions.

Text Books:

1. A textbook of Engineering chemistry by Shashi Chawla, Dhanpat Rai & Co publications

2.Atkins' Physical Chemistry, Peter Atkins, Julio de Paula and James Keeler, Oxford University Press, 2010.

3. An Introduction to Electrochemistry, Glasstone, Arihant Publications.

4. Organic chemistry by Clayden and Warren, Oxford publications

Reference Books:

1. Textbook of Engineering Chemistry, Jain and Jain, Dhanpat Rai & Co publications, 2013
2. New Concise Inorganic Chemistry, 5th Edition, J. D. Lee, Oxford University Press, 2008.
3. Principles of Instrumental Analysis, 6th edition, Douglas A. Skoog, Cengage Publications.
4. Advanced Inorganic Chemistry, Cotton F Albert, Wilkinson Geoffrey, Prism Publications

Course Title	ENGLISH				B. Tech II Sem (R18) CSE		
Course Code	Category	Hours/Week		Credits	Maximum Marks		
1824203	HSMC	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		2	--	--	2	30	70	100
Mid Exam Duration: 2Hrs					End Exam Duration: 3Hrs		

Course Objectives:

- To facilitate effective listening skills for better comprehension of academic lecturesand English spoken by native speakers
- To focus on appropriate reading strategies for better understanding of various academic texts and authentic material.
- To help improve speaking skills through participation in activities such as role plays, group discussions and structured talks/oral presentations.
- To impart effective strategies for good writing so as to make the essays, paragraphs, reports … etc. effective.
- To provide knowledge of sentence structures and vocabulary and encourage their appropriate use in speaking and writing grammatically.

Course Outcomes: On successful completion of this course, the students will be able to

CO 1	**Describe** the classification of words, sentences and their usages in sentences.
CO 2	**Understand** the difference between spoken and written English.
CO 3	**Analyze** the rules in language for changing the form of sentences.
CO 4	**Illustrate** the factors that influence grammar and vocabulary in speaking and writing
CO 5	**Classify** the parts of speech, tenses and sentence structures

UNIT - I: Vocabulary Building

1.1 The concept of Word Formation

1.2 Root word from foreign languages and their use in English

1.3 Acquaintance with prefixes and suffixes from foreign languages in English to form derivatives

1.4 Synonyms, antonyms

1.5 Idioms and phrases.

UNIT - II: Basic Writing Skills

1.6 Sentence Structures

1.7 Use of phrases and clauses in sentences

1.8 Importance of proper punctuation

1.9 Creating coherence

1.10 Organizing principles of paragraphs in documents

1.11 Techniques for writing precisely

UNIT - III: Transformation

1.12 Interchange of parts of speech

1.13 Active voice and Passive voice

1.14 Direct and Indirect speech

1.15 3.4Degrees of comparison

1.16 3.5Simple, compound and complex sentences

UNIT - IV: Identifying Common Errors in Writing

4.1 Subject-Verb agreement

4.2 Noun-pronoun agreement

4.3 Misplaced modifiers

4.4 Articles

4.5 Prepositions

4.6 Redundancies

4.7 Clichés

4.8 Tenses

UNIT -V: Reading and Writing Practices

4.9 Comprehension

4.10 Précis Writing

4.11 Essay writing

Text Books:

1. Practical English Usage. Michael Swan. OUP. 1995.
2. Remedial English Grammar. F.T. Wood. Macmillan.2007.
3. On Writing Well. William Zinsser. Harper Resource Book. 2001.
4. Study Writing. Liz Hamp-Lyons and Ben Heasly. Cambridge University Press. 2006.
5. Communication Skills. Sanjay Kumar and PushpLata. Oxford University Press. 2011.
6. Exercises in Spoken English. Parts. I-III. CIEFL, Hyderabad. Oxford University Press.

Course Title	PROGRAMMING FOR PROBLEM SOLVING				B. Tech II Sem (R18) CSE		
Course Code	Category	Hours/Week			Credits	Maximum Marks	
1805204	ESC	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		3	--	--	3	30	70	100
Mid Exam Duration: 2Hrs					End Exam Duration: 3Hrs		

Course Objectives:

- Understand the concepts of algorithm and use it to solve computational problems
- Understand programming skills using the fundamentals and basics of C Language
- Acquire basic knowledge to use proper control structure to solve real world problems
- Improve problem solving skills using arrays, strings, and functions.
- Understand memory utilization and organize heterogeneous data properly.

Course Outcomes: On successful completion of this course, the students will be able to

CO 1	Understand the basics of computer system and C programming.
CO 2	Analyze a given problem and develop an algorithm to solve the problem.
CO 3	Apply proper branching and loop constructs to solve a complex problem
CO 4	Understand the concepts of arrays and strings to solve real time applications
CO 5	Apply modular approaches for solving complex problems
CO 6	Illustrate memory optimization for solving real world problems using structures and Unions

UNIT - I

Introduction to Computers: - Introduction, computer hardware and software, creating and running programs, software development life cycle, algorithms, flowcharts.

Introduction to C programming: - Overview of C, structure of a C program, variables, constants, data types, identifiers, keywords, Input/output statements in C, programming examples.

UNIT - II

Operators and Expressions:- Operators, expressions, precedence and associativity, evaluating expressions, type conversion, typedef, enumerations.

Decision making statements: if statement, if-else statement, nested if-else statement, switch statement.

Loops in C: while loop, for loop, do-while loop, nested for loops,

Jumping statements: break, continue and goto statements.

UNIT - III

Arrays: Introduction, Declaration and initialization of 1D and 2D arrays.

Array applications: -bubble (exchange) sort, selection sort, linear search, binary search.

Strings: -Definition, declaration and initialization of strings, string I/O functions, string handling functions, array of strings (table of strings).

UNIT - IV

Functions: introduction, category of functions, parameter passing methods, storageclasses, recursive function.

Pointers: Understanding pointers, declaring and initialization of pointer variable, accessing the address of variables, accessing a variable through its pointer, chain of pointers.

UNIT - V

Structures and union: Introduction, defining a structure, declaring structure variable, structure initialization, accessing members of structure, copying and comparing structure variables, structures within structures, array of structures, and introduction of union.

Text Books:

1. Brian W. Kernighan and Dennis M. Ritchie, The C Programming Language, Prentice Hall of India
2. Rema Theraja, Programming in C, second edition, Oxford
3. R.G. Dromey, How to solve it by Computer, Pearson.
4. E. Balagurusamy, Programming in ANSI C, Fifth Edition, McGraw Hill.

Reference Books:

1. Yashavant Kanetkar, Let us C, 15th edition, BPB Publications.
2. Dr. P. ChennaReddy, Computer Fundamentals and C Programming, Second Edition.
3. Greg Perry, Dean Miller, C Programming Absolute Beginners Guide, 3rd Edition, Pearson.
4. Herbert Schidlt, The Complete Reference C, 4th Edition, Mc Graw Hill Education.

Course Title	CHEMISTRY LAB				B. Tech II Sem (R18) CSE		
Course Code	Category	Hours/Week			Credits	Maximum Marks	
1823207	BSC	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		--	--	3	1.5	50	50	100
					End Exam Duration: 3Hrs		

Course Objectives:

The course consists of experiments related to the principles of chemistry required for engineering student. The student will learn:

- Estimation of hardness and chloride content of water to check its suitability for drinking and industrial purpose.
- To determine the rate constant of reactions from concentrations as a function of time. The measurement of physical properties like adsorption, surface tension and viscosity.
- To synthesize the drug molecules and check the purity of organic molecules by thin layer chromatographic (TLC) technique.
- Conduct metric and potentiometric titration.
- To determine the acid value of oils and Fats.
- Nernst distribution law for the distribution of solute between two immiscible solvents

Course Outcomes: On successful completion of this course, the students will be able to

CO 1	Find the cell constant and Conductance of solutions
CO 2	Evaluate molecular/system properties such as surface tension, viscosity, redox potentials, Colligative properties etc.
CO 3	Analyze the acid value in oil.
CO 4	Determine the quantity of water sample by estimation of hardness of water, chloride content, DO, etc.,
CO 5	Demonstrate the process of Adsorption, Partition co-efficient & Chemical oscillations.

Choice of Experiments From the Following:

1. Estimation of Hardness of Water present in given water sample by EDTA method.
2. Determination of surface tension and viscosity.
3. Determination of chloride content of water.
4. Colligative properties using freezing point depression.
5. Estimation of Dissolved Oxygen present in given water sample by Winkler's method.
6. Potentiometry - determination of Redox potentials and emfs.
7. Synthesis of a polymer/drug.

8. Saponification/acid value of an oil.

9. Determination of cell constant and conductance of solutions.

10. Chemical oscillations- Iodine clock reaction.

11. Determination of the partition coefficient of a substance between two immiscible liquids.

12. Adsorption of acetic acid by charcoal.

Textbooks:

1. Vogel's Text book of Quantitative Chemical Analysis, J. Mendham et.al., Pearson Education, Sixth Edition, 2012.

2. Laboratory manual on Engineering Chemistry, Anupama Rajput, Dhanpat Rai& Co Publications.

3. Essentials of Experimental Engineering Chemistry, Shashi Chawla, Dhanpat Rai& Co Publications.

Reference Books:

1. Practical Engineering Chemistry by K. Mukkanti, etal, B.S. Publications, Hyderabad.

2. Instrumental methods of chemical analysis, Chatwal, Anand, Himalaya Publications.

3. Essentials of Physical Chemistry, Bhal & Tuli. (S. Chand Publications).

4. Advanced Inorganic Analysis, Agarwal & Keemtilal (Pragati prakashan)

Course Title	PROGRAMMING FOR PROBLEM SOLVING LAB				B. Tech II Sem (R18) CSE		
Course Code	**Category**	**Hours/Week**			**Credits**	**Maximum Marks**	
		L	**T**	**P**	**C**	**Continuous Internal Assessment**	**End Exams**	**Total**
1805208	**ESC**	**0**	**0**	**4**	**2**	**50**	**50**	**100**
						End Exam Duration: 3Hrs		

Course Objectives:

- Develop readable and efficient C programs for computational problems
- Construct a C-program using language constructs such as Operators, Conditional and Iterative Statements to solve real complex problems
- Develop modular C programs for large problems
- Develop optimized programs to solve real world problems

Course Outcomes: On successful completion of this course, the students will be able to

CO 1	Analyze given problem and develop an algorithm
CO 2	Implement Code and debug programs in C language using various constructs
CO 3	Choose proper C language constructs to solve complex problems.
CO 4	Organize and implement heterogeneous data in efficient memory utilization

The student is expected to solve at least 12 assignments from different concepts. (Every year 12 different experiments).

DOS commands, Algorithms, Flowcharts and sample C programs

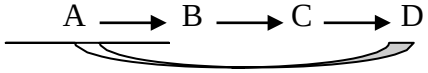
1. Practice DOS commands necessary for design of C programs.

2. Design and develop algorithms and flowcharts for simple and logical problems

3. Write a C program to convert a given integer (in days) to years, months and days, assumes that all months have 30 days and all years have 365 days.

4. Ramesh's basic salary is input through the keyboard. His dearness allowance is 40% of basic salary and house rent allowance is 20% of basic salary. Write a C program to calculate his gross salary.

5. Write a C program to implement the following exchanges.



6. Write a program to take input of name, roll no and marks obtained by a student in 5 subjects each have its 100 full marks and display the name, roll no with percentage score secured.

Problems involving if-then-else structures

7. Write a C program to find out whether a given number is even number or odd number.

8. Write a C program to check whether a given year is leap year or not.

9. Design and develop an algorithm that takes three coefficients (***a***, ***b***, and ***c***) of a Quadratic equation ($ax^2+bx+c=0$) as input and compute all possible roots. Implement a C program for the developed algorithm and execute the same to output the possible roots for a given set of coefficients with appropriate messages.

10. Write a C program that reads three floating values and check if it is possible to make a triangle with them. Also calculate area and perimeter of the triangle if the said values are valid.

11. Write a C program to read the coordinates(x, y) (in Cartesian system) and find the quadrant to which it belongs (Quadrant -I, Quadrant -II, Quadrant -III, Quadrant -IV).

12. A character is entered through keyboard. Write a C program to determine whether the character entered is a capital letter, a small case letter, a digit or a special symbol using if-else and switch case. The following table shows the range of ASCII values for various characters.

Characters	**ASCII values**
A – Z	65 – 90
a – z	97 – 122
0 – 9	48 – 57
Special symbols	0 – 47, 58 – 64, 91 – 96, 123 – 127.

13. A library charges fine for every book returned late. For first five days the fine is 50 paisa, for 6-10 days fine is one rupee and above 10 days fine is 5 rupees. If you return the book after 30 days your membership will be cancelled. Write a C program to accept the number of days that the member is late to return the book and display the fine or appropriate message.

14. Write a C program which takes two integer operands and one operator from the user, performs the operation and then prints the result. (Consider the operators +, -, *, /, % and use switch statement).

Problems involving Looping statements

15. If the sum of the cubes of each digit of a number is equal to the number itself, then the number is called Armstrong number. (for example, $153 = 1^3+5^3+3^3$). Design and develop an algorithm to find whether a given number is Armstrong number or not. Implement a C program for the developed algorithm.

16. The total distance travelled by vehicle in ‘t’ seconds is given by **distance = ut+1/2at^2** where ‘u’ and ‘a’ are the initial velocity (m/sec.) and acceleration (m/sec^2). Write C program to find the distance travelled at regular intervals of time given the values of ‘u’ and ‘a’. The program should provide the flexibility to the user to select his own time intervals and repeat the calculations for different values of ‘u’ and ‘a’.

17. Write a C program that takes two positive numbers ‘a’ and ’ b ’ where (a ≤b). For each integer n, a ≤n ≤b.
    - If 1≤n≤9,, then print the English representation of it in lowercase. That is "one" for , "two" for , and so on.
    - Else if n > 9 and it is an even number, then print "even".
    - Else if n > 9 and it is an odd number, then print "odd

    [Input: 8 11 Output: Eight Nine Even Odd]

18. If a number and its reversed number are same then the number is called as palindrome number. Design and develop an algorithm to check whether a given number is palindrome or not. Implement a C program for the same.

19. Write a C program to generate all the prime numbers between 1 and n, where n is a value supplied by the user.

20. Write a C program to evaluate the sin(x) function series

— — — —

21. **Fibonacci Sequence**

    A Fibonacci sequence is defined as follows:

    The first and second terms in the sequence are 0 and 1. Subsequent terms are found by adding the preceding two terms in the sequence. Write a program to generate the first N terms of the sequence.

Arrays

22. Write a C program to find the smallest and largest number in a given array.

23. Write a C program to find the frequency of a particular number in a list of integers.

24. Write a C program to sort the list of elements using
    a) Bubble Sort b) Selection sort.

25. Write a C program to search for an element in a list of elements using
    a) Linear search b) Binary search

26. Write a C program to find the transpose of a matrix.

27. Write a C program to read two matrices and perform the following operations
    a) Addition of two matrices
    b) Multiplication of two matrices

Additional Problems on arrays

28. **Partitioning an array**
    Given a randomly ordered array of n elements, write a C program to partition the elements into two subsets such that elements $\leq X$ are in one subset and elements $\geq X$ are in another subset.
29. **Finding the k^{th} smallest element**
    Given a randomly ordered array of n elements, write a C program to determine the k^{th} smallest element.

30. **Array order reversal**
    Write a C program to rearrange the elements in an array so that they appear in reverse order.

Strings

31. If a string and its reversed string are same then the string is called as palindrome string. Design and develop an algorithm to check whether a given string is a palindrome or not and implement a C program for the same.

32. Write a C program to sort the names of students in a class in alphabetical order.

Additional Problems on strings

33. Write a C program to read two strings and perform the following operations without using built string library functions.
    i) String length
    ii) String reversing
    iii) Comparison of two strings
    iv) Concatenation of two strings

34. Write a C program to count the number of vowels, consonants, digits, blank spaces and special characters in a given string.

Functions and Recursion

35. Write a C program to swap the contents of two variables using
    a) Call by value
    b) Call by reference.

36. Write a C program using recursion to
    a) Find the factorial of a given number
    b) Print the Fibonacci series up to a given number.
    c) Find the GCD of two integers.

Structures

37. Write a C program to define a structure with the following members.
    Roll No., Name, marks in Sub1, Sub2, Sub3. Read the n students records and find the total marks of each student and print the result in the following format.

Roll No	Name	Sub1	Sub2	Sub3	Total marks	result
189Y1A0501	Kavya	80	70	75	225	Distinction

Files

38. Write a C program to copy the contents of one file to another file.

Text Books:

1. Brian W. Kernighan and Dennis M. Ritchie, The C Programming Language, Prentice Hallof India.
2. Rema Theraja, Programming in C, second edition, Oxford
3. R.G. Dromey, How to solve it by Computer, Pearson.
4. E. Balagurusamy, Programming in ANSI C, Fifth Edition, McGraw Hill.

Reference Books:

1. Yashavant Kanetkar, Let us C, 15th edition, BPB Publications.
2. Dr. P. ChennaReddy, Computer Fundamentals and C Programming, Second Edition.
3. Greg Perry, Dean Miller, C Programming Absolute Beginners Guide, 3rd Edition, Pearson.
4. Herbert Schidlt, The Complete Reference C, 4th Edition, Mc Graw Hill Education.

Course Title	ENGLISH LAB				B. Tech II Sem (R18) CSE		
Course Code	Category	Hours/Week			Credits	Maximum Marks	
1824209	HSMC	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		--	--	2	1	50	50	100
					End Exam Duration: 3Hrs		

Course Objectives:

- To facilitate computer-assisted multi-media instruction enabling individualized and independent language learning.
- To sensitize the students to the nuances of English speech sounds, word accent, intonation and rhythm.
- To bring about a consistent accent and intelligibility in students' pronunciation of English by providing an opportunity for practice in speaking.
- To improve the fluency of students in spoken English and neutralize their mother tongue.
- To train students to use language appropriately for public speaking, group discussions and influence interviews.

Course Outcomes: On successful completion of this course, the students will be able to

CO 1	Describe objects, places and persons.
CO 2	Understand the listening process and answer the questions related to it.
CO 3	Analyse phonetics with examples
CO 4	Illustrate different modes of communication skills
CO 5	Classify LSRW skills

Syllabus:

- Oral Communication (This unit involve interactive practice sessions in Language Lab)
- Listening Comprehension ------Language Lab
- Pronunciation, Intonation, Stress and Rhythm ------Language Lab
- Everyday Situations: Conversations and Dialogues -------Communication Lab
- Communication at workplace -------Communication Lab
- Interviews -------Communication Lab
- Formal Presentations -------Communication Lab

Text Books:

1) Cambridge Advanced Learners' English Dictionary with CD.

2) Grammar Made Easy by Darling Kindersley.

3) Punctuation Made Easy by Darling Kindersley.

4) Oxford Advanced Learner's Compass, 8th Edition.

5) English in Mind (Series 1-4), Herbert Puchta and Jeff Stranks with MeredithLevy, Cambridge.

6) English Pronunciation in Use (Elementary, Intermediate, Advanced) Cambridge University Press.

7) TOEFL and GRE (KAPLAN, AARCO and BARRONS, USA, Cracking GRE by CLIFFS).